

STUDIES ON THE FAUNA OF CURAÇAO AND OTHER
CARIBBEAN ISLANDS: No. 187

CARIBBEAN LAND MOLLUSCS: CERION IN THE
CAYMAN ISLANDS

by

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SUMMARY

This paper presents a survey of the present situation of *Cerion* in the Cayman Islands, with reference to the problems revealed by CH. J. MAYNARD's "Monograph of the genus *Strophia*", 1889. This may be of interest to taxonomists who would like to investigate in a "modern way" a species complex in which any "biological species concept" appears to fail.

The study is based on material collected in Grand Cayman, Little Cayman and Cayman Brac, from May 16 until June 12, 1973.

CLENCH (1964) considers the names of all 14 species described by MAYNARD from Little Cayman and Cayman Brac to be synonyms of *Cerion pannosum* (Maynard), with the exception of *Strophia nana* which he accepts as *Cerion nanus* (Maynard). While agreeing with CLENCH as regards the status of *Strophia nana*, the author hesitates to lump together all MAYNARD'S other species but considers that at least two variable and intergrading groups of *Cerion* (= *Strophia*) should be distinguished: *C. pannosum*, common to western Little Cayman, and *C. copium*, common in eastern Little Cayman and in Cayman Brac.

An impression of the taxonomic complexity of *Cerion* on the Cayman Islands may be gained by consulting the section in which all 95 localities (Grand Cayman 35, Little Cayman 21 and Cayman Brac 39) are briefly described, with reference to numerous measurements (Tables 2-4), maps and graphs (Figs. 8-22), and photographs of localities (Pls. I-VIII) and specimens (Pls. X-XVIII).

The cerions of Grand Cayman – which island was not visited by MAYNARD – have generally been considered to belong to one and the same species, *Cerion martinianum* (Küster). Living populations were observed at a few places only. No distinct geographical speciation was found.

In the western part of Little Cayman flourishing coarsely striated large *Cerion pannosum* was found, commonly mixed with smooth or almost smooth specimens. Along the northern coast *C. pannosum* merges into *C. copium*, common in the eastern part of the island, while a distinct boundary between both species was observed on the southwest coast, east of Blossom Village. Several old shells outside the area of living *C. pannosum* suggest the species having had a more extended range in former days. *Cerion nanus* (Maynard) – which was not collected by the author – may be expected to be still living in the central part of the West End.

The author had no difficulty following PILSBRY (1949) in accepting *Cerion copium* as the only recent species of Cayman Brac, except when dealing with some closely ribbed and uniformly brown specimens from The Bluff along the northern shore, which were indicated as *bluff-type*. Similar specimens were observed by PILSBRY when studying the material collected by C. BERNARD LEWIS in 1940. Small-sized copiums were especially common near the southwest coast at Knob Hill, while at several places medium-sized animals with coarse and distant ribs occurred. A few old shells resembling *C. pannosum* contributed to the heterogeneity of Cayman Brac's malacofauna. A rather strange element was revealed by the discovery of some small, minutely striated subrecent shells near the northcoast, which are described as a new species, *Cerion caymanicolum*, awaiting a further analysis of the Cayman Islands' *Cerion* fauna.

The paper concludes by giving a Synopsis of *Cerion* in the Cayman Islands, followed by some notes on *C. martinianum*, *C. nanus*, *C. pannosum*, *C. copium* and *C. caymanicolum*. From this (Table 5) it may be obvious that

- the author has no doubt that *C. nanus* is markedly different from all other Cayman Islands cerions;
- the rationale (beyond geography) for distinguishing the Grand Cayman forms as a separate species is less convincing, as several small specimens of *C. martinianum* don't look very different from some dwarfed forms from the other islands;
- the species *C. pannosum* and *C. copium* are separated not for practical reasons only, but also because of field evidence;

– the specimens of *C. caymanicum* are considered to belong to a new species because of their deviating characteristics and peculiar occurrence, though some likeness with dwarfed *C. martinianum* and *C. copium* cannot be denied.

INTRODUCTION

When visiting the Cayman Islands in the summer of 1973, the author wished to compare its land-mollusc fauna with that of Curaçao, Aruba and Bonaire, studied by him many years before. Knowing the problems revealed by MAYNARD's "Monograph of the genus *Strophia*" (1889), by which these isolated islands looked like being a centre of creation of new species, he decided to pay special attention to the variability and distribution of *Cerion* (= *Strophia*) which appeared to be so different from that in the Netherlands Antilles, where – remarkably enough – *Cerion uva* resisted all efforts to discern distinct island populations (WAGENAAR HUMMELINCK 1940 and DE VRIES 1974, versus BAKER 1924 and GOULD 1969).

As my stay on Grand Cayman (16–27.V. and 8–12.VI), Little Cayman (4–7.VI) and Cayman Brac (28.V–3.VI) was of short duration, only a superficial impression of the present situation could be gained – which, however, still may be of interest to biologists who would like to investigate in a "modern way" the confusing *Cerion* diversity in the Cayman Islands, e.g. by combining detailed fieldwork with techniques of multivariate morphometrics and biochemical genetics, as applied by STEPHEN JAY GOULD and co-workers in their studies on the "Natural history of *Cerion*" (1969–1978).

This work is based on the measurements made by Miss L. A. TEENSTRA (Tables 2–4; Figs. 10–12, 14–17 and 19–22) who first studied the material as part of her student's practical course in taxonomy at the Utrecht University, and with whom I discussed many unsolved problems.

Thanks to the kindness of Dr. M. E. C. GIGLIOLI, director, and Mrs. GIGLIOLI, I enjoyed the laboratory facilities of the Mosquito Research & Control Unit, Grand Cayman. MIKE NATHAN, representative of the M.R.C.U. received me at Cayman Brac, and FLOYD BANKS was of much help during my stay on Little Cayman.

The photographs reproduced on Plates X–XVIII were made with the expert aid of Mr. FRITS KINDT from the Zoological Laboratory at Utrecht. The Museum of Comparative Zoology of Harvard University, Cambridge, Mass., presented me with four paratypes of

Strophia nana Maynard, allowed me to reproduce plate 63 of CLENCH's 1964 paper, and provided me with a copy of MAYNARD's *Monograph*. To FRED G. THOMPSON of The Florida State Museum at Gainesville I am indebted for a loan of several cerions from cave deposits in Grand Cayman. Prof. dr. J. H. STOCK of the University of Amsterdam sent me some specimens collected on Cayman Brac during one of his "Amsterdam Expeditions to the West Indian Islands".

The manuscript benefitted from the suggestions of prof. dr. IVAN M. GOODBODY, U.W.I.,Jamaica, and from a few remarks of prof. dr. STEPHEN JAY GOULD, M.C.Z., Harvard University, who commented: "It is true that we work in very different ways; but we have a similar goal – the development of a reduced nomenclature that will adequately reflect the biology of these enigmatic animals."

The Cayman Islands of today are by no means the set of poorly known, isolated limestone flats which I thought they were when I decided to try a malacological "snapshot" during four rainless weeks in the summer of 1973. Grand Cayman had already paid the debt of its fast economic development in recent years, which forced the Government to establish a "Mosquito Research & Control Unit" to tackle in a scientific and efficient way the problems caused by the presence of vast mangrove swamps. Little Cayman, with its few dozens, and Cayman Brac with its few hundreds of residents, did not share in the profits of the moneyed tourist trade. Both islands, however, enjoyed a period of comparative prosperity when, in MAYNARD's time – before the bud-rot made its destructive appearance – many coconut groves brightened their shores.

Scientific interest was shown in later years by several scientists whose papers may be consulted for some geological and ecological data of importance to the distribution of the land fauna (e.g. MATLEY 1928, RICHARDS 1955, and JOHNSTON 1979). With regard to landsnails, the most important publications, beside MAYNARD's, are those of PILSBRY (1901/2, 1930, 1942, 1949), WURTZ (1950), and, above all, of CLENCH (1964), who in his "Land and freshwater Mollusca of the Cayman Islands" also gave a short historical survey of Caymanian malacology. "Charles Johnson Maynard and his work on malacology" was discussed by RUTH D. TURNER in 1957.

The Cayman Islands are a Crown Colony of the United Kingdom and consist of three small islands situated in the northwestern Caribbean between 19° 15' and 19° 45' North and 79° 45' and 81° 25' West. They are emergent peaks of the Cayman Ridge, connecting Cuba's Sierra Maestra

to the Misteriosa Bank off Honduras. They consist of Oligo-Miocene and Pleistocene limestones; the former ("bluff limestone") has a well-developed small scale karst topography.

The climate is characterized by mild to hot temperatures and a distinct dry season from December to April, while periods of drought may be frequent at other times. Average rainfall is in the order of 130–160 cm; annual mean about 155 cm. The mean annual high temperature is about 30°C; mean minimum about 6°C less. Much of the natural upland vegetation takes the form of low xerophytic scrub. From May to October the prevailing winds are easterly, but through the winter months they tend to be from the northeast or northwest. Occasional autumnal hurricanes buffet the islands, and their effects may be quite severe, as in 1932, October 1944, and October 1963 (Flora).

GRAND CAYMAN (197 km², 35.4 × 13.8 km) is situated approximately 270 km southwest of the Jardines de la Reina, and 360 km westsouthwest of Cabo Cruz, Cuba, 310 km westnorthwest of Jamaica, and 480 km northeast of Honduras, the nearest point in Central America. It is less than 5 m in elevation, although the limestone plateau in its eastern part reaches 30 m in places (Figs. 1–2 and 8). This honey-combed bluff-limestone formation, with its extensive inland swamp, is connected to low limestone areas in the south, southwest and northwest by swamps and sandy stretches of land, including the famous "seven-mile beach" of West Bay.

Up to the late 1940's traditional occupations were emigration or, for those who remained, turtle fishing, serving on inter-island schooners and subsistence agriculture. The post-war economic revolution was heavily influenced by the introduction and development of tourism and the influx of financial interests with the passing of tax haven legislations. In the early 1970's an extensive construction program was rapidly expanding eastward, progressively engulfing formerly untouched natural communities by its building activities and control of the vast mangrove swamps connected with the mighty North Sound, and the smaller mangrove areas near the South Sound. In that time the population of Grand Cayman increased from 5,300 in 1943, and 8,500 in 1960, to about 12,000 in 1973.

LITTLE CAYMAN (26 km², 16.2 × 2.8 km) lies some 100 km eastnortheast of Grand Cayman, and only 9.3 km west of Cayman Brac. It resembles Grand Cayman, except that only a few places on the smaller island are over 10 m in elevation (Figs. 3 and 13). The greater part of the island is still covered with thick bush and swamp forests. Contrary to Grand Cayman, the scanty population was decreasing in recent years: 63 in 1943, 23 in 1960, to about 20 in 1973. A recently constructed road nearly encircling the island forebodes "development".

CAYMAN BRAC (36 km², 19.3 × 3.1 km) is situated about 140 km southwest of the Jardines de la Reina, and 210 km west of Cabo Cruz, Cuba, 219 km northwest of Jamaica, and 125 km eastnortheast of Grand Cayman. It differs from the other two islands by the presence of an ascending (W to E) plateau that reaches almost 43 m (140 ft) at the eastern end of the island (Figs. 4 and 18). Closely associated with the existence of high bluffs abutting both the north and south sides, is the fact that it has almost no lagoons and swamp forests. Largely because of its relative inaccessibility, the limestone forests in the central part have been little disturbed, except for scattered small agricultural plots. In recent years the population – which

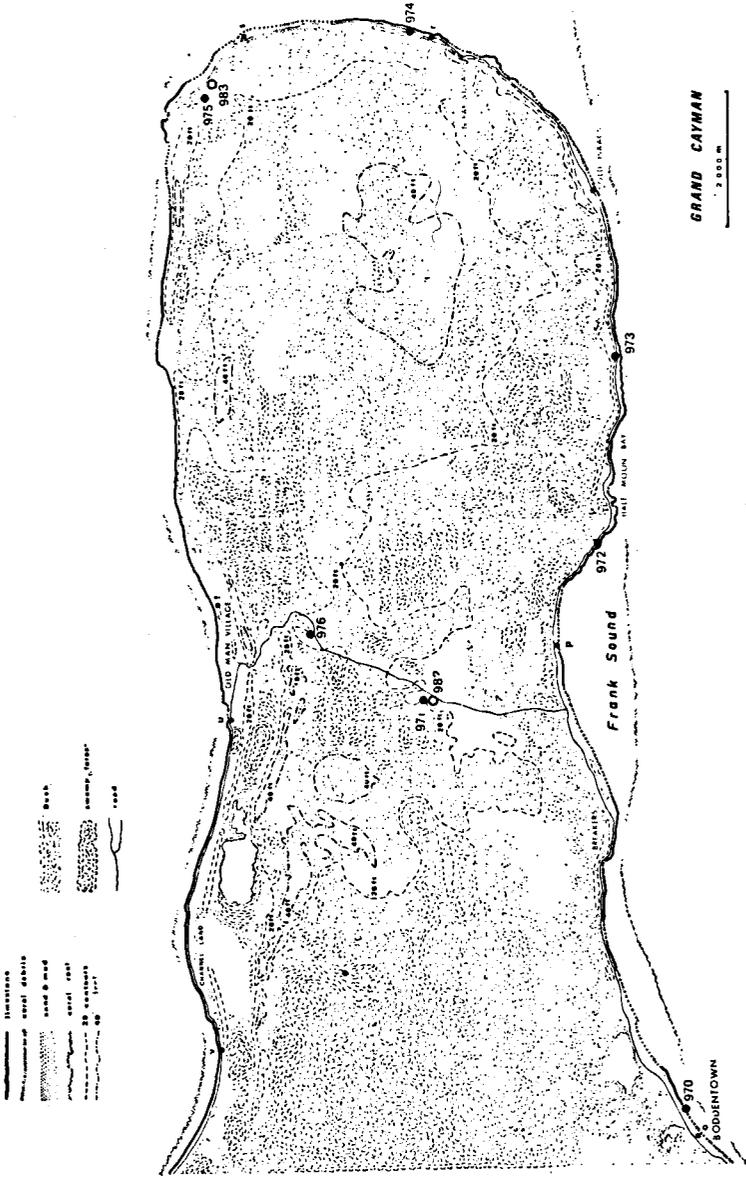


Fig. 1-2. Sketch map of the western part (above) and eastern part of GRAND CAYMAN with Station numbers 952-977 and *a-y* indicating land habitats which were searched for *Cerion*. Cf. Figs. 8-9 and Table 2.

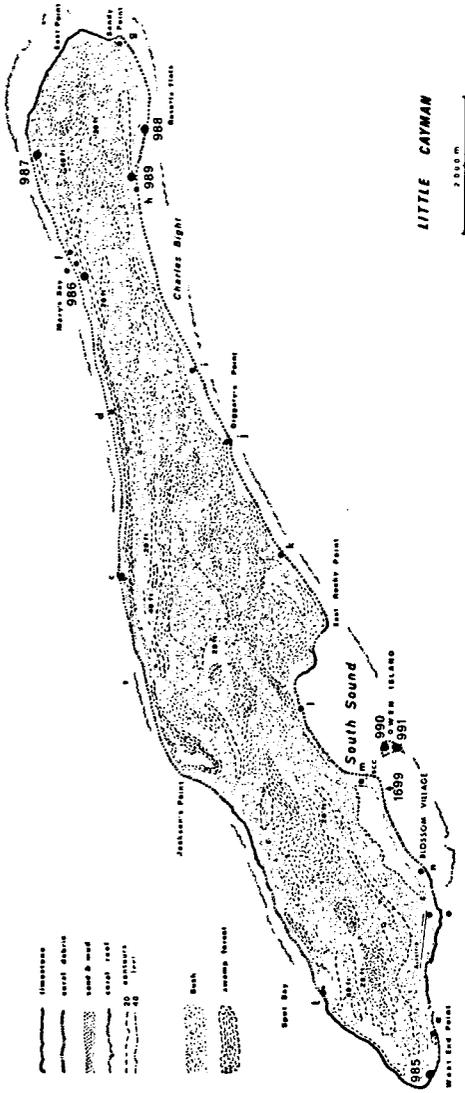


Fig. 3. Sketch map of LITTLE CAYMAN with Station numbers 985-991 and α - σ indicating land habitats which were searched for *Certon*. Cf. Fig. 13 and Table 3.

is now chiefly restricted to the north coast and the western tip – remained fairly static: 1,296 in 1943, 1,463 in 1960 and 1,327 in 1970.

The cerions on Little Cayman and Cayman Brac display an extraordinary range of diversity which has led to the creation of a number of controversial species by CHARLES JOHNSON MAYNARD, as a result of his exploration of both islands in March 1888. WILLIAM J. CLENCH (1964), in a critical appraisal of MAYNARD's work, did only accept two of his fourteen species. Certainly, MAYNARD was a "splitter" far beyond what is generally meant by this term. It may be that his species concept was that of a single population, and that in his descriptions he emphasized the slight differences existing between two "species", without mentioning the many specimens that were identical in their characters. Still MAYNARD could have done worse. In any case I should have been glad to dispose of still more names indicating several peculiar morphotypes amidst a taxonomic complexity in which any "biological species concept" clearly failed.

In the field I was convinced of the taxonomic value of certain differences before it became clear that almost all populations were freely intergrading, and some striking characteristics of size and sculpture would turn up at different occasions. Agreeing with that ancient philosopher (unknown to me) who wrote "Nomina si pereunt perit cognitio rerum" (When names disappear knowledge will vanish), but at the same time not wishing to create more names which would burden investigators of Cerion problems, I decided to do some lumping which, I think, still will do justice to MAYNARD's scrupulous investigations.

Beside MAYNARD's controversial species concept, his localities – without maps – are indicated in such a manner that it was often impossible to find them again. Notwithstanding all these drawbacks, his work may be considered to be of lasting importance to all those interested in the Cayman Islands and its zoological problems.

AS MAYNARD's locality descriptions are chiefly based on now-abandoned coconut groves, deserted hamlets, uncertain anchorages and vanished roads, the geographic distribution of his species could not be determined with certainty – even when consulting the fine maps 1 ; 25,000 of the Directorate of Overseas Surveys, London (D.O.S. 328 Series E821), 1966. Using a car, I probably could cover more of the island areas than he did. On the other hand his collecting certainly was much more intensive, because MAYNARD's ardent interest in molluscs was limited to the genus *Cerion* (= *Strophia*), and he – as I may suppose – was not hindered by a weak ankle, which made me forgo any investigation of the interior. Because of this I did not try to confirm the absence of *Cerion* in the limestone forest of Grand Cayman, I did not

hunt for *Strophia nana*, and I may have missed interesting populations possibly occurring in the less wooded parts of The Bluff on Cayman Brac.

The material has been gathered at a number of localities, usually not exceeding a hundred square meters each. Numbers 952 to 999, and 001 to 004 are corresponding with a previously started series of stations of a general nature; *a* – *y* refer to places on each island, where collecting was restricted to molluscs only.

As a rule all samples of living populations have been preserved in alcohol.

The greater part of the material has been presented to the MUSEUM OF COMPARATIVE ZOOLOGY, Harvard University, Cambridge, Massachusetts (from every locality, including all specimens figured), while parts of the samples have been deposited in the following collections [GC = Grand Cayman, LC = Little Cayman, CB = Cayman Brac].

American Museum of Natural History, New York: GC *a, b, c, t*, 952, 973, 974. LC *b, m, n, o*, 985, 990. CB *b, c, h, n, r, s, w*, 993, 995, 995A, 999.

British Museum (Natural History), London: GC *a, c, o, t*, 952, 961, 973, 974. LC *a, c, e, h, o*, 985, 988. CB *b, c, e, h, n, p, r, s*, 993, 995, 995A, 996, 999, 002.

Field Museum of Natural History, Chicago: GC *a, c, t*, 952, 961, 973, 974. LC *e, o*, 985. CB *b, c, h, n, r, s*, 995A, 988.

Florida State Museum, Gainesville: GC *a, o, t*, 952, 961, 973, 974. LC *o*, 985, 988. CB *e, h, m, n, s, w*, 995.

Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussel: GC *a, b*, 952. LC *n*, 985, 990. CB *m, s*, 993, 995.

Mosquito Research and Control Unit & Natural Resources Study, Grand Cayman: GC *a, c, t*, 973, 974. LC *b, g, i, o*, 985. CB *h, m, s, s'*, 995, 999.

Muséum National d'Histoire Naturelle, Paris: GC *a, c*, 953, 974. LC *o*, 985, 990. CB *n, m, s*, 995.

National Museum of Natural History [USNM], Washington: GC *a, c*, 952, 961, 973, 974. LC *i, o*, 985, 988. CB *b, c, d, e, h, n, p, r, s*, 995.

Naturhistorisches Museum, Basel: GC *a, c, o*, 952, 973, 974. LC *e, i, c*, 985. CB *b, c, e, h, m, r, s*, 995A, 002.

Natur-Museum Senckenberg, Frankfurt am Main: GC *a*, 952, 974. LC *m, o*, 985. CB *b, h, l, m, n*, 995.

Rijksmuseum van Natuurlijke Historie, Leiden: GC *a, c, g, o*, 952, 961, 973, 974. LC *a, c, e, h, m, n, o*, 985, 988. CB *s, c, d, e, h, k, l, m, n, p, r, s, w, x*, 993, 995, 995B, 996, 002.

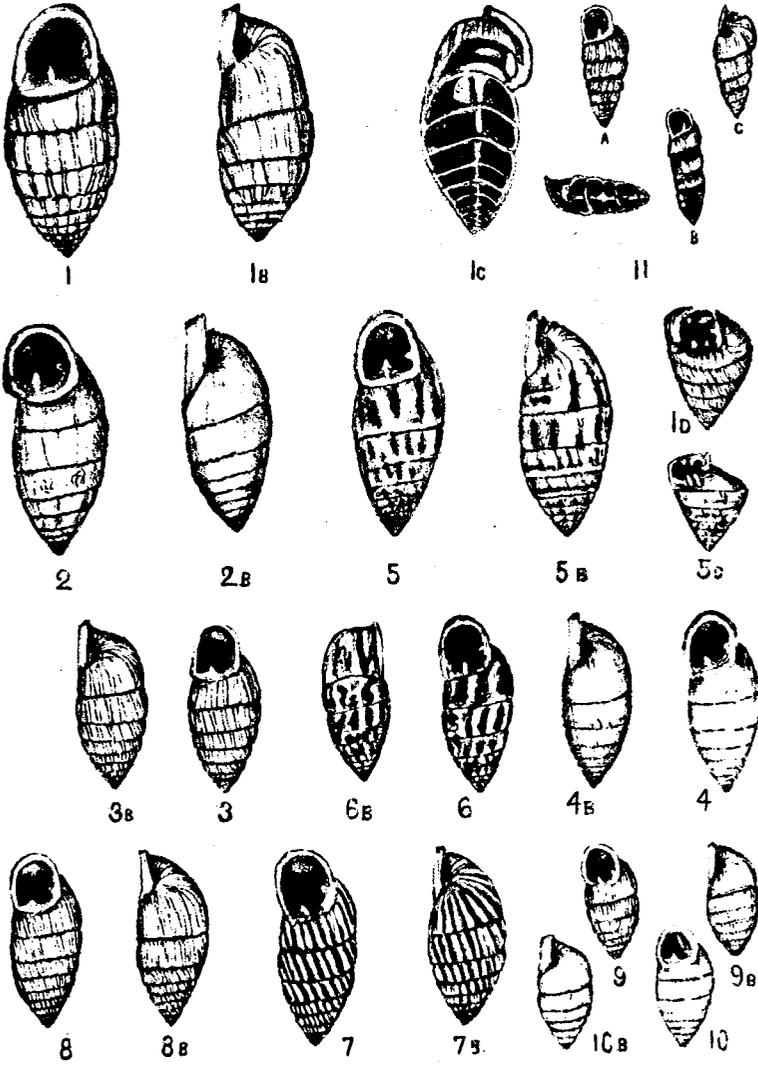
Universitets Zoologiske Museum, København: GC *a, c*, 952, 974. LC *b, o, m*. CB *h, l, o, w*, 995.

Zoölogisch Museum, Amsterdam: GC *a, c, t*, 952, 973, 974. LC *e, g, i, o*, 985, 988. CB *b, c, e, h, n, r, s, w*, 995, 999.

Zoölogisch Museum, Utrecht: GC *a*, 952, 974. LC *o*, 985, 988. CB *c, m, s, s'*, 955.

MAYNARD'S SPECIES

No less than 14 species have been described from Little Cayman (LC) and Cayman Brac (CB) by MAYNARD (1889), three of them occurring on both islands (see Table 1, Figs 5–6, Pl. IX).



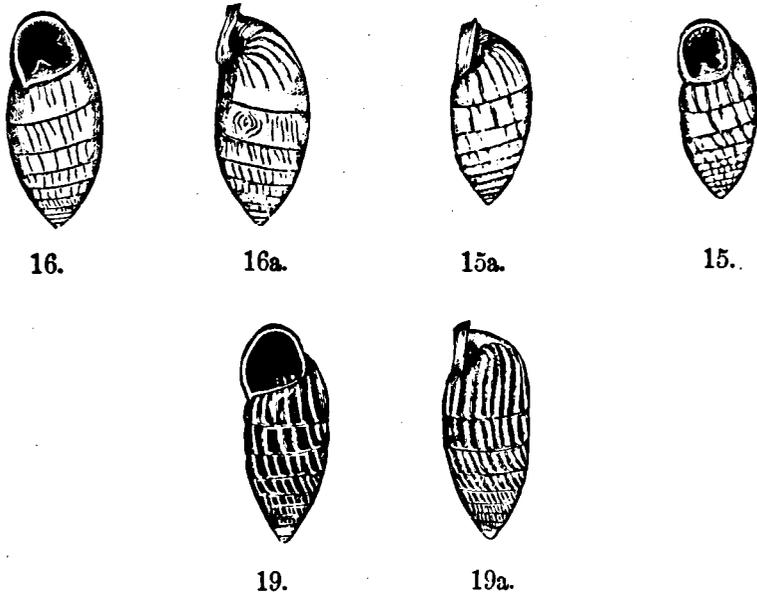
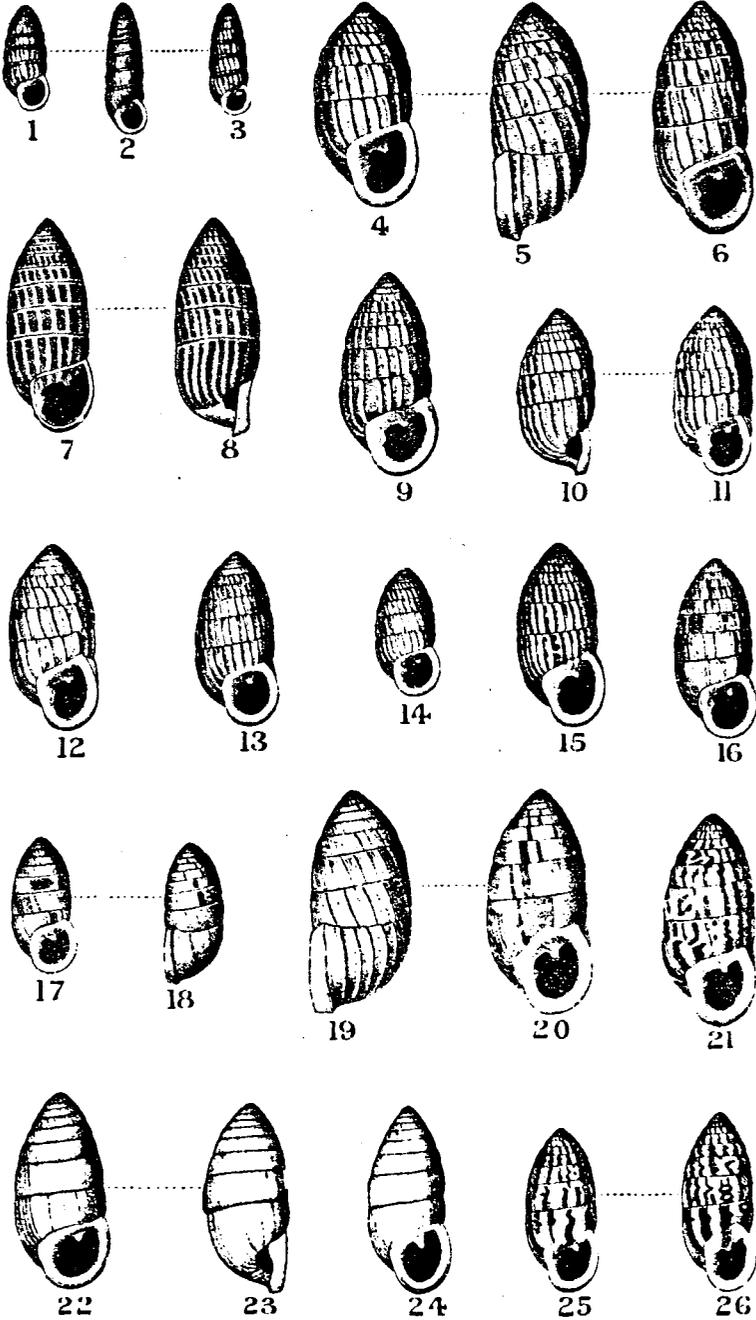


Fig. 6. MAYNARD's species of *Strophia* of Little Cayman and Cayman Brac as figured by him in his "Monograph" (1889), pl. VII (explanation quoted literally).
 15. *Strophia perplexa*, front view of type shell; 15a, left side of another individual.
 16. *Strophia nitela*, front view of type shell; 16a, left side of the same individual.
 19. *Strophia fusca*, front view of type shell; 19a, left side of same individual.

Fig. 5. MAYNARD's species of *Strophia* of Little Cayman and Cayman Brac as figured by him in his "Monograph" (1889), pl. II (explanation of figures quoted literally).
 1. *Strophia pannosa*, front view of type shell; 1B, left side of another individual; 1C, section and 1D, young of same species.
 2. *Strophia levigata*, front view of type shell; 2B, left side of another individual.
 3. *Strophia intermedia*, front view of type shell; 3B, left side of another individual.
 4. *Strophia acuta*, front view of type shell; 4B, left side of another individual.
 5. *Strophia festiva*, front view of type shell; 5B, left side of another individual; 5C, young of same species.
 6. *Strophia picta*, front view of type shell; 6B, right side of another individual.
 7. *Strophia lineota*, front view of type shell; 7B, left side of another individual.
 8. *Strophia copia*, front view of type shell; 8B, left side of another individual.
 9. *Strophia parva*, front view of type shell; 9B, left side of another individual.
 10. *Strophia glaber*, front view of type shell; 10B, left side of another individual.
 11. *Strophia nana*, A, front view of type shell; B, left side of another individual; C, front view of another form; D, section of same species.



| RIBBED | <i>Strophia</i> | | SMOOTH | <i>Strophia</i> | |
|--------|-------------------|-------|--------|-----------------|------|
| | <i>pannosa</i> | LC — | | <i>levigata</i> | LC — |
| | <i>fusca</i> | LC — | | <i>festiva</i> | LC — |
| | <i>intermedia</i> | LC CB | | <i>nitela</i> | LC — |
| | <i>lineota</i> | LC CB | | <i>perplexa</i> | — CB |
| | <i>copia</i> | LC CB | | <i>picta</i> | LC — |
| | <i>parva</i> | — CB | | <i>acuta</i> | LC — |
| | <i>nana</i> | LC — | | <i>glaber</i> | — CB |

PILSBRY (1949), when dealing with the shells collected by C. BERNARD LEWIS on Cayman Brac in 1940, considered all six species of *Strophia* recognized by MAYNARD from that island as belonging to a single species. "Formerly (Manual of Conchology 14: 186) I considered this to be a race subordinate to *C. pannosum* of Little Cayman, and that view is probably correct; but as the typical form of *pannosum* is not found on Cayman Brac it may be more convenient to allow *copium* specific standing until the Little Cayman forms shall be fully studied."

CLENCH (1964) considered *all* these names to be synonyms of *Cerion pannosum* (Maynard), with the exception of *Strophia nana* which he accepted as *Cerion nanus* (Maynard) (Pl. IX).

While agreeing with CLENCH as regards the status of *S. nana*, I hesitate lumping all other species of MAYNARD, whose favourite maxim could have been: Exponere, non confundere naturam – Clarify, not confuse nature. I

Fig. 7. MAYNARD's species of *Cerion* (= *Strophia*) of Little Cayman and Cayman Brac as figured by PILSBRY in this *Manual of Conchology*, 1901, pl. 27.

- 1-3. *C. nanus*, length 17 – 13 mm, p. 183-184.
- 4-6. *C. pannosum*, length 31 – 27 mm, p. 184-189.
- 7-9. *C. pannosum* color-form *fuscum*, copied from MAYNARD, p. 186.
- 10-12. *C. pannosum* form *intermedium*, length 24 – 21.5 mm, p. 186-187.
13. *C. pannosum* form *copia*, length 27 – 19 mm, p. 187.
14. *C. pannosum* form *parvum*, length 18 – 15 mm, p. 188.
15. *C. pannosum* form *lineotum*, length 27.5 – 18.5 mm, p. 188.
16. *C. pannosum* form *perplexum*, length 25 – 19.5 mm, p. 189.
- 17-18. *C. pannosum* form *glaber*, length 22 – 15 mm, p. 189.
- 19-20. *C. levigatum*, length 33.5 – 26.5 mm, p. 189-191.
21. *C. levigatum* color-form *festivum*, length 30 – 27 mm, p. 190-191.
- 22-23. *C. levigatum* form *nitela*, length 28 – 25 mm, p. 191.
24. *C. levigatum* form *acutum*, length 24.2 – 20 mm, p. 191.
- 25-26. *C. levigatum* form *pictum*, length 26 – 21 mm, p. 191.

would like to distinguish *at least* two groups: 1) large (or medium sized) cerions with coarse, widely spaced ribs (if present), called *Cerion pannosum* common in western Little Cayman; 2) medium (or small sized) cerions with (as a rule) more narrowly spaced ribs, called *Cerion copium*, common in eastern Little Cayman and in Cayman Brac. Both groups are very variable and intergrading.

Strophia fusca may be identical with *S. pannosa*. *Strophia intermedia* could not be distinguished with certainty; it might be a small or hybrid *C. pannosum* or/and a kind of *C. copium* with widely separated ribs.

Strophia lineota and *S. copia* are considered to be indistinguishable members of a single species which has been called *Cerion copium*, and *Strophia parva* a small edition of the same, found in several localities on Cayman Brac. *Strophia glaber* may be a descult *S. parva* and *S. perplexa* a *Cerion copium* with weakly developed and irregularly spaced ribs.

From field evidence it can be concluded that *Strophia levigata*, *S. festiva* and probably *S. nitela* are smooth or almost smooth forms of *Cerion pannosum*, while *S. picta*, and *S. acuta* may be descult *Cerion copium*.

According to PILSBRY & VANATTA (1896, p. 316), to CHARLES J. MAYNARD's "earliest publication on the subject we owe the first clear statement of some facts of prime importance: that the Cerions are excessively plastic, and locally modified into a considerable number of species and subspecies; that the range of some of these forms is excessively limited; and that former authors have failed to discriminate many really distinct species, "lumping" them under a few old names . . . so that his work on this genus has been an important one. However . . . he has unduly multiplied species and subspecies, basing them on characters we hold to be too slight and inconstant, and his work is marred by inaccuracies of all kinds . . .". In their "Catalogue of the species of Cerion" 6 species are recognized, named *Cerion copium* (with ssp. *parvum*), *C. glaber* (with ssp. *perplexum*), *C. nanus levigatum* (incl. *Strophia festiva*, with ssp. *acutum* incl. *S. nitela* and *S. picta*), *C. pannosum* (incl. *S. fusca* and *S. intermedia*) and *C. lineotum*.

PILSBRY (1902), in his "Manual of Conchology" only classifies 3 species:

- a. Shell very small and slender (diam. 5-6 mill.), the whorls impressed below the suture. *nanus*
- a¹. Shell larger, much stouter.
 - b. Conical part of the spire ribbed, rather short *pannosum*
 - b.¹ Only one or two whorls of the cone, following the smooth apical whorls, ribbed (cylindric portion ribbed or smooth); the conical portion longer, more slowly tapering and acute, mainly smooth. *levigatum*

The ribbed "species" of *Strophia* belonging to *C. pannosum* were arranged by PILSBRY (p. 186) in the following way:

- a.* Ribs irregularly and widely spaced on the last 3 whorls.
b. Large and stout, about 28×13 mill., whitish, *pannosum*.
 Variegated, 31×11 mill., *fuscum*.
*b*¹. Smaller, about 22×10 mill., whitish, *intermedium*.
- a*¹. Ribs regular or nearly so, 21–27 on penult. whorl.
b. Ribs 22–27; shell whitish, about 23×10 mill., *copia*.
*b*¹. Ribs 25–27; white with purple-brown intervals; 24×10 mill., *lineotum*.
*b*². Ribs 21–23; shell whitish, $15-17 \times 7\frac{1}{2}$ mill., *parvum*.
- a*². Ribs subobsolete on the later whorls.
b. Shell whitish, about $22\frac{1}{2} \times 10$ mill.; cone rather acute, *perplexum*.
*b*¹. Shell whitish, about $16 \times 7\frac{1}{2}$ mill., *glaber*.

The smooth "species" of *Strophia* were all assigned to *S. levigatum*: color-form *festivum* "merely a mottled form of *levigatum*"; form *nitela* "in fact connecting typical *levigatum* with *acutum*"; form *acutum* "the slightest modification of form *nitela*"; form *pictum* "Similar to forms *nitela* and *acutum*, but copiously variegated with dull purple or purple-brown". "This is a variegated form of the *nitela-acutum* type, as form *festivum* is of typical *levigatum*." (p. 191)

Form *glaber* "is merely a colony of dwarf *perplexum*, just as *parvum* is dwarf *copia*." (p. 189)

TABLE I

MAYNARD'S SPECIES OF STROPHIA (= CERION) IN LITTLE CAYMAN AND CAYMAN BRAC

referring to his plates II and VII, reproduced herewith as Figs. 5–6.

STRIATIONS COARSE AND WIDELY SEPARATED

Shell large

Strophia pannosa, Ragged *Strophia*: 10; I 2, 5, 6, 13; II 1.

LITTLE CAYMAN, west end, never east of Bloody Bay on the north coast, nor east of Blossom Village on the south side.

Robust and heavy, long oval, 2.1–2.5 as long as wide, length 1.27 (or 1.47) – 1.00 [32.25 (or 37.35) – 25.4 mm]. Striations 18 (17–24 on first whorl), irregularly formed. Margin greatly thickened; frontal bar well developed. Colour (externally) white, rarely slightly flecked with brown.

Strophia fusca, Brown *Strophia*: 77; VII 19 = fig. 12.

LITTLE CAYMAN, west end, probably as far east as the large mangrove swamp; in the thick shrub.

Not very heavy, a pointed cylinder, variable, mostly about 2.5 as long as wide, length 1.35–.90 [34.3–22.85 mm]. Striations 17, not regular. Margin rather tick; frontal bar not well developed. Colour brown, with the striations white.

*Shell medium***Strophia intermedia**, Small Rough Strophia: 13; II 3.

LITTLE CAYMAN, south side, near the beach, west of the large mangrove swamp.
 CAYMAN BRAC, south side, along the beach as far east as about half the length of the key.

Not very robust, mostly short oval, from cylindrical to nearly top-shaped, mostly about 2.3 as long as wide, 1.04–.82 [26.4–20.8 mm]. Striations 16 (16–19), irregular. Margin not greatly thickened; frontal bar moderately developed. Colour white, with an occasional spot of purplish between striations.

STRIATIONS PROMINENT, NOT WIDELY SEPARATED

*Shell medium***Strophia lineota**, Lined Strophia: 20; II 7.

LITTLE CAYMAN, south side, small coconut grove near the east end.
 CAYMAN BRAC, south side, coconut grove near boat-landing.

Rather heavy, cylindrical, about 2.4 times as long as wide, length 1.10–.74 [28.0–18.8 mm]. Striations 20 (18–20). Margin not greatly thickened; frontal bar not well developed. Colour white, most interspaces dull purplish brown.

Strophia copia, Common Strophia: 22; I 1, 3, 7–12; II 8.

LITTLE CAYMAN, north side, fishing camp; west end, scattered about the houses.
 CAYMAN BRAC, west end, very common, and in the coconut grove on the south shore.

Rather heavy, cylindrical, about 2.4 times as long as wide, 1.07–.75 [27.2–19.0 mm]. Striations 23 (22 or more). Margin not greatly thickened; frontal bar quite prominent. Colour white, a slight inclination to a brownish flecking: – Including at least 4 atypical forms: smallest, more cylindrical, much thicker, and largest specimens.

*Shell small***Strophia parva**, Little Strophia: 24; II 9.

CAYMAN BRAC, west end, very limited area not far from the north coast, and from this scattered into the coconut grove on the south side.

Nearly oval, about 2.0 times as long as wide, .72–.60 (or .68?) [18.3–15.2 mm]. Striations 18. Margin not thick; frontal bar quite well developed. Colour dull white.

*Shell very small***Strophia nana**, Dwarf Strophia: 27; II 11.

LITTLE CAYMAN, west end, area of about 5 by 20 m.

Moderately heavy, elongated cone, mostly about 2.7 as long as wide, .64–.53 [16.25–13.45 mm]. Striations rather irregularly, 18 (16–20). Margin not thickened; frontal bar quite prominent. Flesh coloured.

STRIATIONS ABSENT, OR ALMOST ABSENT

*Shell large****Strophia levigata***, Smooth Strophia: 12; II 2.

LITTLE CAYMAN, west end, area of about 3 by 1 mi. sparingly on the coast, more commonly in the interior.

Robust and heavy, inclined to be cylindrical, about 2.4 as long as wide, 1.34–1.06 [34.0–26.9 mm]. Margin greatly thickened; frontal bar prominent. Colour white.

Strophia festiva, Pictured Strophia: 17; II 5.

LITTLE CAYMAN, west end, two small fields, perhaps 1000² each, a short half mile from the northern coast.

Robust and heavy, inclined to be cylindrical with a tendency to a more pointed apex, about 2.4 as long as wide, 1.24–.95 (not .56) [31.5–24.15 mm]. Margin not greatly thickened; frontal bar not very prominent. Colour bluish white, marked with longitudinal spots or purplish brown, with a tendency to become fused and form rings.

Strophia nitela, Shining Strophia: 73; VII 16 = fig. 8.

LITTLE CAYMAN, west end, two or three small clearings.

Thick and rather heavy, a rather pointed oval, about 2.2 as long as wide, length 1.12–1.00 (not .44) [28.5–25.4 mm]. Margin not greatly thickened; frontal bar well developed. Colour shining white.

*Shell medium****Strophia perplexa***, Ridged Strophia: 71; VII 15 = fig. 7.

CAYMAN BRAC, western part, very limited area about 2 mi. from the west point and $\frac{1}{4}$ mi. from the south shore.

Thick and rather heavy, inclined to cylindrical, about 2.3 times as long as wide, length 1.07–.78 (or .85) [27.2–19.8 mm]. Striations represented by irregular, slightly elevated ridges. Margin considerably thickened; frontal bar well developed. Colour white.

Strophia picta, Painted Strophia: 18; II 6.

LITTLE CAYMAN, west end, patch of about 2000 m² not far from the southern shore.

A pointed oval, about 2.4 times as long as wide, length 1.04–.83 [26.4–21.0 mm]. Margin never very heavy; frontal bar not well developed. Colour bluish white with rather zig zag longitudinal spottings of purplish brown.

Strophia acuta, Pointed Strophia: 15; II 4.

LITTLE CAYMAN, west end, small clearing a few hundred yards from the south shore.

Moderately heavy, pointed oval, about 2.4 times as long as wide, length 1.07–.80 [27.2–20.3 mm]. Margin not greatly thickened; frontal bar well developed. Colour white, slightly tinged with purplish or bluish.

LOCALITIES

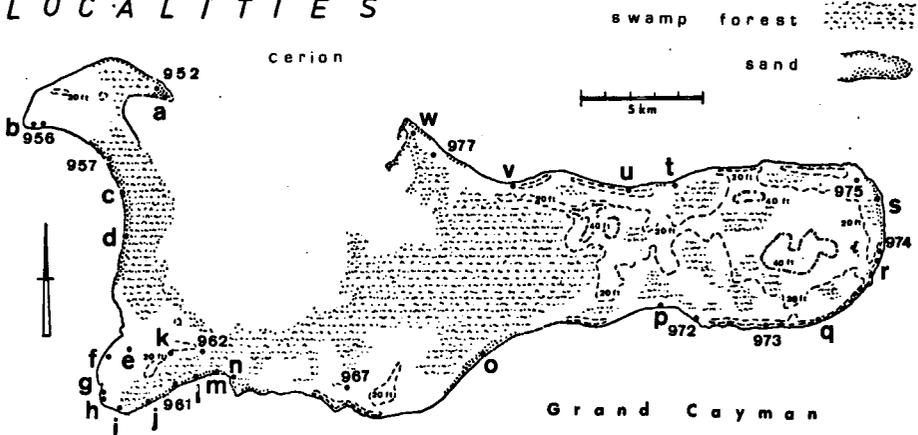


Fig. 8. Localities on GRAND CAYMAN in which *Cerion* was sampled.

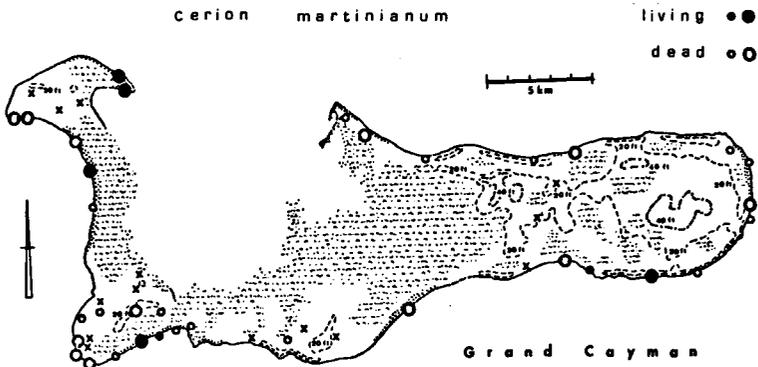


Fig. 9. Occurrence of *Cerion martinianum* in GRAND CAYMAN, 1973.

LEGEND FIGS. 10-12.

Most samples of *Cerion martinianum* consisted of more or less corroded shells (dark parts of columns); the other lots were collected from recently extinct colonies or still vital populations (the latter being Stations a, 952, c, 961, 972 and 973).

Shell small

Strophia glaber, Little Smooth Strophia: 25; II 10.

CAYMAN BRAC, west end, not far from the northern shore.

Rather heavy, oval, about 2.0 times as long as wide, length .88–.61 [22.35–15.5 mm]. Margin somewhat thickened; frontal bar quite prominent. Colour bluish white. – “This species bears the same relation to *S. parva* that *S. perplexa* does to *copia* . . .”

LOCALITIES and OCCURRENCE
(average altitude of shell and number of ribs in italics)

GRAND CAYMAN

Figs. 1–2 & 8–9 (maps) and 10–12 (graphs); Table 2.

Pls. I–II (localities) and X–XI & XVII (specimens).

referring to *Cerion martinianum*

- a* HEAD OF BARKERS PENINSULA, about 200 m from easternmost tip, 10.VI.1973.
Dunes of almost pure sand, up to 3 m high, sparsely covered with grasses.
Many living specimens on *Sporobolus* from a restricted and a somewhat wider area: *aB* 4 m², *aA* 25 m²; uniform vital population, only one third part strikingly coloured; average altitude of shell 18.3 mm, average number of ribs on widest part of the spire 32. (Plate X e–g). [Many shells washed together near water line about 20 m away.]
- 952 HEAD OF BARKERS, 500 m S of Palmetto Point, 17.V.1973. (Pl. I a)
Beachrock flat near mangrove swamp, possibly sometimes inundated, covered by low weeds including *Salicornia* on lowest places.
Many living specimens, almost no dead animals found; uniform vital population, about 2/3 strikingly coloured with brown; 20.3 mm, ribs 31. (Pl. X a–d, XVII a–b)
- b* WEST BAY, 300 m E of North West Point, about 50 from shore, 19.V.1973.
Pitted limestone, 2–4 m high, with sparse plant cover including several bushes of *Coccoloba uvifera*.
A uniform sample of recent shells among leaf decay and in fissures, no living specimens found; a few with traces of colour pattern; 20.5 mm, ribs 31.
- 956 WEST BAY, 800 m E of North West Point, 30–80 m from shore, 19.V.1973.
Pitted limestone, 3–4 m high, with a rather dense plant cover incl. *Coccoloba*.
A few specimens among decay of *Coccoloba*, most of them old and weathered; no living animals; 19.0 mm, ribs 30.
- 957 WEST BAY, 1 km SE of Timms Point, 20–150 m from shore, 19.V.1973. (Pl. IIa)
Sandy area, in places disturbed, with scattered low shrubs and herbs, incl. *Coccoloba*, with some more dense shrubbery near the beach.
Many empty shells dispersed over the area, the greater part somewhat corrugated; no living specimens; 21.5 mm, ribs 31.

G R A N D C A Y M A N

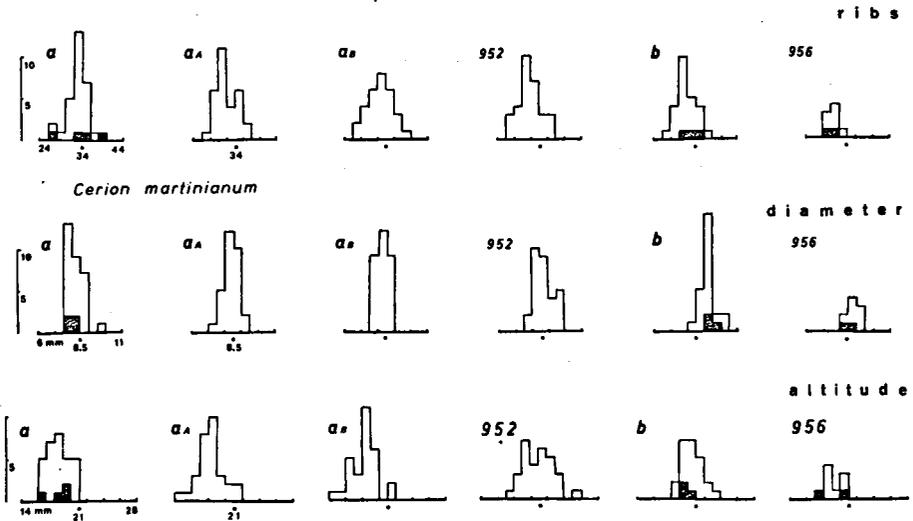


Fig. 10. Variation in *Cerion martinianum* in northwestern GRAND CAYMAN (Sta. a, 952, b and 956).

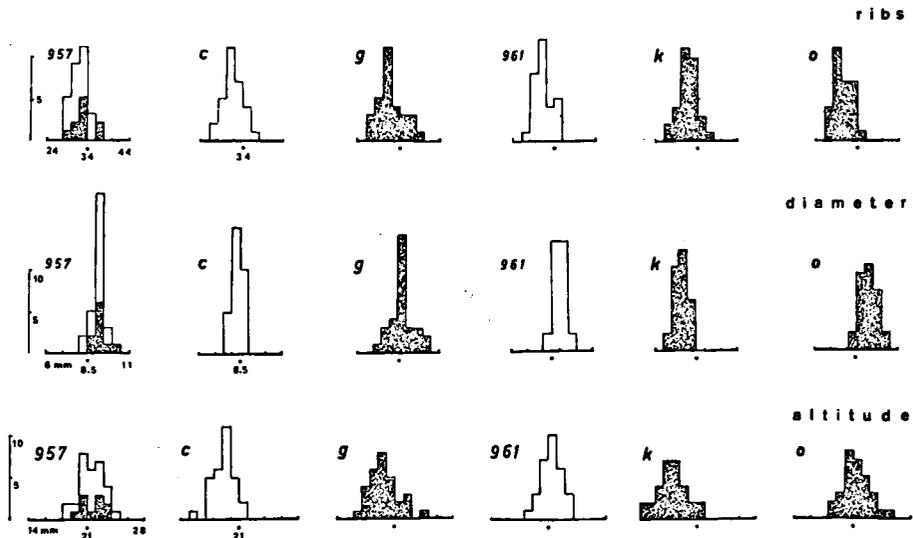


Fig. 11. Variation in *Cerion martinianum* in western and southern GRAND CAYMAN (Sta. 957, c, g, 961, k and o).

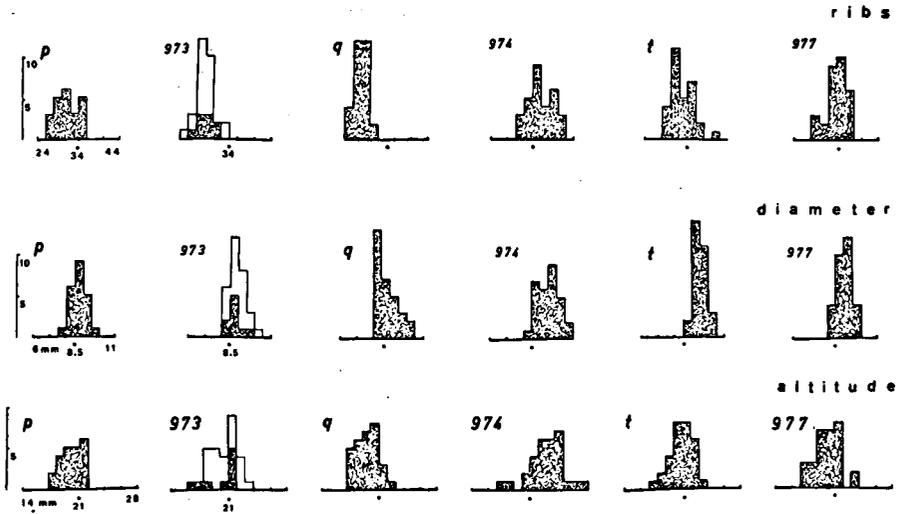


Fig. 12. Variation in *Cerion martinianum* in eastern GRAND CAYMAN (Sta. p, 973, q, 974, t and 977).

- c GALLEON BEACH of West Bay, about 2 km N of Old Galleon Beach Hotel, 10.VI.1973. Sandy area, rather disturbed and eroded, sparsely covered with low shrubs and grasses. Many living cerions on *Sporobolus* and shrubs, together with several old shells; uniform sample, very similar to those of Barkers, only about 1/4 part with a distinct colour pattern; 19.3 mm, ribs 31. (Pl. Xh)
- d GALLEON BEACH, 300 m N of Beach Club, 10.VI.1973. Sandy area, rather disturbed, with sparse vegetation. Only a few weathered specimens: about 20 × 8.5 mm, ribs 31.
- e GEORGE TOWN, near Hospital, 20.V.1973. Sandy plot. A single empty shell, possibly from elsewhere; 21.5 × 8.5 mm, ribs 29.
- f GEORGE TOWN, 1 km SW, near shore, 19.V.1973. Abandoned coconut grove on limestone covered with sand. Several, somewhat weathered shells, possibly from elsewhere; 19.0 mm, ribs 32.
- g SOUTH WEST POINT, 200 m N, about 100 m from sea, 19.V.1973. Somewhat disturbed sandy area, 2.3 m high, with sand pits; some shrubs and *Coccoloba*. Rather many old and often weathered specimens, in part covered by sea sand; 19.7 mm, ribs 31.
- h SOUTH WEST POINT, 100 m N, about 100 m from sea, 20.V.1973. Bush of *Coccoloba uvifera* on limestone debris, 2–3 m high. A few weathered specimens; about 21 × 9 mm, ribs 31.

- i* SOUTH WEST POINT, 700 m E, along Coconut Walk Bay, 20.V.1973.
Sandy limestone debris, about 3 m high, with *Coccoloba* bush.
A few weathered specimens; about 20 × 8.5 mm, ribs 31.
- j* SOUTH WEST POINT, 2 km E, near shore, 20.V.1973.
Sandy strip with *Ipomoea* and *Casuarina*, near *Avicennia*.
A few weathered shells, possibly from elsewhere; about 19 × 8.5 mm, ribs 30.
- 961 SOUTH SOUND, 3 km E of S.W. Point, 50 m from sea, 20.V.1973.
Sand strip along margin of rather dense shrubs, herbs and small trees, including Sea Grape, a few Thatch Palms and Agave.
Many living specimens below fallen leaves, on branches as high as 1 m, on dead *Casuarina* and *Agave*; not penetrating the bush for more than 16–20 m; a uniform vital population, not differing much from that of Barkers, except that the shells are uniformly coloured, without blotches; no dead specimens found, except a single very corroded one; there are only a few juveniles; 21.3 mm, ribs 31. (Pl. X i)
- k* AIRPORT, SW, 21.V.1973.
Disturbed area with marls and sand.
A rather heterogeneous sample of old shells, including the smallest specimen found on the island (14 mm), possibly from elsewhere; 18.0 mm, ribs 32. (Pl. X j–k)
- 962 AIRPORT, SE, 1 km N of Red Bay, 21.V.1973.
Low limestone terrace cleared from dense shrubbery.
A few old specimens, possibly from elsewhere; about 19.5 × 9.3 mm, ribs 32.
- l* SOUTH SOUND, about 1800 m W of Prospect Point, 20.V.1973.
Sand strip between sea and swamp, with *Coccoloba*.
A single living animal, and another containing *Coenobita clypeatus*; 20.7 × 8.7 and 22.3 × 9.2 mm, ribs 30–31.
- m* SOUTH SOUND, about 1.5 km NW of Prospect Point, Red Bay, 21.V.1973.
Narrow sand strip along *Rhizophora* swamp.
Fragments of a few old shells.
- n* SOUTH SOUND, Crawl Bay, about 100 m from shore, 21.V.1973.
Karstland, about 5 m high, with a rather dense shrubbery with numerous Bromeliaceae.
A single empty shell and a few fragments; 19.3 × 8.7 mm, ribs 27.
- BODDEN TOWN, behind Presbyterian Church, Cave 3, Site 1, 29.III. 1973, G. D. Shaak coll. (Florida State Museum, 26571–26580), samples 1–11 from cave deposits less than 10,000 years old; 22.0 mm, ribs 28.
1, 7 ad. 8 juv.; 2, 2 ad. 1 juv.; 3, 4 ad. 1 juv.; 5, 4 ad. 1 juv.; 6, 4 ad. 3 juv.; 7, 7 ad. 5 juv.; 8, 8 ad. 1 juv.; 9, 2 ad., 3 juv.; 10, 2 ad.; 11, 1 ad. (Pl. XVII f–g)
- 967 SAVANNAH VILLAGE, W., 23.V.1973.
Low, semicultivated limestone area.
Two weathered shells, possibly from elsewhere; 18 × 7.8 and 18 × 8–6 mm, ribs 28–30.

- o* BODDEN TOWN, at Pease Bay, 23.V.1973.
Almost bare white sand ridge, about 1.5 m high or less, with bushes of *Coccoloba*. Numerous old and often somewhat corroded specimens; uniform sample, rather similar to those from the West Bay area; 21.5 mm, ribs 30.
- p* FRANK SOUND, about 2.5 km E of Breakers, 25.V.1973.
Semicultivated sand ridge along shore, 2 m high, with scattered shrubs. Several empty but still rather fresh looking specimens; 19.8 mm, ribs 31.
- 972 FRANK SOUND, 1 km W of Half Moon Bay, 25.V.1973.
Low limestone terrace with sand ridge along shore. Several living cerions on grasses. [Not collected.]
- 973 BETWEEN HALF MOON BAY AND OLD ISAACS, 25.V.1973. (Pl. I b)
Low limestone terrace with sparse beach vegetation at both sides of the road, 20–60 m from shore; sea side almost bare rock with scattered weeds and, in places some *Coccoloba*; land side with only a little more vegetation. Sea side with many living animals, as high up as 20 cm in the vegetation, with several empty shells; 20.4 mm, ribs 27.5.
- q* Land side with rather many empty shells only; 19.5 mm, ribs 27.3.
A uniform population, rather similar to those of the West Bay area, but with less ribs, and with a less distinct colour pattern, a few shells only being strikingly blotched. (Pl. X 1, XVII c–d)
- s.n. OLD ISAACS, 25.V.1973.
Low sandy wall with a few coconut palms. A single empty shell; 21 × 9 mm, ribs 30.
- EAST END, 5.3 mi. E of N–S road (Old Isaacs), Bat Cave, Site 1, 28.III.1973, G. D. Shaak coll. (Florida State Museum 26569–26570), samples 3–4 from bat cave deposits less than 10,000 years old.
3, 1 ad., rather fresh, 19 × 9 mm, ribs 27; 4, 1 ad., 23 × 9.5 mm, ribs 25.
- r* GUN BAY VILLAGE, about 1 km N, 25.V.1973.
Sandy wall of coral rubble near shore, 2 m high. A few fragments only.
- 974 GUN BAY VILLAGE, about 1.5 km N, near shore, 25.V.1973. (Pl. II b)
Low dunes of almost pure sand, up to about 3 m high, with grasses and low shrubs in places, some *Agave*, a single *Coccoloba* and a few palm trees. Many old, often rather corroded shells, as many as 20 per m², in all habitats excepting the Sea Grapes; only a few still with traces of colour pattern. Specimens of various sizes and shapes, some of them similar to shells of the West Bay region, other being of a considerable size and with a strongly developed peristome; largest specimen found on the island 27.7 mm; greatest number of riblets observed 41. Altitude 23.0 mm, ribs 35.7. (Pl. XI a–d, XVII e)
- s* NORTH EAST POINT at Colliers Bay, 25.V.1973.
Sand ridge between sea and swamp, almost without vegetation. A few small fragments only.

- 975 NORTH EAST POINT, on limestone bluff, 25.V.1973.
Karstified terrace with sparse vegetation, about 6 m high.
A single empty shell, possibly transported by hermit crab *Coenobita*; 21.3 × 9.5 mm, ribs 36.
- l* OLD MAN VILLAGE, about 1 km E, 20–50 m from shore, 27.V.1973.
Low sand ridge with sparse beach vegetation, about 2 m high.
Many empty, most slightly corroded shells, some of them similar to the Gun Bay specimens, other distinctly shorter and with less ribs, not differing much from other localities; no living animals found; 20.8 mm, ribs 32. (Pl XI e–f)
- u* OLD MAN VILLAGE, about 1 km W, 20 m from shore, 27.V.1973.
Sandy wall of limestone rubble with *Coccoloba* thicket.
A single weathered shell and some fragments; 20.5 × 9.6 mm, ribs 30.
- v* CHANNEL LAND near Grape Tree Point, 20 m from shore, 27.V.1973.
Sandy ridge with *Coccoloba*.
Some fragments only.
- 977 BOWSE LAND, about 500 m SE of Bowse Bluff, 27.V.1973.
Sandflat with sparse beach vegetation including a few *Coccoloba* trees; possibly sometimes inundated in places.
Many old or even somewhat corroded specimens, some of them like those of Old Man Village, others similar to those of Barkers, but with more riblets; 20.2 mm, ribs 34.
- w* NEAR RUM POINT, about 0.5 km NW of Bowse Bluff, 27.V.1973.
Muddy area near lagoon.
A few old shells; 20.1 × 8.8 mm, ribs 35.

LITTLE CAYMAN

Figs. 3 & 13 (maps) and 14–17 (graphs); Table 3.
Pls. III (localities) and XII–XIII & XVII (specimens).

with reference to MAYNARD's species (*lineota* = *copia*)

- a* WEST END near Preston Bay, about 50 m from the sea, 5.VI.1973.
Disturbed sand area near bungalows.
A heterogeneous sample of empty shells scattered, most of them somewhat corroded. Most specimens large and with relatively few ribs, including one very large subfossil specimen, similar to *Strophia pannosa*; a few large shells smooth, similar to *S. levigata*. Some other specimens smaller and with relatively more ribs, somewhat resembling *S. lineota*. Some shells with traces of a marbled pattern. Average altitude of shell 28.1 mm, av. number of ribs 21.
- 985 WEST END near Light Tower, 5.VI.1973.
Wall of coral debris and coarse sand, with varied beach vegetation including palms. Many specimens, several alive; most of them ribbed *pannosa*; several smooth or with undeveloped ribs, resembling *levigata* and *picta*; several shells blotched or with a marbled pattern; one with *Coenobita*; 28.0 mm, ribs 21. (Pl. XII a–d, XVII i)

LITTLE CAYMAN

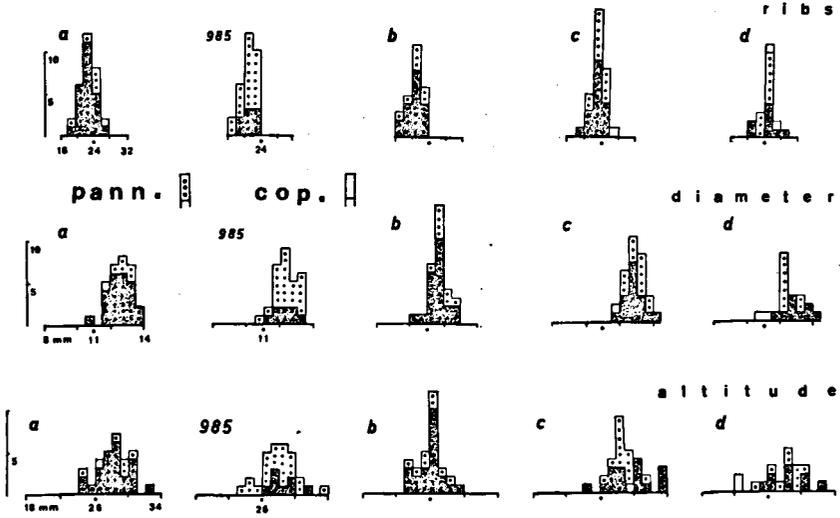


Fig. 14. Variation in *Cerion*, mainly *pannosum*, in western and northern LITTLE CAYMAN (Sta. a, 985, b, c and d).

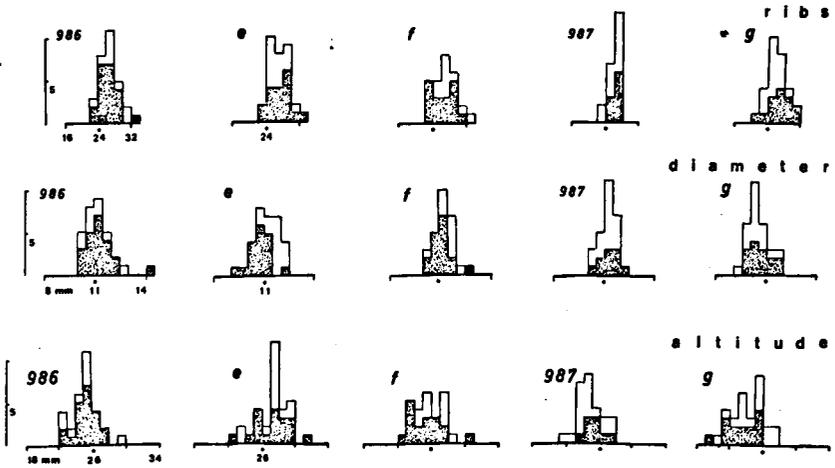


Fig. 15. Variation in *Cerion copium* in eastern LITTLE CAYMAN (Sta. 986, e, f, 987 and g).

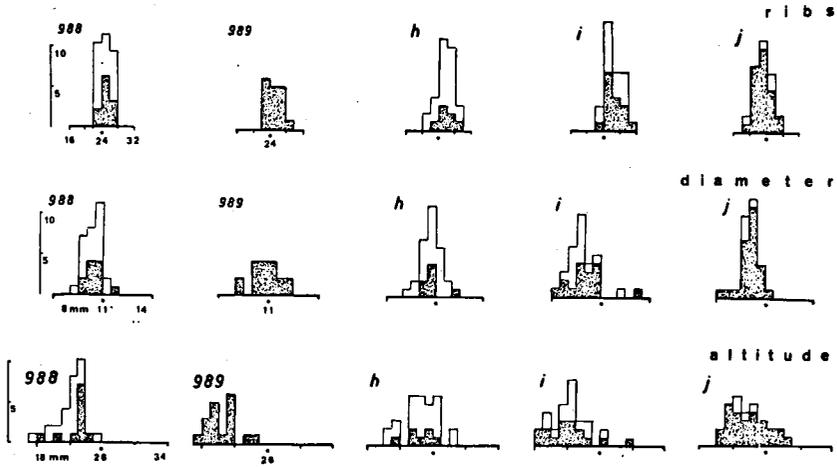


Fig. 16. Variation in *Cerion copium* in southeastern LITTLE CAYMAN (Sta. 988, 989, h, i and j).

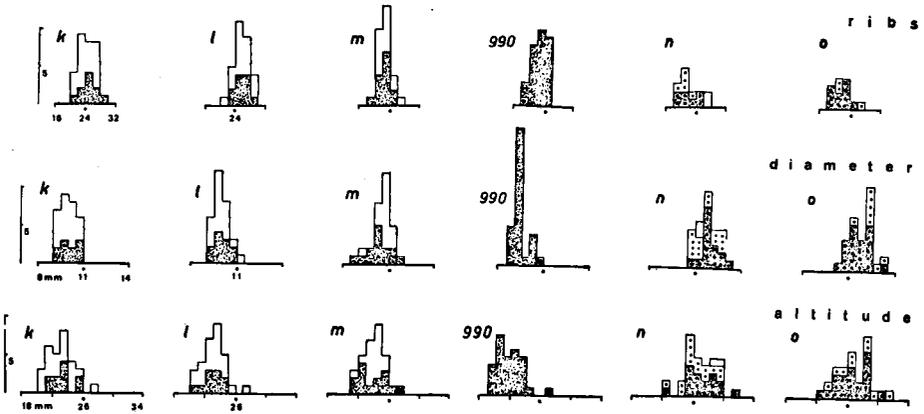


Fig. 17. Variation in *Cerion copium* along the south shore of LITTLE CAYMAN (Sta. k, l, m, 990, n and o).

- b* SPOT BAY, about 30 m from shore, 5.VI.1973.
Semicultivated wall of coarse coral rubble.
A number of specimens scattered, several alive; the greater part ribbed *pannosa*, about 1/3 of them smooth or with weakly developed ribs, similar to *levigata*, *festiva* and *picta*, several intergrading; one tending to *lineota*; commonly blotched, clouded or marbled; 36.1 mm, ribs 20. (Pl. XII e)
- c* NORTH COAST, N of Sparrowhawk Hill, 5.VI.1975.
Semicultivated sandy wall of coral debris.
Many specimens scattered, a few possibly alive, similar to *pannosa*, a single one tending to *lineota*; no smooth shells; 29.1 mm, ribs 23.
- d* NORTH COAST, W of Crawl Bay, 5.VI.1973.
Sandy strip behind beach ridge.
Several empty shells scattered, one of them occupied by *Coenobita clypeatus*; most specimens with more ribs than typical *pannosa*; one smooth shell like *levigata*; a few small animals like *lineota*; 29.9 mm, ribs 24.5
- 986 NORTH COAST, 1 km W of Mary's Bay, 5.VI.1973.
Beach ridge of coral rubble along the bluff.
Many empty specimens scattered, several corroded; rather uniform sample similar to *lineota*, except a few old fragments of *pannosa*; 25.1 mm, ribs 26.5. [No cerions were found on the bluff.]
- e* NORTH COAST at Mary's Bay, 200 m E of 986, 5.VI.1973.
Sandy beach ridge with coral rubble.
Many living specimens, distinctly marbled or blotched, rarely more uniformly brownish: *lineota*; 25.2 mm, ribs 26.5. [The bluff nearby yielded only 2 old shells, 26.2 × 11.8 mm, ribs 24–29.] (Pl. XII f–h)
- f* NORTH COAST at Mary's Bay, about 200 m E of *e*, 5.VI.1973.
Sandy beach ridge with some coral rubble.
Several dead animals scattered: *lineota*; 25.7 mm, ribs 26.5.
- 987 CALLABASH SPOT, 5.VI.1973.
Wall of coral rubble along sea front of bluff; scattered shrubs.
Not many living specimens in this last suitable locality as the cliff front meets the sea further eastward; uniform sample of *lineota*, mostly strikingly marbled, a few more uniformly coloured; 2 smooth shells similar to *picta*; a few old fragments resembling *pannosa*; 24.8 mm, ribs 25.5. [On the bluff only a few old fragments.] (Pl. XIII, XVII)
- g* EAST END at Sandy Point, 4.VI.1973. (Pl. III a)
Sandflat with a few coconut trees.
Many living and dead specimens scattered over the area: *lineota*; only a few marbled or more uniformly coloured; two smooth shells similar to *nitela*; 24 mm, ribs 26.
- 988 EAST END at Rossetta Flats, 4.VI.1973.
Wall of coral rubble with shrubs, dead *Cocos* and a few *Coccoloba uvifera*.
Many dead and several living specimens, about 8% juveniles, most uniformly brown,

- several more or less marbled: *lineota*; smallest cerion found on the island, 17.3 mm, resembling *parva*; 22.3 mm, ribs 24.5.
- 989 CHARLES BIGHT, bluff near W tip of Rossetta Pond, 4.VI.1973.
Pitted limestone, about 7 m high, with a rather dense growth of high shrubs, including *Agave* and *Cephalocereus*, 10–30 m from edge of terrace.
Heterogeneous sample of old and for the greater part much corroded shells, all possibly belonging to *lineota*; a single smooth specimen resembling *picta*; 24.4 mm, ribs 25.
- h* CHARLES BIGHT, about 400 m W of Rossetta Pond, 4.VI.1973.
Sandy beach ridge with some scattered shrubs and grasses.
Many specimens, living and dead, the greater part with brown between the ribs, tending to be marbled: *lineota*; 23.8 mm, ribs 25.
- i* CHARLES BIGHT, 1.5 km E of Diggary's Point, 4.VI.1973.
Low sandy wall with sparse beach vegetation, incl. *Canavallia*, *Ipomoea* and *Sporobolus*, a few palms.
Heterogeneous sample of many *lineota*'s living and dead, generally similar to those of the Rossetta area but including a considerable number of small specimens, some of them even slightly resembling *Cerion martinianum*; 2 corroded shells similar to *pannosa*; 22.1 mm, ribs 26. (Pl. XII j–l)
- j* DIGGARY'S POINT, 4.VI.1973.
Low sandy wall with scattered vegetation incl. *Canavallia*, *Ipomoea* and *Sporobolus*.
Several empty shells, in part still with distinct traces of a marbled pattern: *lineota*; one old specimen with very weakly developed ribs, 27 × 11 mm, resembling *picta* or *perplexa*; 23.8 mm, ribs 22. (Pl. XIII a–b)
- k* WEARIS BAY, 2 km S of Diggary's Point, 4.VI.1973.
Sandy area along shore, sparse vegetation.
Several empty shells and a few possibly still living specimens, in part showing a marbled pattern: *lineota*; 23.1 mm, ribs 24. (Pl. XIII c)
- l* SOUTH HOLE SOUND, The Bight, 500 m W of Rocky Point, 4.VI.1973.
Sandy beach ridge along mangrove swamp, scattered vegetation.
A uniform living colony, similar to former southcoast samples, with a vivid brown, often marbled pattern: *lineota*; 22.8 mm ribs 25.
- m* SOUTH HOLE SOUND near Southern Cross Club, 4.VI.1973.
Sandy area near sea with coconut grove.
A living population, common on stems of palms and scattered, with a vivid brown, often marbled pattern; uniform sample of *lineota* except a few old specimens resembling *fusca*, *picta* and almost smooth *pannosa*; 24.0 mm, ribs 22.3. (Pl. XIII d–f)
- 990 OWEN ISLAND, South Hole Sound, 7.VI.1973.
Sandy key; abandoned coconut grove covered with herbs and grasses.
Several specimens scattered belonging to an extinct population of small-sized *lineota*, most of them damaged or broken, several used by *Coenobita clypeatus*; one very old and corroded shell and a few fragments of *pannosa*; 21.7 mm, ribs 22. [Assemblages of broken specimens suggest being shattered by mangrove crabs.] (Pl. XVII l)

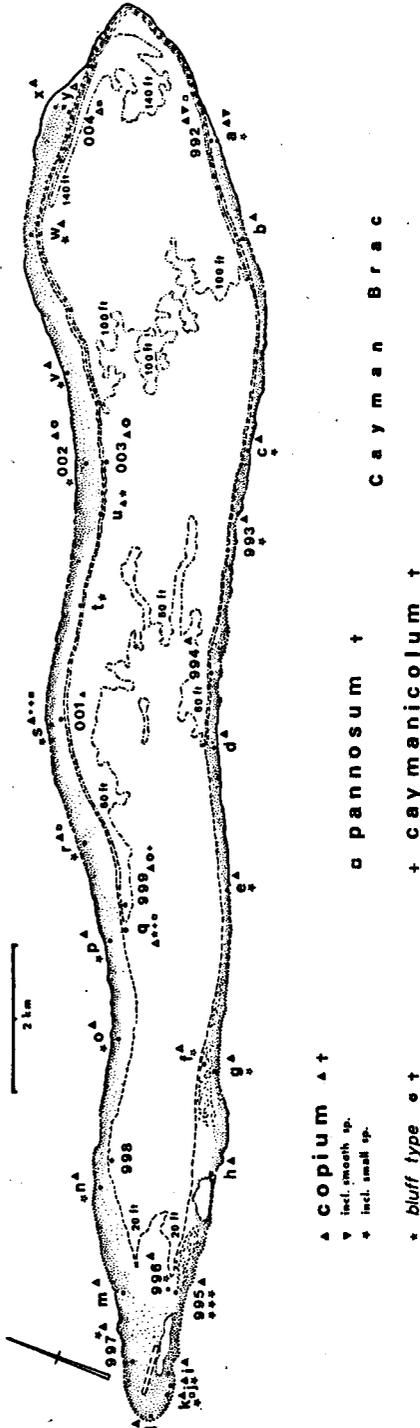


Fig. 18. Localities in CAYMAN BRAC with field notes on distribution of *Cerion*. (White squares and triangles = dead specimens.)

LEGEND FIGS. 19-22.

Only a few samples (p.t. 004-y) did not yield recent specimens of *Cerion copium*, including the bluff-type indicated by small crosses in q, 999, s, t, 002 and 003). In a few localities old shells resembling *C. pannosum* were found (black dots, in k, q, 999, s and 004). Specimens of *C. caymanicolium* are indicated by black (in q, 999 and s). More or less corroded specimens are shaded.

- n** BLOSSOM VILLAGE, 4.VI.1973. (Pl. III b)
Sandy area with a few cultivated patches between houses.
Several, for the greater part empty *pannosa* shells, only a few of them with an interstitial or marbled brownish colour pattern; about 2/3 of the shells similar to or intergrading with *levigata* and *festiva*; a few smaller specimens resembling *lineota*; 26.6 mm, ribs 21.5.
- o** AIRPORT TERMINAL, almost 2 km W of Blossom Village, 4.VI.1973.
Sandy area, semicultivated coconut grove.
Many, for the greater part empty *pannosa* shells, only a few with interstitial brown, blotched or marbled; about 2/3 similar to *levigata* or *festiva*, with intergrading specimens; incl. *intermedia*?; 26.7 mm, ribs 21.5. (Pl. XIII g-l)

CAYMAN BRAC

Figs. 4 & 18 (maps) and 19-22 (graphs); Table 4.
Pls. IV-VIII (localities) and XIV-XVI & XVIII (specimens).

with reference to MAYNARD's species (*copia* = *lineota*)

- a** POLLARD BAY, 2 km SW of North East Point, 31.V.1973. (Pl. IV a & b)
Rocky limestone shore with some sand, 5-25 m from the water-line, the higher and more sandy parts with a few *Ipomoea*.
Several living specimens on and between driftwood, among *Tectarius muricatus*, in the fierce sun at midday; the greater part with weakly developed ribs or almost smooth, often with a marbled brown; a small part ribbed and resembling *copia*; av. altitude of shell 22.1 mm, av. number of ribs 20.5. (Pl. XIVa-d, XVIIIb)
- 992 POLLARD BAY, near The Bluff, 31.V.1973.
Limestone at base of escarpment, about 100 m from *a*, with *Cocothrinax*, some shrubs, a few cacti and agave. [At Pollard Bay *Cerion* lives in a cul-de-sac of its habitat, the strip of its favorite vegetation disappearing where The Bluff goes on eastward into the sea.] Several dead specimens scattered, the greater part resembling those of *a*; one old, damaged shell similar to *pannosa*, two corroded shells resembling *levigata*; 22.6 mm, ribs 20.5.
- b** CAT HEAD BAY, 1.5 km SW of Pollard Bay, 31.V.1973. (Pl. V b)
Coarse coral rubble with sand; a few coconut palms, sparse vegetation.
Many living specimens 5-50 m from the water-line, together with *Tectarius* on beach debris and *Ipomoea*; only a very few empty copias: all specimens with well developed ribs, often somewhat marbled; 22.8 mm, ribs 22.5.
- c** TOM JENNETT'S BAY, 2 km WSW of Cat Head Bay, 31.V.1973.
Coarse coral rubble with sand, 5-100 m from water-line, with some shrubs.
Many living *copia*'s, only a few old shells, all of them with well developed ribs and mostly vividly marbled; a few very small specimens resembling *parva*; 22.9 mm, ribs 21. (Pl. XIV e-h)

C A Y M A N B R A C

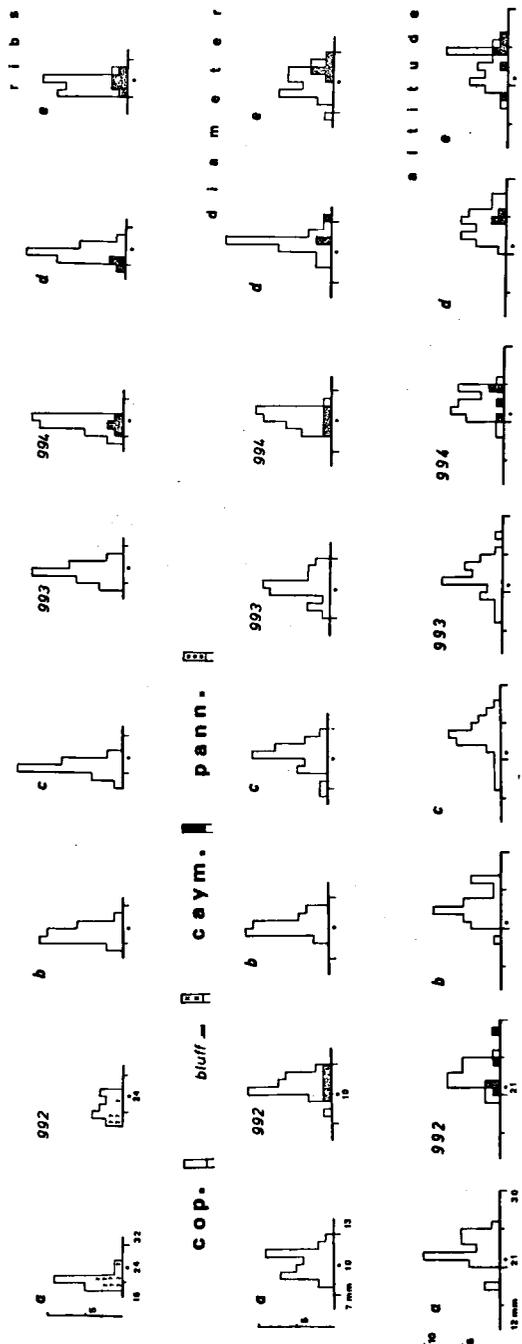


Fig. 19. Variation in *Cerion copium* along the southcoast of CAYMAN BRAC (Sta. a, 992, b, c, 993, 994, d and e).

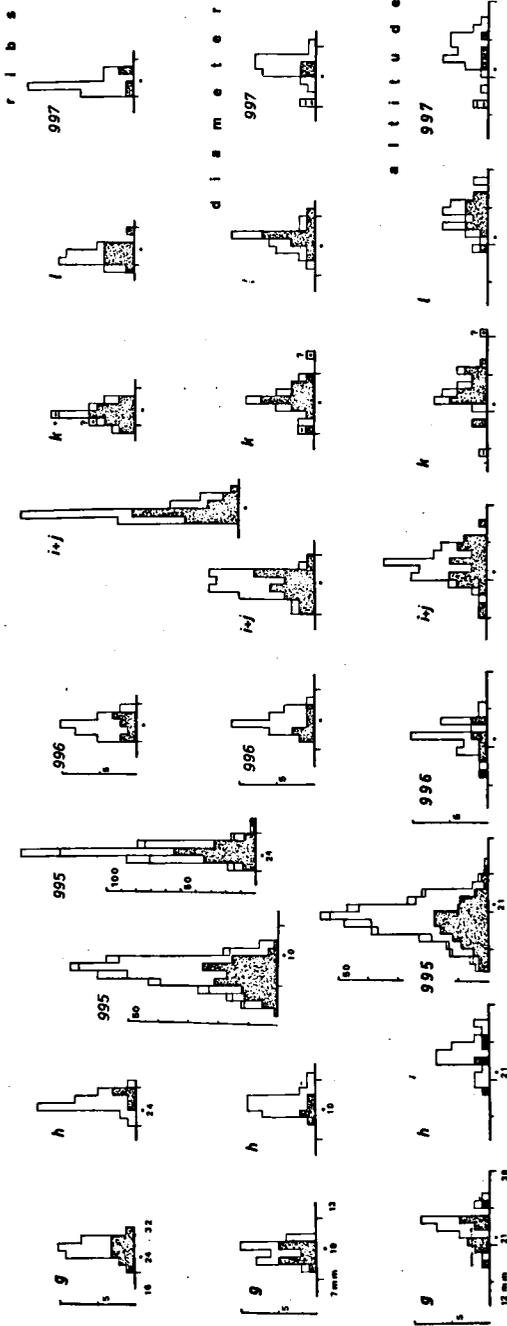


Fig. 20. Variation in *Cerion copium* in western CAYMAN BRAC (Sta. g, h, 995, 996, i-j, k, l and 997).

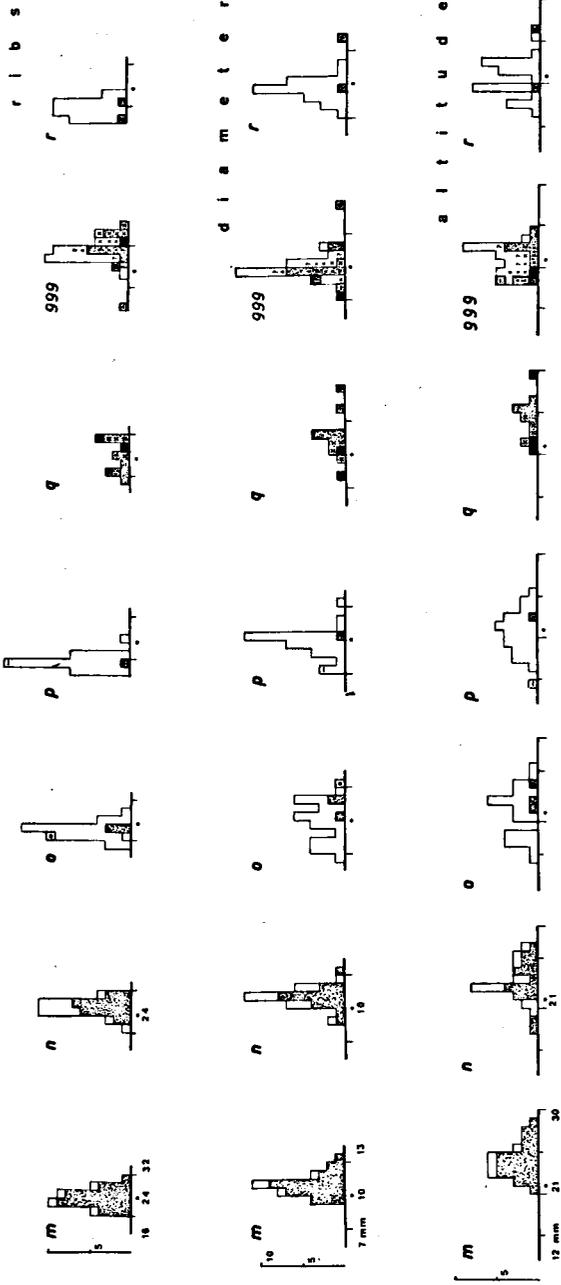


Fig. 21. Variation in *Cerion copium* along the northwestern coast of CAYMAN BRAC (Sta. m, n, o, p, q, 999, and r), including several specimens of the *bluff-type* and *C. caymanicolum*, and a few resembling *C. pannosum*.

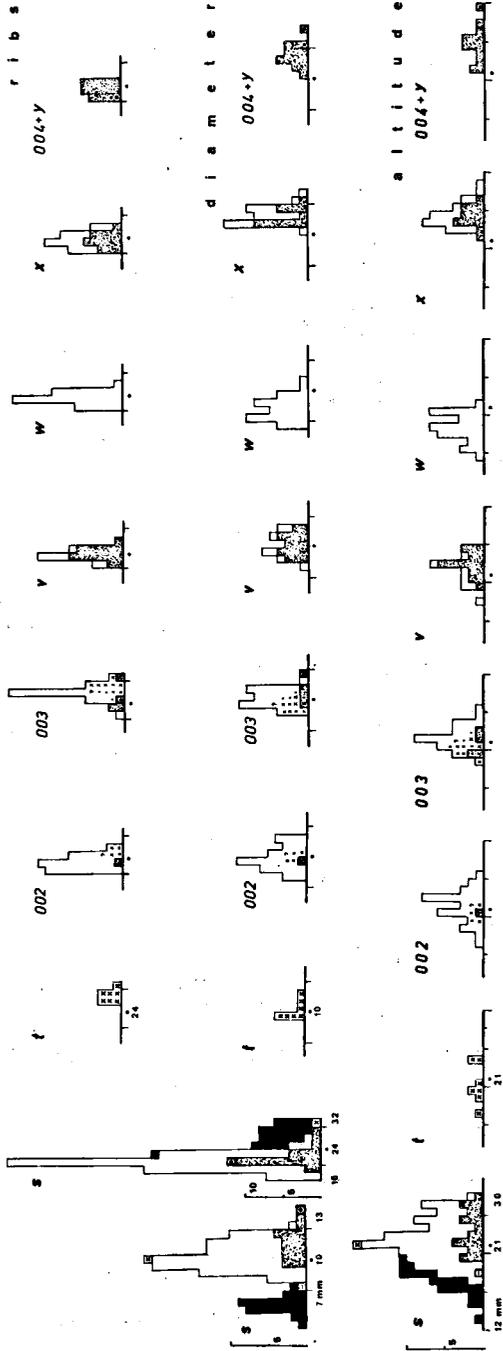


Fig. 22. Variation in *Cerion copium* along the northeastern coast of CAYMAN BRAC (Sta. s, t, 009, 003, v, w, x, and 004 + y), including a number of bluff-type specimens and *C. caymanicolum*, and a single shell resembling *C. pamosum*.

- 993 DEEP WELL, 1.5 km W of Tom Jennett's Bay, 31.V.1973.
Coarse coral rubble and sand, about 50 m from sea, with sparse vegetation.
Many living specimens like *copia*, with a vivid brown between the ribs, sometimes marbled; a few like *parva*; 21.9 mm, ribs 22.5.
- 994 JENNIFER BAY bluff, 2 km W of Deep Well, 31.V.1973.
Near the base of a 15 m high limestone terrace, semicultivated. [Woodland scrub on the bluff without cerions.]
Several living and dead *copia*; 22.3 mm, ribs 23.
- d SEA FEATHER BAY, about 1 km W of Jennifer Bay, 31.V.1973.
Coarse coral rubble with sand, several coconut trees.
Many living *copia* locally occurring on shrubs and cocos leaves about 50 m from sea; 23.9 mm, ribs 22.5.
- During one of his "Amsterdam Expeditions to the West Indian Islands" prof. dr. J. H. STOCK collected in about the same locality – "Sea Feather Bay (rand bluff)" 28.X.1979–42 similar but less robust specimens, including a few small shells: 14.5–21.5–25.5 × 7.5–9.5–11 mm, ribs 17–22.5–27.
- e CEDAR POINT, 2.5 km W of Sea Feather Bay, 31.V.1973.
Low wall of coarse coral debris, 50–80 m from water-line, herbs and low shrubs overgrown by *Cuscuta*, next to a part cleared from scrub.
Many living specimens of *copia*, the greater part vividly coloured, often somewhat marbled; the cleared but still weed-covered part only with empty shells; a single *parva*-like specimen; 22.4 mm, ribs 23.
- f SOUTH EAST BAY, near Red Shrimp Hole, 3.VI.1973.
Limestone terrace near lagoon with low *Conocarpus erectus*.
A few scattered empty, in part corroded shells of *copia*; 21.1 mm, ribs 26.
- g SOUTH EAST BAY, 2.5 km W of Cedar Point, 30.V.1973.
Flat sand ridge with grasses, *Coccoloba uvifera* and small shrubs near shore.
Rather many empty *copia* shells, a few still with traces of marbling; 22.3 mm, ribs 23.
- h DENNIS POINT, 4 km W of Cedar Point, 3.5 km E of West Pt., 30.V.1973.
Low wall of sand with coral rubble with sparse grasses, weeds and shrubs, in places cleared but still covered with weeds.
Many living *copia*, almost all vividly coloured with brown between the ribs, more rarely marbled; not found within 50 m from water-line; 23.2 mm, ribs 26.
- 995 KNOB HILL, southern side, almost 2 km from West Point, 2.VI.1973. (Pl. IVa)
Semicultivated area behing beach ridge, 150–200 m from the sea, in places a swampy vegetation with cotton shrubs, burnt down some time ago.
Numerous specimens, only a few alive, many small-sized like *parva*, with all transitions to *copia*; the living ones sometimes blotched or marbled; 19.6 mm, ribs 25.
- 995A Rather near the adjacent mangrove swamp.
Seventy animals clinging to the vegetation covering 1/2 m²; 18.6 mm, ribs 24. (Pl. XIV k–n, XVIII a)

- 995B Along dusty road passing 995 in N-S direction, 2-3 m high.
Several old and in part corroded shells, much differing in size, possibly brought with sand from the West Point area; 24.0 mm, ribs 22. [not included in Fig. 20]
- 996 KNOBB HILL estate, about 20 m N of 995, 3.VI.1973.
Low terrace of pitted limestone with shrubs and *Agave*, only 1/2 m higher than 995.
Several living *copia* with a few *parva*-like animals, without a striking colour pattern; 21.4 mm, ribs 24. (Pl. XIV o)
- i CHANNEL BAY, West End, near shore, 2.VI.1973.
Sandy road with a few coconut trees and *Ipomoea*.
Several *copia* scattered, only a few alive, some of them with rather weakly developed ribs; the living specimens may have a marbled pattern of vivid brown; 22.1 mm, ribs 23.
- j CHANNEL BAY, West End, near jetty, 3.VI. 1973.
Sandy road with sparse vegetation, incl. young coconut trees..
Several *copia*, only a few alive; two *parva*-like shells, and another with weakly developed ribs; 21.7 mm, ribs 23.
- k THE LEDGES, West End, sand pit near shore, 3.VI.1973.
Many empty and often corroded *copia* shells, some of them still with a marbled pattern; one *parva*-like specimen, and one large one somewhat resembling *pannosa*; 22.7 mm, ribs 23.
- l THE LEDGES, West End Point, 3.VI.1973.
Sand beach with sparse grasses.
A few rather faintly coloured living *copia*; rather many old or even corroded shells scattered on or near the beach; a single one with weakly developed ribs, possibly *intermedia*; 23.8 mm, ribs 22. (Pl. XV a-c).
- 997 AIR STRIP, N, West End, 30.V.1973.
Sandy area with beach ridge of coral rubble.
Many empty shells scattered 20-70 m from water-line. A small living population in the scrub 70-120 m from shore. Several empty shells near Airport, 120-150 m from north coast. Only a few of these *copia*-shells showing a distinct pattern, a couple resembling *parva*; 23.3 mm, ribs 22.
- m SCOTT'S ANCHORAGE at cemetery, West End, 2.VI.1973.
Disturbed sandy area, 30-80 m from shore.
Many *copia*, probably all dead, some of them looking very old, rarely with traces of colour; 24.1 mm, ribs 23.5.
- n COTTON TREE BAY, almost 3.5 km from West Point, 2.VI.1973.
Sandy beach ridge levelled, sparsely low shrubs and herbs, incl. *Ipomoea*, 20-40 m from water-line.
Many *copia* shells, possibly all dead specimens, a few rather uniformly coloured and by this somewhat resembling the *bluff-type*, rarely distinctly marbled; a single one like *parva*; 23.2 mm, ribs 25.5.

- 998 COTTON TREE BAY, edge of bluff, 8 m high, 2.VI.1973.
Honeycombed limestone with dense shrubs and vines, *Cephalocereus* and *Agave*.
A few empty shells of *copia* and one fragment resembling *pannosa*; 19–24 × 9–12.5 mm, ribs 23–27.
- o STAKE BAY, near The Rock, 30.V.1973. (Pl. V a)
Low beach ridge of coarse coral rubble with grasses and weeds, stems of dead coconut trees and several young palms.
A living population of *copia*, incl. a few *parva*-like shells, vivid brown between the ridges, less commonly marbled; some very old shells among the few dead specimens found, one slightly resembling *pannosa*; 21.0 mm, ribs 22. (Pl. XV d–e, XVIII d)
- p STAKE BAY, 1 km E of The Rock, 1.VI.1973.
Sandy beach ridge of coarse coral rubble with a few shrubs, grasses and *Ipomoea*.
A living population of *copia* with widely spaced ribs, several with a marbled pattern; the greater part attached to grasses and weeds, showing a remarkable high percentage (45%) of juveniles and subadults; 20.6 mm, ribs 19. (Pl. XV f, XVIII e)
- q STAKE BAY, near The Bluff, 1.VI.1973.
Disturbed roadside area.
A confusing sample of several empty, for the greater part old or even subfossil shells, mostly damaged, in which may be arbitrarily discerned: a few *pannosa*, several *copia*, several recent and subrecent *bluff-type* shells, and some subfossil *caymanicolum* specimens; 23.7 mm, ribs 24.5.
- 999 STAKE BAY, Bluff opposite Government Building, 20 m high, 2.VI.1973. (Pl. VI b)
Honeycombed limestone, 30–40 m from edge of cliff, rather densely covered with high shrubs with vines and bromeliads, *Cephalocereus* and *Agave*.
Quite a number of equally brown *copia* hiding among plant debris and in fissures, and several old shells from fissures and pockets, all indicated as *bluff-type*; a few old shells of *copia*, one subrecent *pannosa*, a few fragmentary shells of *caymanicolum*, and a single rather conical shell 18 × 8 mm, with about 13 indistinct ribs; 21.1 mm, 28.5 ribs, specimen of Pl. XV i not counted. [Only locality on The Bluff where living cerions were observed.] (Pl. XV g–i, XVIII c)
- r DEADMAN'S POINT, almost 2.5 km NE of The Rock, 1.VI.1973.
Low area of shrubs and low trees, incl. *Gossypium barbadense*, and *Conocarpus erectus*, 50–100 m from sea.
Many living *copia* with widely spaced ribs of varying size, attached to Cotton plants and Button Mangroves as high up as 2 m; very few empty shells; many shells with brown spots between the ribs or somewhat marbled incl. *intermedia*?; 20.7 mm, ribs 19. (Pl. XV j–l)
- s STAKE BAY POINT, 1.VI.1973. (Pl. VII a–b)
Sandy area of coral debris and beach rock, 20–80 m from the sea, possibly somewhat disturbed, with a few scattered shrubs, some *Coccoloba wifera* and rather many *Ipomoea pes-caprae*.
Many specimens of living *copia*, for the greater part brightly coloured with brown between the ridges, several somewhat marbled, together with numerous empty shells; a

single *bluff-type* specimen; a few subfossil shells similar to *pannosa*; several mostly broken subrecent shells of *caymanicolum*; *copia* 21.5 mm, ribs 20.5; *caym.* ('s') 15.3 mm, ribs 26. (Pl. XVI b–e, XVIII f–h).

- 001 STAKE BAY POINT, about 200 m from sea, 1.VI.1973.
High shrubs; a few bananas in pockets of the low limestone terrace.
Only a few weathered fragments of *copia*. [Subfossil *pannosa* was found as far as 150 m from the shore.]
- t WEST OF TIBBETT'S TURN, 2 km E of Stake Bay Point, 30.V.1973.
Semicultivated roadside at base of The Bluff.
A few scattered living specimens of the *bluff-type*, 20.25 × 10.15 mm, ribs 28. (Pl. XVI h–i)
- u WEST OF TIBBETT'S TURN, 3 km E of Stake Bay Point, 30.V.1973.
Roadside at base of The Bluff.
A few old, mostly much damaged and corroded shells which might belong to *copia* and *caymanicolum*; *copia* 20–23 × 9–11 mm, ribs 20–30.
- 002 TIBBETT'S, TURN, about 150 m from the sea, 29.V.1973.
Shrubs and small trees with *Agave*.
Many living *copia* attached to branches and stems as high as 2 m, the greater part with bright brown between the ridges or somewhat marbled: a few uniformly coloured, resembling the *bluff-type*; 21.3 mm, ribs 23. [No cerions were found near the shore, nor in places where *Coccoloba* occurred.]
- 003 TIBBETT'S TURN, about 250 m from shore, 29.V.1973.
Semicultivated area with mango trees and bananas planted in the limestone pockets, near the base of The Bluff.
Disturbed population of *copia* in part resembling the *bluff-type*; 21.6 mm, ribs 26.5. [No cerions found at the base of the cliff.]
- v CREEK LANDING, near church, 30.V.1973.
Sandy beach ridge with only a few shrubs and *Ipomoea*.
Several dead and living *copia*; 21.9 mm, ribs 23. [Not on Sea Grape.]
- During one of his expeditions prof. STOCK collected 4 large shells of *C. copium*; "The Bight, 27.X.1979", 23–25 × 9.5–12 mm, ribs 23–26.
- w SPOT BAY, garden of Lazary, 100–150 m from shore, 30.V.1973. (Pl. VIII)
Garden with fruit trees and coconut palms,
Many small-sized *copia* on stems and branches, generally up to 2 m, in one case as high as 5 m. No empty shells; most specimens without a distinct colour pattern, several with a little brown between the ribs or more or less marbled; smallest specimens resembling *parva*; 18.3 mm, ribs 23. (Pl. XVI j–k)
- x SPOT BAY at Booby Point, 100–150 m from the sea, 29.V.1973.
About 50 m wide sand ridge on limestone terrace which is still bounded by the precipitous Bluff until discontinued; scattered shrubs, some *Ipomoea*, *Agave* and a single *Coccoloba*.

TABLE 2

MEASUREMENTS IN CERION FROM GRAND CAYMAN
referred to *Cerion martinianum*

30 specimens of each sample measured (in mm) with exception of Stations *b* (24), 956 (9), *f* (8) and *p* (22); average values in *italics*. — Station numbers with asterisks refer to extinct colonies.

| Sta. | nrs. coll. | altitude | diameter of spire | diam. of shell | aperture l. w. | ribs | whorls | ribs per cm | altitude | |
|------------|---------------|-------------|----------------------|----------------------|-------------------|------|------------|----------------|-------------|--------------|
| | | | | | | | | | diam. spire | diam. spire |
| <i>a</i> | 85 | 16-18.39-21 | 7.5-8.20-9.5 | 9.19 | 7.83 | 6.40 | 26-32.4-38 | 9.11 | 9-12.7-15 | 2.1-2.24-2.5 |
| <i>aA</i> | 69 | 14-18.25-21 | 7.2-8.33-9.3 | 9.11 | 7.64 | 6.28 | 27-31.5-38 | 8.98 | 10-12.1-16 | 2.0-2.19-2.4 |
| <i>aB</i> | 258 | 14-18.19-21 | 7.5-8.15-9.0 | 9.31 | 7.63 | 6.32 | 26-32.1-39 | 9.04 | 9-12.4-15 | 1.9-2.23-2.5 |
| 932 | 301 | 17-20.33-25 | 7.5-8.55-10.0 | 9.96 | 8.26 | 6.82 | 26-30.8-37 | 9.79 | 9-11.3-15 | 2.1-2.38-2.7 |
| <i>b</i> * | 34 | 18-20.49-23 | 8.4-9.21-10.3 | 10.25 | 8.53 | 6.89 | 26-31.3-37 | 9.54 | 8-10.9-14 | 2.0-2.23-2.5 |
| 956* | 11 | 17-19.05-21 | 8.2-8.74-9.3 | 9.55 | 8.02 | 6.74 | 29-30.4-33 | 9.08 | 10-11.1-13 | 2.1-2.18-2.4 |
| 957* | 84 | 18-21.53-25 | 8.4-9.21-10.2 | 10.04 | 8.80 | 7.45 | 29-31.1-37 | 9.56 | 10-11.1-13 | 2.1-2.34-2.7 |
| <i>c</i> | 196 | 16-19.26-22 | 7.6-8.32-8.8 | 9.24 | 7.88 | 6.51 | 27-31.2-37 | 9.31 | 10-12.0-15 | 2.0-2.31-2.6 |
| <i>f</i> * | 18 | 18-19.04-21 | 7.8-8.58-9.2 | 9.45 | 7.70 | 6.71 | 29-31.9-37 | 9.02 | 10-11.9-15 | 2.0-2.22-2.4 |
| <i>g</i> * | 76 | 17-19.72-24 | 7.2-8.80-10.3 | 9.72 | 8.22 | 6.93 | 27-31.2-37 | 9.23 | 9-11.4-15 | 1.9-2.24-2.6 |
| 961 | 115 | 18-21.25-24 | 8.4-8.94-9.9 | 9.92 | 8.39 | 7.26 | 27-30.9-35 | 9.78 | 9-11.0-13 | 2.1-2.38-2.7 |
| <i>k</i> * | 66 | 14-18.01-22 | 6.6-7.65-8.3 | 8.75 | 7.31 | 6.05 | 26-31.6-37 | 9.10 | 10-13.2-16 | 2.1-2.35-2.6 |
| <i>o</i> * | 111 | 18-21.45-26 | 8.2-9.14-10.4 | 10.21 | 8.41 | 7.24 | 26-30.1-34 | 9.69 | 8-10.4-13 | 2.0-2.34-2.7 |
| <i>p</i> * | 27 | 17-19.83-22 | 7.8-8.71-9.7 | 9.76 | 8.12 | 6.82 | 26-31.0-36 | 9.34 | 10-11.3-15 | 2.1-2.26-2.5 |
| 973 | 168 | 16-20.42-24 | 8.0-8.89-10.1 | 9.76 | 8.12 | 7.01 | 23-27.5-32 | 9.64 | 9-9.9-12 | 1.9-2.21-2.8 |
| <i>q</i> * | 45 | 17-19.48-23 | 8.0-8.77-10.1 | 9.46 | 7.74 | 6.71 | 24-27.3-30 | 9.44 | 8-10.0-12 | 2.0-2.22-2.5 |
| 974* | 278 | 18-22.96-28 | 8.3-9.51-11.0 | 10.44 | 9.06 | 7.42 | 30-35.7-41 | 10.00 | 9-12.0-15 | 2.0-2.41-2.6 |
| <i>r</i> * | 120 | 17-20.81-24 | 8.9-9.49-10.3 | 10.44 | 8.60 | 7.33 | 28-32.2-40 | 9.19 | 9-10.8-14 | 1.9-2.19-2.5 |
| 977* | 63 | 17-20.21-24 | 8.0-9.01-9.9 | 9.80 | 8.36 | 7.07 | 29-34.2-38 | 9.12 | 10-12.1-14 | 1.9-2.25-2.6 |

TABLE 3
MEASUREMENTS IN CERION FROM LITTLE CAYMAN
referred to *Cerion pannosum* (a, 985, b-d, n-o) and *Cerion copium*

30 specimens of each sample measured (in mm) with exception of Stations d(20), f(27), 987 (27) and 989 (18); average values in *italics*. - Station numbers with asterisks refer to extinct colonies: Eight samples are including one or more smooth specimens: b(5), d(1), 987(5), g(1), 989(1), m(1), n(18) and o(17).

| Sta. | nrs. coll. | altitude | diameter of spire | diam. of shell | aperture l. w. | ribs | whorls | ribs per cm | altitude | |
|------|---------------|-------------|----------------------|----------------------|-------------------|------|------------|----------------|-------------|--------------|
| | | | | | | | | | diam. spire | alt. |
| a | 57 | 24-28.08-33 | 11-12.55-14 | 13.09 | 11.68 | 9.45 | 17-20.8-25 | 10.83 | 4-5.3-7 | 1.9-2.17-2.4 |
| 985 | 187 | 23-27.95-33 | 11-11.89-13 | 13.04 | 11.22 | 9.33 | 17-20.6-24 | 10.87 | 4-5.2-8 | 1.8-2.28-2.6 |
| b | 47 | 23-26.05-30 | 10-11.69-13 | 11.94 | 10.66 | 8.84 | 16-20.0-24 | 10.42 | 5-5.6-7 | 2.0-2.23-2.4 |
| c | 49 | 25-29.12-34 | 11-12.83-14 | 13.25 | 11.72 | 9.73 | 18-22.9-25 | 10.74 | 4-5.7-7 | 2.0-2.27-2.6 |
| d | 25 | 23-27.90-33 | 11-12.55-14 | 13.56 | 11.51 | 9.45 | 21-24.5-28 | 10.66 | 5-6.2-8 | 2.0-2.22-2.5 |
| 986 | 42 | 22-25.07-30 | 10-11.12-13 | 11.69 | 10.11 | 8.35 | 22-26.6-33 | 10.20 | 6-7.6-9 | 1.8-2.26-2.5 |
| e | 130 | 21-25.21-30 | 9-11.04-12 | 11.74 | 10.14 | 8.54 | 22-26.7-33 | 10.42 | 6-7.7-9 | 1.9-2.28-2.7 |
| f | 36 | 23-25.70-31 | 10-11.29-13 | 11.82 | 10.60 | 8.30 | 22-26.6-32 | 10.42 | 6-7.5-9 | 2.1-2.28-2.6 |
| 987 | 40 | 21-24.78-28 | 10-11.19-12 | 11.64 | 10.34 | 8.67 | 23-25.6-28 | 10.38 | 6-7.2-8 | 1.9-2.22-2.7 |
| g | 88 | 20-23.98-27 | 9-10.42-12 | 11.09 | 9.79 | 8.09 | 21-25.8-31 | 10.36 | 6-7.9-9 | 2.0-2.30-2.6 |
| 988 | 212 | 17-22.27-25 | 9-9.89-11 | 10.56 | 9.03 | 7.66 | 22-24.5-28 | 10.14 | 7-7.9-9 | 1.9-2.25-2.5 |
| 989* | 33 | 21-24.40-28 | 9-10.89-12 | 11.29 | 9.79 | 8.37 | 22-24.9-29 | 10.35 | 6-7.3-9 | 2.0-2.25-2.5 |
| h | 148 | 20-23.75-29 | 9-10.66-12 | 11.48 | 9.94 | 8.41 | 20-25.2-28 | 10.28 | 6-7.5-9 | 2.0-2.30-2.6 |
| i | 165 | 18-22.11-29 | 8-9.74-13 | 10.39 | 8.99 | 7.91 | 22-26.0-31 | 9.98 | 6-8.5-11 | 2.0-2.27-2.8 |
| j | 34 | 20-23.76-29 | 8-10.04-11 | 10.83 | 9.46 | 7.71 | 19-21.8-26 | 10.32 | 6-7.2-9 | 2.2-2.36-2.7 |
| k | 47 | 20-23.08-27 | 9-9.94-11 | 10.32 | 8.95 | 7.51 | 20-24.1-28 | 10.23 | 6-7.7-9 | 2.1-2.32-2.6 |
| l | 36 | 20-22.84-27 | 9-9.89-11 | 10.36 | 9.07 | 7.55 | 21-25.2-29 | 10.12 | 7-8.1-9 | 2.1-2.31-2.6 |
| m | 69 | 21-23.95-28 | 9-10.43-12 | 11.06 | 9.36 | 7.82 | 18-22.3-25 | 10.41 | 6-6.9-8 | 2.1-2.30-2.6 |
| 990* | 110 | 19-21.69-26 | 9-9.30-10 | 10.04 | 8.69 | 7.38 | 18-22.0-25 | 9.80 | 6-7.7-9 | 2.1-2.32-2.6 |
| n | 69 | 22-26.64-31 | 11-11.79-13 | 12.34 | 10.59 | 9.00 | 18-21.6-25 | 10.80 | 5-5.7-7 | 2.0-2.27-2.6 |
| o | 318 | 22-26.69-32 | 10-11.74-13 | 12.56 | 10.61 | 8.98 | 18-21.5-26 | 10.74 | 5-5.7-7 | 1.8-2.28-2.6 |

TABLE 4
 MEASUREMENTS IN CERION FROM CAYMAN BRAC
 referred to *Cerion copium*, including some bluff-type specimens (e.g. q, 999 and 003), excluding a number of *Cerion*
caymanicolium (s') and a few *Cerion pannosum* - like shells.

30 specimens of each sample measured (in mm) with exception of Stations q (11), s' (24) and v (23); average values in *italics*.
 Station numbers with asterisks refer to extinct colonies.

| Sta. nrs. col. | altitude | diameter of spire | diam. of shell | aperture | | ribs | whorls | ribs per cm | altitude | |
|-------------------|-------------|----------------------|----------------------|----------|------|------------|--------|----------------|--------------|-------------|
| | | | | l. | w. | | | | per cm | diam. spire |
| a | 17-22.13-26 | 8-10.07-12 | 10.87 | 9.13 | 7.86 | 18-20.3-24 | 10.35 | 5- 6.5- 9 | 2.0-2.24-2.5 | |
| 992 | 19-22.65-29 | 9-10.54-12 | 11.12 | 9.22 | 7.97 | 16-20.5-25 | 10.46 | 5- 6.2- 8 | 1.9-2.15-2.5 | |
| b | 18-22.84-27 | 9-10.17-11 | 10.43 | 9.13 | 7.87 | 19-22.3-27 | 10.44 | 6- 7.0- 8 | 1.9-2.27-2.7 | |
| c | 16-22.89-27 | 8-10.19-12 | 11.20 | 9.26 | 7.87 | 17-20.9-24 | 10.31 | 5- 6.6- 9 | 1.9-2.25-2.6 | |
| 993 | 17-21.89-27 | 8-10.10-12 | 10.65 | 8.94 | 7.82 | 19-22.6-26 | 10.41 | 6- 7.2-10 | 1.8-2.16-2.4 | |
| 994 | 18-22.34-26 | 9- 9.84-11 | 10.89 | 9.14 | 7.89 | 18-22.9-26 | 10.38 | 5- 7.2- 9 | 1.9-2.19-2.5 | |
| d | 20-23.88-27 | 9-10.55-12 | 11.22 | 9.68 | 8.24 | 19-22.3-36 | 10.65 | 5- 6.4- 8 | 1.9-2.27-2.6 | |
| e | 17-22.41-27 | 8- 9.95-12 | 10.52 | 8.87 | 7.59 | 20-22.9-26 | 10.39 | 6- 7.4- 9 | 1.9-2.26-2.6 | |
| f | 17-21.12-24 | 8- 9.81-11 | 10.21 | 8.44 | 7.37 | 23-26.0-28 | 10.12 | 7- 8.5-11 | 1.9-2.15-2.4 | |
| g | 18-22.29-27 | 8- 9.84-11 | 10.23 | 8.65 | 7.52 | 21-22.9-30 | 10.21 | 7- 8.5-10 | 1.9-2.27-2.6 | |
| h | 18-23.24-28 | 9-10.43-12 | 10.80 | 8.74 | 7.75 | 21-25.9-30 | 10.63 | 6- 7.9-10 | 1.7-2.23-2.6 | |
| 995 | 13-19.39-27 | 7- 8.66-10 | 9.19 | 7.52 | 6.26 | 21-23.0-30 | 9.90 | 7- 8.9-12 | 1.8-2.24-2.6 | |
| 995' | 12-19.90-26 | 6- 8.74-11 | 9.53 | 7.70 | 6.97 | 23-25.5-32 | 10.00 | 7- 8.8-13 | 1.9-2.19-2.6 | |
| 995A | 13-18.62-22 | 7- 8.69-10 | 9.28 | 7.45 | 6.63 | 20-23.9-29 | 9.66 | 7- 8.8-12 | 1.8-2.14-2.5 | |
| 995B* | 16-23.97-29 | 8-10.64-12 | 11.23 | 9.41 | 8.24 | 19-22.2-24 | 10.41 | 5- 6.7- 9 | 2.0-2.25-2.5 | |
| 966 | 17-21.42-26 | 8- 9.84-11 | 10.25 | 8.42 | 7.67 | 20-24.2-29 | 10.52 | 6- 7.6-10 | 1.8-2.18-2.6 | |
| i | 18-22.10-25 | 9-10.03-11 | 10.50 | 8.82 | 7.70 | 20-23.1-28 | 9.96 | 6- 7.4- 9 | 1.9-2.21-2.5 | |
| j | 15-21.69-27 | 8- 9.87-12 | 10.44 | 8.65 | 7.59 | 20-22.7-27 | 9.98 | 6- 7.4- 9 | 1.8-2.20-2.5 | |
| k* | 14-22.67-30 | 8-10.28-14 | 10.72 | 9.05 | 8.05 | 18-23.0-27 | 10.13 | 5- 7.2-10 | 1.8-2.20-2.5 | |

| | | | | | | | | | | |
|------------|-----|-------------|-------------|-------|------|------|------------|-------|------------|--------------|
| <i>l</i> | 88 | 19-23.81-29 | 9-10.47-12 | 11.27 | 9.28 | 8.13 | 18-22.0-28 | 10.37 | 5- 6.7- 9 | 2.0-2.24-2.8 |
| 997 | 53 | 16-23.29-27 | 8-10.57-12 | 11.16 | 9.09 | 8.19 | 20-22.2-27 | 10.50 | 6- 6.7- 9 | 1.7-2.20-2.6 |
| <i>m</i> | 117 | 20-24.09-28 | 9-10.62-12 | 11.36 | 9.15 | 8.37 | 21-23.5-30 | 10.55 | 6- 7.2- 9 | 2.0-2.28-2.7 |
| <i>n</i> | 485 | 17-23.20-28 | 9-10.67-12 | 11.28 | 9.22 | 8.28 | 21-25.6-29 | 10.48 | 6- 7.4- 9 | 1.9-2.18-2.5 |
| <i>o</i> | 61 | 15-21.01-26 | 7- 9.85-12 | 10.38 | 8.25 | 7.54 | 19-22.1-26 | 10.21 | 6- 7.2- 9 | 1.9-2.13-2.4 |
| <i>p</i> | 151 | 15-20.59-26 | 8- 9.85-12 | 10.33 | 8.50 | 7.42 | 16-18.8-25 | 10.03 | 5- 6.1- 8 | 1.7-2.09-2.5 |
| <i>q</i> | 33 | 20-23.72-26 | 9-10.73-13 | 11.20 | 9.30 | 8.30 | 19-24.7-29 | 10.83 | 5- 7.4- 9 | 2.0-2.21-2.4 |
| 999 | 122 | 18-21.11-25 | 8- 9.94-12 | 10.34 | 8.32 | 7.46 | 23-28.6-34 | 10.59 | 7- 9.2-11 | 1.9-2.12-2.4 |
| <i>r</i> | 276 | 16-20.68-27 | 8- 9.75-13 | 10.33 | 8.47 | 7.45 | 16-19.1-22 | 10.18 | 4- 6.3- 8 | 1.8-2.12-2.4 |
| <i>s</i> | 545 | 16-21.54-28 | 8-10.17-12 | 10.94 | 8.86 | 7.66 | 17-20.7-31 | 10.50 | 5- 6.5-10 | 1.8-2.12-2.5 |
| <i>s**</i> | 35 | 12-15.30-19 | 6- 6.75- 8 | 7.37 | 6.06 | 5.28 | 23-26.2-31 | 9.87 | 10-12.5-16 | 2.0-2.28-2.7 |
| 002 | 156 | 16-21.27-25 | 8- 9.95-11 | 10.46 | 8.40 | 7.48 | 20-22.8-26 | 10.53 | 6- 7.3- 9 | 1.9-2.14-2.5 |
| 003 | 70 | 19-21.56-26 | 9-10.14-12 | 10.57 | 8.62 | 7.78 | 21-26.5-32 | 10.53 | 6- 8.4-10 | 2.1-2.13-2.2 |
| <i>v</i> | 30 | 17-21.88-25 | 9-10.13-11 | 10.51 | 8.74 | 7.67 | 20-23.1-27 | 10.29 | 6- 7.3- 9 | 1.9-2.16-2.5 |
| <i>w</i> | 138 | 15-18.33-22 | 8- 8.83-11 | 9.28 | 7.48 | 6.36 | 21-23.0-26 | 9.87 | 7- 8.3-10 | 1.8-2.08-2.5 |
| <i>x</i> | 72 | 21-23.41-29 | 10-11.27-13 | 11.99 | 9.74 | 8.76 | 20-23.0-28 | 10.51 | 5- 6.5- 8 | 1.9-2.16-2.6 |

- Rather many living and dead *copia*; living animals in the majority along the sea-side slope, on the land side more empty shells; only a few more or less marbled brown; 23.4 mm, ribs 23.
- y SPOT BAY, near Booby Point, about 250 m from the sea, 29.V.1973.
Semicultivated area with a few scattered shrubs and herbs.
A few empty large *copia*; 24.25 × 11.45 mm, ribs 22.4.
- 004 SPOT BAY near Booby Point, about 350 m from shore, near The Bluff, 29.V.1973.
Slabs of limestone at the base of the cliff; a semicultivated area with a few shrubs.
A few empty *copia* shells; one subrecent *pannosa* 29 mm, with several fragments. (Pl XVI m)

Grand Cayman (Figs. 1–2 and 8–9)

The cerions of Grand Cayman – which island was not visited by MAYNARD – have generally been considered to belong to one and the same species: *Cerion martinianum* (Küster, 1844). Its variability was once honoured by PILSBRY (1902) by attaching a new name, *C. caymanense*, to a few specimens from the north coast which he afterwards (1930, p. 235) considered to be “only a small race or form of *C. martinianum*”.

The genus is far from evenly distributed over that part of the island offering suitable habitats. Living populations were found at a few places only, mostly occupying very restricted areas situated on Barkers Peninsula (Sta. 952 and a; Pl. Xa–g, XVIIa), West Bay beach (c; Xh), along South Sound (961 and l; Xi) and near Half Moon Bay (972, 973; XI). Most samples yielded empty shells, sometimes rather fresh looking, in other cases obviously old, often corroded or even covered by soil material. In many places – for unknown reasons – *Cerion* did not occur at all.

All cerions – with exception of a few inland samples which may have been brought from elsewhere – were found near the sea shore. Living populations occurred on a low-lying area of beachrock bordering a mangrove swamp (952; Ia), low dunes thinly covered with *Sporobolus* (a), on a sandy ridge with sparse beach vegetation (c), at the margin of rather dense bush (961), and on limestone rock near the spray zone (973). Possibly the extension of the Sea Grape (*Coccoloba uvifera*), in addition to human influence, has furthered the extinction of *Cerion* in many places.

The cerions inhabiting Grand Cayman – in general – give an impression of uniformity; they certainly belong to a single species. Existing charact-

eristics of size, shape and sculpture – such as are peculiar to local extinct populations near Gun Bay (XIc) and Bodden Town (XVIIIf–g), or accidentally found in a sample near the Airport (Xj), do not deserve special nomenclatorial status. When comparing the specimens collected in the eastern part of the island with those found in the smaller limestone areas of the southern, southwestern and northwestern parts, no distinct geographical speciation was found.

A more detailed survey may result in discovering many more living populations of *C. martinianum*, providing a clearer insight into the mode of dispersal of this species. From the samples collected, I got the impression that the recent *Cerion* population of Grand Cayman should be considered to be a remnant of a former, more flourishing fauna, with only a few vigorous colonies left. These nuclei may be somewhat vagrant and are still capable of colonizing new territories.

Little Cayman (Figs. 3 and 13)

In Little Cayman flourishing colonies of large cerions (altitude of shell as a rule 25–30 mm) with relatively few ribs (mostly 18–22) were found occurring from Blossom Village, on the southwest coast (*o*) as far north as Crawl Bay (*d*). These colonies of striated *Cerion pannosum* (Pl. XIIa–c, XIIIi–j) are commonly mixed with smooth or almost smooth cerions which were called by MAYNARD *Strophia levigata* and *S. festiva* (XIIe, XIIIk). All kinds of intermediate forms could be found, *e.g.* in samples which contained 30%–60% of smooth specimens (*985-b* and *n-o*).

Cerion pannosum in this restricted sense – *viz.* as inhabiting the western part of Little Cayman – has been considered to be a species, although it is evident that it interbreeds with other cerions on the island. Several old shells found outside the area of living *C. pannosum* suggest a more extended range in former days.

The most common cerion of Little Cayman has been named *Cerion copia* (= *Strophia lineota* + *S. copia*); it consists of a number of populations of smaller animals (as a rule 22–26 mm) with more ribs (mostly 23–27). Smooth specimens were rarely observed (XIIg–l, XIIIa–f, XVIIk). A number of populations along the southcoast east of the South Hole Sound (*l-g*) – belonging to MAYNARD's *Strophia lineota* – might be distin-

guished on minor average values, such as smaller size, more ribs and a more striking colour pattern.

The species' range of variation includes a very small number of specimens less than 19 mm in altitude similar to *Strophia parva*; including a few shells with some resemblance to *Cerion martinianum*.

Special attention may be drawn to a population of small-sized specimens (20–23 mm) – possibly exterminated by crabs – occurring on the sandy, weed-covered key of Owen Island (990; XVIIk). These animals looked like a small edition of *Cerion copia* (22–26 mm) inhabiting a small coconut grove (*m*; XIIIe–f) on the opposite main island.

Along the north coast *Cerion pannosum* merges into *C. copia* (986–987). Contrary to this, a rather distinct boundary between both species exists east of Blossom Village (between *n* and *m*).

Cayman Brac (Figs. 4 and 18)

At first sight the cerion fauna of Cayman Brac appeared to be rather similar to that of Little Cayman. I had no difficulty following PILSBRY (1949) in accepting *Cerion copium* as the only recent species on that island – except when dealing with some closely ribbed and uniformly brown specimens from The Bluff at Stake Bay (999) which looked quite different and therefore, were indicated as *bluff-type* (Pl. XV g–h, XVIIIc).

The material studied by PILSBRY (1949) was collected by C. BERNARD LEWIS, who visited the island from March 30 to April 6 1940. He stayed at Stake Bay. Collecting was done particularly in that vicinity and along the trail crossing the island at that point. “Living Cerion was found to be abundant at most places where they occurred at all. Sometimes they would be completely absent. Coconut trees were wiped out through the ravages of bud-rot and storm between 1920–33 so that Maynard’s reference to the “coconut grove” has little significance today. . . . Specimens obtained . . . on the “bluff” were all dead shells and out of habitat. Some or all may have been taken inland by hermit crabs which abound” (LEWIS in PILSBRY 1949, p. 44–45).

Although I certainly paid too little attention to the fauna on The Bluff, I gained the impression that the higher and shrubby parts of the islands’

pitted limestone areas were – generally speaking – no suitable habitats for *Cerion*.

On further investigation, the cerion fauna of Cayman Brac was found more heterogeneous.

PILSBRY already mentions the great variation in colour: “In some places ... white shells predominate; in some other localities shells with dark intercostal intervals are equally prevalent, or form a majority, or even ... all seen are dark.”

Small-sized specimens of *C. copium* (= *Strophia parva*) are especially common south of Knob Hill (995), where, in a small and abandoned field of Cotton, they are a characteristic feature. Beside this, *parva*-like specimens are occasionally found in several other localities. Smooth shells similar to *Strophia glaber* were rare (XIV g, l). Specimens with few, distant ribs may, or may not, be identified with *Strophia intermedia* (XV).

Possibly also *Cerion pannosum* has contributed to the heterogeneity of Cayman Brac's cerion population, because very old or even subfossil shells similar to *pannosum* are occasionally found at several localities (992, 998, q, 999, s and 004; XVI m).

Another strange element was revealed by the discovery, near Stake Bay Point (s) of small, minutely striated subrecent shells which, in a less perfect state were also observed in other places along the northcoast (q, 999, u; XVII b–e, XVIII f). They may be provisionally considered to be a new species, *Cerion caymanicolum*, awaiting a satisfactory analysis of the Cayman Islands' malacofauna, which will allow a better understanding of these islands' *Cerion* taxonomy.

TABLE 5

SYNOPSIS OF CERION IN THE CAYMAN ISLANDS

with reference to the species of *Strophia* created by MAYNARD, 1889, indicated by square brackets; average values in italics.

GC = Grand Cayman LC = Little Cayman CB = Cayman Brac

STRIATIONS COARSE AND WIDELY SEPARATED (if undeveloped see below);
RIBS NOT DEPRESSED BELOW THE SUTURE.

Shell large

23–28–34 mm, ovoid to subcylindrical, 1.9–2.25–2.65 as long as wide; ribs 17–21–24 (4–6 per cm); greyish to brownish, sometimes blotched or marbled. [*S. pannosa*, LC] **C. pannosum**, LC & ?CB

23–34 mm, subcylindrical, about 2.5 as long as wide; ribs about 17; brown. [*S. fusca*, LC] **C. pannosum**

Shell medium

21–27 mm, ovoid, very variable, 2.0 as long as wide; ribs 16–19; whitish. [*S. intermedia*, LC & CB] **C. pannosum & copium**

Shell small

about 18 mm, ovoid, variable, about 2.2 as long as wide; ribs about 16. **? C. copium**, CB

STRIATIONS PROMINENT, NOT WIDELY SEPARATED (if undeveloped see below); RIBS AS A RULE NOT DEPRESSED BELOW THE SUTURE.

Shell medium

18–23.4–29 mm, ovoid, commonly tending to subcylindrical, 2.0–2.3–2.8 as long as wide; ribs 20–24–30 (6–9 per cm); whitish, often blotched with brown. [*S. lineota*, LC (& CB)] **C. copium**, LC

18–22.8–28 mm, ovoid, often tending to subcylindrical, 1.7–2.2–2.6 as long as wide; ribs 20–24–30 (6–9 per cm); whitish, often blotched with brown or marbled. [*S. copia*, CB (& LC)] **C. copium**, CB

16.5–21.0–26 mm, ovoid, 1.7–2.1–2.4 as long as wide; ribs 23–28–34 (7–11 per cm); brown **bluff-type of C. copium**, CB

Shell small

15 to about 18 mm, ovoid; about 2.0 as long as wide; ribs about 18; whitish. [*S. parva*, CB] *C. copium*

STRIATIONS PROMINENT, NOT WIDELY SEPARATED; RIBS AS A RULE SLIGHTLY DEPRESSED BELOW THE SUTURE.

Shell small

14.5–19.9–25 mm, ovoid to ellipsoid, 2.1–2.3–2.5 as long as wide; ribs 26–30.5–38 (9–15 per cm), often beaded; whitish to brownish, often blotched. *C. martinianum*, GC

Shell very small

11.75–15.3–19.15 mm, subcylindrical to ovoid, 2.0–2.3–2.7 as long as wide; ribs 23–26–31 (10–16 per cm), as a rule not beaded; colour (of subrecent specimens) unknown, *C. caymanicum*, CB

13.5–14.8–17.5, elongated conical, 2.3–2.6–2.7 as long as wide; ribs about 19–20–22 (abt. 12 per cm), more or less beaded (only 4 specimens examined). [*S. nana*, LC] *C. nanus*, LC

STRIATIONS ABSENT OR ALMOST ABSENT.

Shell large

27–30.5–34 mm, ovoid to subcylindrical, about 2.4 as long as wide; whitish. [*S. levigata*, LC] *C. pannosum*

24–29.5–31.5 mm, ovoid to subcylindrical, about 2.4 as long as wide; whitish with purple markings. [*S. festiva*, LC] *C. pannosum*

Shell medium

25.5–28.5 mm, ovoid, about 2.2 as long as wide; whitish. [*S. nitela*, LC] *C. pannosum* ?

?20–27 mm, ovoid to subcylindrical, about 2.3 as long as wide, with slightly elevated ridges; whitish. [*S. perplexa*, CB] *C. copium*

21–24–26 mm, pointed ovoid, about 2.4 as long as wide; white with spottings of brown. [*S. picta*, LC] *C. copium* ?

20.5–27.5 mm, pointed ovoid, about 2.4 as long as wide; white, tinged with purplish. [*S. acuta*, LC] *C. copium* ?

Shell small

15.5–23 mm, ovoid, about 2.0 as long as wide; whitish. [*S. glaber*, CB] *C. copium*

TABLE 6

SIMPLIFIED KEY TO THE CERIONS OF THE
CAYMAN ISLANDS

SHELL ON THE AVERAGE ABOUT 15 MM IN LENGTH, not exceeding 20 mm.

Mostly more than $2\frac{1}{2}$ times as long as wide, elongated to conical; ribs about 20, more or less depressed below the suture; dull ashy in colour
Cerion nanus

Known from a single locality in western LITTLE CAYMAN.

Often more than $2\frac{1}{2}$ times as long as wide, ovoid to subconical; ribs usually about 25, generally slightly depressed below the suture; colour unknown **Cerion caymanicum**

Subrecent shells in a few localities in northern CAYMAN BRAC.

Generally about 2 times as long as wide, ovoid; ribs mostly about 20, very variable, not depressed below the suture; smooth specimens are rare; usually whitish: smallest specimens among larger animals of *Cerion copium*.

SHELL ON THE AVERAGE ABOUT 20 MM IN LENGTH, not exceeding 25 mm.

Generally about $2\frac{1}{2}$ times as long as wide, ovoid to ellipsoid; ribs on the average about 30, often somewhat depressed below the suture; whitish to brownish, often blotched **Cerion martinianum**

Very common but unevenly distributed and in most places extinct in GRAND CAYMAN.

Generally slightly more than 2 times as long as wide, ovoid; ribs on the average almost 30, not depressed below the suture; brown

Cerion copium (*bluff-type*)

Known from several localities in CAYMAN BRAC.

Generally slightly more than 2 times as long as wide, more or less ovoid; ribs mostly about 20, very variable, not depressed below the suture; smooth specimens are rather rare; whitish or somewhat brownish: small specimens among larger animals of *Cerion copium*.

SHELL ON THE AVERAGE ABOUT 25 MM IN LENGTH, not exceeding 30 mm.

Generally about $2\frac{1}{4}$ as long as wide, more or less ovoid; ribs on the average almost 25, very variable, generally not depressed below the suture; smooth specimens uncommon; whitish to brownish, often blotched or marbled **Cerion copium**

Very common in CAYMAN BRAC and in the eastern part of LITTLE CAYMAN.

SHELL ON THE AVERAGE ABOUT 30 MM IN LENGTH, not exceeding 35 mm.

Generally about $2\frac{1}{2}$ as long as wide, ovoid to subcylindrical; ribs on the average hardly more than 20, not depressed below the suture; smooth specimens are common; whitish to brownish, sometimes blotched or marbled **Cerion pannosum**

Very common in the western part of LITTLE CAYMAN; subrecent shells occasionally found in CAYMAN BRAC.

NOTES ON THE SPECIES

Cerion martinianum (Küster, 1844)

(Figs. 23–24; Pls. X–XI a–f, XVII a–h)

Pupa Martiniana KÜSTER, 1844, p. 75, pl. 4 (= 11) fig. 3–4. [Diagn., descr.; "... Windungen ... unter dem Oberrand von einer aus Hohlpunkten zusammengesetzten vertieften Linie umzogen ... Aufenthalt: ?; wahrscheinlich Westindien." Cf. Fig. 23.]

Pupa Martiniana Küster, PFEIFFER 1848, p. 324. [Diagn., Küster]

Pupa Martiniana, SOWERBY 1875, Pupa, pl. 2 spec. 16 [Diagn.; "This shell is remarkable for having a little knob on the top of each rib at the suture." Cf. Fig. 24.]

Cerion martinianum Küster, PILSBRY & VANATTA 1896, p. 324. [Name only.]

Cerion martinianum (Küster), PILSBRY 1902, p. 264–265, pl. 44 figs. 75–77. [Descr.; "A furrow below and parallel to the suture defines a subsutural band which appears beaded"; 20.5 × 8.7 and 18.5 × 9 mm; "Bahamas?" Cf. Fig. 24.]

Cerion caymanense PILSBRY, 1902, p. 196, pl. 44 figs. 85–86. [Descr.; 25–28 ribs, "each rib a little swollen at the upper end"; 19 × 8 and 17.3 × 7.6 mm, "collected by Mr. C. B. Taylor ... on the north side of ... Grand Cayman Island." Cf. Fig. 24.]

Cerion martinianum Küster), PILSBRY 1930, p. 234–236, pl. 18 figs. 1, 2, 6–8. [Descr., 12 sp. 15.2–19.5–23 × 7.5–8.3–10.5 mm; Grand Cayman.]

Cerion martinianum, PILSBRY 1930a, p. 353. [James "Bond 12 miles east of Georgetown near the north shore."]

Cerion martinianum (Küster), PILSBRY 1942, p. 6–7. [Grand Cayman; notes of C. B. Lewis.]

Cerion martinianum [forma] *caymanense* PILSBRY, 1942, p. 6; pl. 1 figs. 1–3. ["north shore, east of the Great Sound. It is weakly differentiated ... by the usually smaller size and the presence of dark stripes ... complete intergradation with martinianum"; 3 sp.: 16.2–16.5–21 × 8.9–6.9–9.2 mm.]

Cerion martinianum (Küster), WURTZ 1950, p. 105. [Grand Cayman, 3 stations.]

Cerion "martiniana Küster, *Pupa*", CLENCH 1957, p. 152.

Cerion martinianum Küster, CLENCH 1964, p. 371–373, pl. 62 figs. 3–4. [Descr., syn., remarks; Grand Cayman, 8 localities; 14 sp.: 13.5–18.1–28 × 7.5–8.83–11.5 mm; paratypes of *C. caymanense* 3 sp.: 16.0, 16.5, 18.0 by 9.0, 8.0, 9.0 mm; "close relationship between *C. martinianum* and *C. sanctacruzense* Aguayo & Jaume, occurring along the south coast of Camagüey, Cuba."]

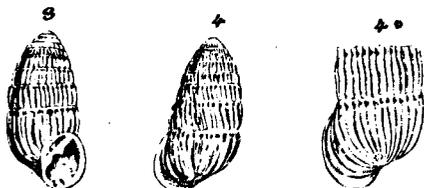


Fig. 23. KÜSTER's *Pupa Martiniana* as figured in the *Conchylien-Cabinet* (2) I(15), 1844, p.75, pl. 4 (= 11): "... linea impresso-punctata cingulatis ...".

The data mentioned in the Synopsis are based on living specimens from Sta. *a*, 952, *c*, 661 and 973. The following description refers to all recent specimens studied (see Table 2; average values in italics, extremes in parentheses).

Shell ovoid to subcylindrical with an acute apex; length (1.9–) 2.1–2.28–2.5 (–2.8) times major diameter of spire. Altitude (14.0–) 18.0–20.04–23.0 (–27.7) mm; diameter of spire (6.6–) 7.7–8.79–9.7 (–11.0) mm; maximum diameter of shell 9.7 mm.

– Whorls (7.9–) 8.8–9.36–10.0 (–10.1); last whorl as a rule conspicuously protruding.

– Aperture more or less subovate, as a rule distinctly angular at the upper side, about 1.2 times as long as wide, 8.05 by 6.8 mm. Margin reflected and thickened; frontal bar often well developed.

– Ribs (23–) 27.0–31.1–36.0 (–41) per whorl on the widest part of the spire, *i.e.* (8–) 10–11.5–13 (–16) per cm; they are generally somewhat depressed below the suture, more rarely distinctly swollen at the upper end.

– Colour whitish, greyish, creamy or beige to brownish, often blotched with reddish brown or pinkish brown, sometimes with a purplish hue. Blotches variable in shape, often creating a marbled pattern, tending to a vertical banding. Aperture, parietal tooth and the interior of the shell mostly whitish porcellaneous to beige, in blotched specimens up to beigeish redbrown, often with a hue of pink or purple. Protoconch whitish to beigeish, sometimes slightly brown.

Specimens from the extinct populations near Gun Bay (974) and Old Man Village (*t*) are distinctly larger and have a much stronger developed peristome than those from other parts of the island.

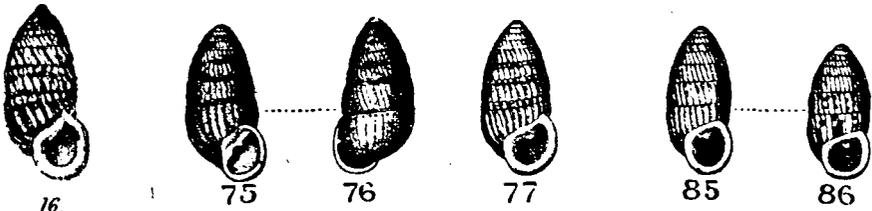


Fig. 24. *Cerion martinianum* as figured by SOWERBY in *Conchologia Iconica* 20, 1875, pl. II 16, and by PILSBRY in his *Manual*, 1901/2, pl. 44 figs. 75–77 (“A furrow below and parallel to the suture defines a subsutural band which appears beaded by the ends of the ribbles.”; length 20.5 – 18.5 mm.) and figs. 85–86 (*C. caymanense*: “each rib a little swollen at the upper end, crenulating the sutures.” length 19 – 17.3 mm.).

Shells collected by Dr GRAIG SHAAK from cave deposits near Bodden town (22×9.6 mm, ribs 28) proved to be rather similar to specimens found on a sand ridge near the same village (21.5×9.0 mm, ribs 28.5), when a same number of 40 specimens from Sta. *o* (different from those in Table 2) was measured at the same time. Remarkably enough all specimens from the cave were distinctly "beaded" – a feature, generally considered an important species character, which was only rarely distinctly observed in recent material (Pl. XVII).

Cerion nanus (Maynard, 1889)

(Figs. 5, 7; Pls. IX 14, XI g-k, XVIII i-k)

Strophia nana MAYNARD, 1889, p. 27–28, pl. II 11. ["west end of Little Cayman, on the eastern most of the two paths that cross the key, near their junction . . . in a space which is only five or six yards wide by twenty long . . . Examined 2,000 specimens." – "Known from all other species, by the presence of striations, exceedingly small size, elongated form, and long teeth."]

Cerion nanum Maynard, PILSBRY & VANATTA 1896, p. 318. [Name only.]

Cerion nanus (Maynard), PILSBRY 1901, p. 183–184, pl. 27 figs. 1–3. [Descr.; 19–23 ribs, 17×5 , 15.5×6 and 13×5 mm. Cf. Fig. 7.]

Cerion "nana Maynard, *Strophia*", CLENCH 1957, p. 154.

Cerion nanus Maynard, CLENCH 1964, p. 373–376, pl. 63 fig. 14. [Descr., type material, specimens coll. Paul Bartsch 1930 "about halfway between Blossom Village and Salt Rock in . . . a space some 50 yards in length and 20 in width". Cf. Pl. IX 14.]

Four paratypes of MAYNARD (ex MCZ 76061) were measured: Length 2.6 times major diameter of spire. Altitude 13.6–14.21–15.05 mm; diameter of spire 5.1–5.43–5.65 mm, maximum diameter of shell 5.9 mm. – Whorls $8\frac{1}{2}$ –9.15–10. – Aperture 4.2–4.43–4.7 by 3.8–4.00–4.15 mm. – Ribs 19–20–22, about 12 per cm, more or less distinctly depressed just below the suture, resembling a shallow furrow which appears to be slightly beaded.

According to CLENCH's description the shell reaches 17.5 mm, the greater number being between 15 and 17 mm; whorls 8.5 to 10. Eight of MAYNARD's specimens proved to be 14–14.94–17 by 5.5–5.94–6.5 mm; 11 animals collected by PAUL BARTSCH: 14–16.23–17.5 by 5.5–6.1–6.5 mm.

Cerion pannosum (Maynard, 1889)

(Figs. 5, 7; Pls. IX 1–3, 5, 12–13; XII a–e, XIII g–i, XVI m, XVIII i)

- Strophia pannosa* MAYNARD, 1889, p. 10–11, pl. I 2, 5, 6, 13 (animal and anatomical details); II 1 (shell). [“west end of . . . Little Cayman, living on the coarse vegetation . . . among the rocks that lie just above the beach. I have never found them east of the little cove, on the north side, called Bloody Bay . . . nor east of the few houses which constitute the only settlement . . . on the south side; thus they occupy a line, somewhat broken, of a few yards in width and about three miles long. This narrow strip was occupied by them almost exclusively, insomuch so that out of three hundred *Strophias* that I gathered in a two mile walk, twelve only were of another species (*S. levigata*). . . rather solitary, at best only a dozen or so being found together . . . Examined 400 specimens.” – “Known from all others by the large size, elongated teeth, irregularly widely separated, coarse striations, thickened margin, and white color.”]
- Strophia levigata* MAYNARD, 1889, p. 12–13, pl. II 2. [“west end of Little Cayman, very sparingly on the coast, and rather more commonly among the low growth of trees in the interior. They occupy an extent of country, about three miles long by a mile in width. . . even more solitary . . . as they occur in isolated groups of four or five individuals, and these groups are scattered. . . Examined 150 specimens.” – “Known from all other species by the large size, absence of striations, pointed apex, long teeth, white color, and thickened margin.”]
- Strophia intermedia* MAYNARD, 1889, p. 13–15, pl. II 3. [“on the low vegetation that grows on the margin of the beach on the south side of Little Cayman . . . west of a large mangrove swamp that nearly divides the island into two unequal portions, and along the beach on the south side of Cayman Brac, as far east as the cocoa-nut grove extends, now about half the length of the key. They are much more common than the Ragged *Strophia*, and . . . mingle occasionally. . . They are more common on Little Cayman than on Cayman Brac . . . Examined 3,000 specimens.” – “Known from all other species by the rather small size, elongated teeth, irregular, widely separated, coarse striations, and white color.” – The Cayman Brac specimens are considered by the present author as belonging to *C. copia*.]
- Strophia festiva* MAYNARD, 1889, p. 17–18, pl. II 5. [“On the western path that crossed the island of Little Cayman. . . about midway between the two shores. . . a short half mile from the sea, were two small fields. . . one of the most solitary species. . . in very scattered groups on the low herbage . . . Examined 22 specimens.” – “Known from all others by the large size, absence of striations, long teeth and purplish markings.”]
- Strophia nitela* MAYNARD, 1889, p. 73–74, pl. VII 16 = fig. 8. [“in numbers, in exposed situations in the patches of Guinea grass . . . restricted to two or three . . . small clearings . . . west end of Little Cayman. . . Examined 300 specimens.” – “Known from the allied *S. acuta* by the larger size and more obtuse form, and from *S. levigata* by the smaller size and smooth surface. From all others by the long teeth and absence of striations.” – Most specimens may probably be attributed to *C. pannosum*.]
- Strophia fusca* MAYNARD, 1889, p. 77–78, pl. VII 19 = fig. 12. [“west end of Little Cayman, low down in the thick scrub . . . quite solitary in habit, and rather rare, but it is probable that they range through the higher growth . . . at least as far as the mangrove swamp. . . Examined 46 specimens.” – “Known from all other species, by the brown color with contrasting, wide apart, white striations, and long teeth.”]

- Cerion pannosum* Maynard, PILSBRY & VANATTA 1896, p. 319. [“*S. fusca* ... the same thing differing only in color. *S. intermedia* ... smaller form.” not on Cayman Brac.]
- Cerion levigatum* Maynard, PILSBRY & VANATTA 1896, p. 319. [“*S. festiva* ... is a more variegated form.”]
- Cerion levigatum acutum* Maynard, PILSBRY & VANATTA 1896, p. 319. [“*S. nitela* ... *S. picta* ... seem to be very closely allied, differing from *acutum* merely in size and degree of mottling.”]
- Cerion pannosum* (Maynard), PILSBRY 1901, p. 184–189, pl. 27 figs. 4–6. [typical form $27 \times 12\frac{1}{2}$, 28×13 and 31×13 mm.] Descr. of following species of Maynard as:
 Color-form *fuscum*, p. 186, pl. 27 figs. 7–8. [$26\frac{1}{2} \times 12$ mm. Maynard’s type 31.2×11.2 mm, var. 33.7×13.7 to 22.5×10.5 mm.]
 Form *intermedium*, p. 186–187, pl. 27 figs. 10–12. [21.5×10 , 24×11.3 mm; types 22.5×10 and 22×10 mm.]
- Cerion levigatum* (Maynard), PILSBRY 1901, p. 189–191, pl. 27 figs. 19–20. [typical form 31.2×13 and 27.7×12 mm; 33.5×13.7 , 26.5×11.7 mm; average 28×12.7 mm.] Descr. of following species of Maynard as:
 Color-form *festivum*, p. 190–191, pl. 27 fig. 21. [30×12.5 and 27.5×12.5 mm.]
 Form *nitela*, p. 191, pl. 27 figs. 22–23. [type 27.5×12.5 mm, var. 28–25 mm; “connecting typical *levigatum* with *acutum*.”]
- Cerion pannosum* (Maynard), PILSBRY 1942, p. 7. [In part?: ... behind South Town.]
- Cerion laevigatum* (Maynard), PILSBRY 1942, p. 7. [“Behind South Town, at west end of dead mangrove swamp, Little Cayman
- Cerion* “*festiva* Maynard, *Strophia*”, CLENCH 1957, p. 146 [“Is *C. levigatum* Mayn., Pilsbry 1901.”]
- Cerion* “*fusca* Maynard, *Strophia*”, CLENCH 1957, p. 146. [“Is *C. pannosum* Mayn., Pilsbry 1901.”]
- Cerion* “*intermedia* Maynard, *Strophia*”, CLENCH 1957, p. 149. [Is *C. pannosum* Mayn., Pilsbry 1901.”] – In part.
- Cerion* “*levigata* Maynard, *Strophia*”, CLENCH 1957, p. 151.
- Cerion* “*nitela* Maynard, *Strophia*”, CLENCH 1957, p. 154. [“Is *C. levigatum* Maynard, Pilsbry 1901.”]
- Cerion* “*pannosa* Maynard, *Strophia*”, CLENCH 1957, p. 156.
- Cerion pannosum* Maynard, CLENCH 1964, p. 368–371, pl. 63. [Descr., type material, see Pl. IX]. – In part: *Str. pannosa, levigata, intermedia* p.p., *festiva, nitela* and *fusca*.

The data mentioned in the Synopsis refer to recent specimens from the West End of Little Cayman (Sta, *n, o, a, 985, b, c*) excluding a number of conspecific animals with undeveloped ribs (MAYNARD’s *Strophia levigata, S. festiva* and *S. picta*) and a few less robust ones (which may be identified with *S. intermedia*). The following data refer to *all* specimens studied, recently occurring in western Little Cayman (see Table 2; average values in italics).

Shell ovoid to subcylindrical, with an acute or sometimes slightly acuminate apex; length 1.8–2.25–2.65 times major diameter of spire. Altitude 22–27.5–34 mm; diameter of spire 10.3–12.1–14 mm; maximum diameter of shell 12.8 mm.

- Whorls 10–10.7–12; last whorl as a rule distinctly protruding.
- Aperture more or less subovate, as a rule distinctly angular at the upper side, about 1.2 times as long as wide, 11.0 by 9.0 mm. Margin reflected and conspicuously thickened often double-edged and somewhat ragged; frontal bar well developed.
- Ribs – if present – 16–21.3–28 per whorl on the widest part of the spire, *i.e.* 4–5.6–8 per cm.
- Colour usually greyish white, sometimes blotched with a purplish brown, or marbled, often caramel-coloured or brownish between the ribs.

Cerion pannosum in this restricted sense, *i.e.* not including all “species” of MAYNARD synonymized by CLENCH (1964), is taken as a species, although it is evident from field observations, that it freely interbreeds with *C. copium*.

In some populations of the southwest smooth or almost smooth specimens were in the majority (*n* almost 3/4, *o* about 2/3); in those near the western tip of the island and the nearby northcoast (*a*, 985, *b*) they were far in the minority, while more to the east (*c*) no descult *C. pannosum* was found.

Even if we do not take into account the smooth forms, the populations of *Cerion pannosum* are far from uniform. The largest specimen (apparently a subrecent one from *a*) has a width exceeding 14 mm.

Several old shells found outside the area of recent *C. pannosum* (from 986, *i* and 990) suggest a more extended range of the species in former days.

From several subrecent specimens found near the north coast, and near the western tip of CAYMAN BRAC (*a*, 004, *q*, 999, *s*) we may probably conclude that *Cerion pannosum* also occurred on that island in former days, but that it has become extinct, possibly after hybridization with other cerions.

***Cerion copium* (Maynard, 1889)**

(Figs. 5, 7; Pls. IX 4, 6–11, XII f–l, XIII a–f, XIV, XV p.p.?, XVI a, f–l, XVII j–k, XVIII a–e)

Strophia copia MAYNARD, 1889, p. 22–24, pl. I 1, 3, 7–15 (jaw and structure); II 8 (shell).
[“west end of . . . Cayman Brac, and at a fishing camp on the north side of Little Cayman, also scatteringly about the houses on the west end of this key, but was probably carried

to the two latter named placed ... In the shrubbery ... about the west end of Cayman Brac, they were very common, clinging to the base of the bushes, in masses, but their stronghold was the cocoa-nut grove on the south shore of the key, just opposite the few houses at the west end ... Through the agency of man, three or four other species had been introduced into this large colony which occupied in all, about half a square mile of country." – "the typical form prevails, but there are, at least, four distinct forms in which certain characters are quite constant ... The first ... is of small size ... next comes one that is more cylindrical ... then we have a shorter ... form ...; in these three forms, the whirls are 10. The fourth form ... is large ... the whirls are 11. ... Examined 10,000 specimens." – "Known from all others by the numerous striations, 22 or more, size .75 or more long, 10 or 11 whirls, absence of any decided markings, and long teeth."]

Strophia lineata MAYNARD, 1889, p. 20–22, pl. II 7. ["in a small cocoa-nut grove on the south side of Little Cayman, near the east end, and more rarely in the cocoa-nut grove near the boat landing, on the south side of Cayman Brac. This spot on Little Cayman, about a half acre, was occupied by them exclusively, while on the other key, they mingled with the Common Strophias. They were probably transported ... the original locality, probably, being Little Cayman. The cocoa-nut grove ... was completely isolated from all other colonies of Strophias." – "Two forms occur besides, one ... larger, thicker, and whiter ... the other is shorter and proportionally a little thicker, with the markings in some instances, extending across the striations. ... Examined 1,000 specimens." – "Known from *S. copia*, its nearest ally, by the prominent markings, and from all others, by these and the long teeth." – According to BATCHELDER 1951, p. 237, "Maynard's "vernacular" name indicates that this is a typographical error for *lineata*, but no later correction appears."]

Strophia acuta MAYNARD, 1889, p. 15–17, pl. II 4. ["two paths that crossed ... Little Cayman ... formed a junction a few hundred yards from the south shore. ... a small open patch ... surrounded with quite low bushes ... were the stronghold of the Pointed Strophias ... the entire space occupied by them, did not exceed a quarter of an acre in extent." "Two different forms appear; one cylindrical ... and one wherein the form is proportionately thicker than the type, with the sutures very deep." "Examined 500 specimens." – "Known from all others, by the pointed apex, small size, absence of striations, long teeth, and white color."]

Strophia intermedia MAYNARD, 1889, p. 13–15, pl. II 3. [Specimens from Cayman Brac only; see under *C. pannosum*.]

Strophia picta MAYNARD, 1889, p. 18–20, pl. II 6. ["in a very limited area, on the west end of Little Cayman ... a patch of guinea-grass; in this, were numerous open spots ... in all about a half acre. ... Examined 75 specimens." – "Known from *S. festiva*, its nearest ally, by the small size, more regular markings, and thinner margin, and from all others, by the absence of striations, long teeth, and purplish markings."]

Strophia parva MAYNARD, 1889, p. 24–25, pl. II 9. ["in a very limited area, on the west end of Cayman Brac. Near the northern termination of a path ... a strip of quite high shrubbery ... From this point, they were scattered ... into the large colony of Common Strophias, in the cocoa-nut grove on the south side, having ... transported by the inhabitants ... Examined about 1,000 specimens." – "Known from all other species, by the presence of striations, small size, less than .73 long, and long teeth."]

Strophia glaber MAYNARD, 1889, p. 25–26, pl. II 10. ["on the west end of Cayman Brac, near the northern terminus of the path that crosses the key near the houses. ... very rare on the margin of the path near the area occupied by *S. parva*." "Examined 16 specimens." – "Known from all other species by the absence of striations, small size, and long teeth."]

- Strophia perplexa* MAYNARD, 1889, p. 71–72, pl. VII 15 = fig. 7. [“Cayman Brac in a barren, rocky section, about two miles from the west end . . . and a quarter of a mile from the south shore. . . . restricted to a very limited area.” “Examined 300 specimens.” – “Known from all other species, by the absence of striations but presence of ridges, white color, and heavy shell.”]
- Cerion copium* Maynard, PILSBRY & VANATTA 1896, p. 319.
- Cerion copium parvum* Maynard, PILSBRY & VANATTA 1896, p. 319.
- Cerion glaber* Maynard, PILSBRY & VANATTA 1896, p. 319.
- Cerion glaber perplexum* Maynard, PILSBRY & VANATTA 1896, p. 319.
- Cerion lineotum* Maynard, PILSBRY & VANATTA 1896, p. 319.
- Cerion pannosum* Maynard, PILSBRY & VANATTA 1896, p. 319. [p.p., Cayman Brac]
- Cerion pannosum* (Maynard), PILSBRY 1901. Descr. the following species of Maynard as:
 Form *copia*, p. 187, pl. 27 fig. 13. [22.5 × 10 and 23.7 × 10 mm types; var. 27 × 11.3 to 19 × 8 mm. “The name was ill-chosen, and should have been “*S. copiosa*”.]
 Form *parvum*, p. 188, pl. 27 fig. 14. [15–17 × 7.5 mm, var. 18–15 mm.]
 Form *lineotum*, p. 188, pl. 27 fig. 15. [26 × 10 and 24.5 × 10.5 mm types, var. 27.5 to 18.5 mm long.]
 Form *perplexum*, p. 189, pl. 27 fig. 16. [22.5 × 19 mm type, var. 25–19.5 mm long.]
 Form *glaber*, p. 189, pl. 27 figs. 17–18. [15.5 × 8.2 mm, 16.2 × 7.5 mm, var. 11 to 15 mm long.]
- Cerion levigatum* (Maynard), PILSBRY 1901, pp., the following species of Maynard described as Form *acutum*, p. 191, pl. 27, fig. 24. [type 23.5 × 9.5–10 mm, var. 24.2 to 20 mm long.]
 Form *pictum*, PILSBRY 1902, p. 191, pl. 27 figs. 25–26. [24 × 10 and 21.5 × 9.7 mm, var. 26 to 21 mm long.]
- Cerion pannosum* (Maynard), PILSBRY 1942, p. 7. [In part?: “Muddyfoot’s Point, east end of Little Cayman . . .”]
- Cerion pannosum copium* (Maynard), PILSBRY 1942, p. 7. [“Point at west end of Cayman Brac.”]
- Cerion copium* (Maynard), PILSBRY 1949, p. 45–47, pl. 4. [Amplly discussed below.]
- Cerion* “*copia* Maynard, *Strophia*”, CLENCH 1957, p. 141. [Is *C. pannosum* Mayn., Pilsbry 1901.]
- Cerion* “*glaber* Maynard, *Strophia*”, CLENCH 1957, p. 147. [Is *C. pannosum* . . .]
- Cerion* “*intermedia* Maynard, *Strophia*”, CLENCH 1957, p. 149. [Is *C. pannosum* . . .] – In part.
- Cerion* “*lineota* Maynard, *Strophia*”, CLENCH 1957, p. 151. [Is *C. pannosum* . . .]
- Cerion* “*parva* Maynard, *Strophia*”, CLENCH 1957, p. 156 [Is *C. pannosum* . . .].
- Cerion* “*perplexa* Maynard, *Strophia*”, CLENCH 1957, p. 157. [Is *C. pannosum* . . .]
- Cerion* “*picta* Maynard, *Strophia*”, CLENCH 1957, p. 157. [Is *C. levigatum* Mayn., Pilsbry 1901.]
- Cerion pannosum* Maynard, CLENCH 1964, p. 368–371, pl. 63 [Descr., type material of Maynard’s species, see Pl. IX. – In part: *Str. lineota, copia, parva, glaber, perplexa* and *intermedia* p.p.]

Te Synopsis only refers to material from the south shore of Little Cayman, considered to be typical *Strophia lineota* (*h, i, j, k, l* and *m*, excluding a few dead specimens of small size like *S. parva*, in *m* and *i*, of more robust appearance, in *i*, and with undeveloped ribs, in *j* and *m*), and to specimens from the West End of Cayman Brac which we may regard as

typical *Strophia copia* (*h*, 996, *i*, 997 and *n*, if we exclude a few small specimens, in 996, 997 and *n*, and two shells with undeveloped ribs, in *i* and 997).

When compared with *Cerion pannosum*, the *lineota* specimens may be described as follows:

Shell ovoid, commonly tending to subcylindrical, with an acute or rarely slightly acuminate apex; length 2.0–2.3–2.8 times major diameter of spire. Altitude 18–23.4–29 mm; diameter of spire 8.5–10.1–12 mm; maximum diameter of shell 10.7 mm.

- Whorls 9–10.2–11; last whorl as a rule distinctly protruding.
- Aperture more or less subovate, often distinctly angular at the upper side, about 1.2 times as long as wide, 9.3 by 7.82 mm, about 0.9 as long as the diameter of the spire. Margin reflected and thickened; frontal bar generally well developed.
- Ribs 20–24.0–30 per whorl on the widest part of the spire, *i.e.* 5–7.6–10 per cm.
- Colour usually greyish white, very variably tinged with various shades of brown between the ribs, often in an irregular way, thus creating a blotched or marbled pattern.

Comparing this *lineota* material from Little Cayman with the *copia* specimens from Cayman Brac, only the following slight differences were found, suggesting the Cayman Brac specimens having a more rounded aperture:

Shell less commonly tending to subcylindrical; length 1.7–2.2–2.6 times diameter of spire; 22.8 by 10.3 mm; max. diameter 10.9 mm. Aperture subovate to subcircular, often somewhat angular at the upper side, about 1.1 times as long as wide, 8.8 by 8.0 mm, about 0.85 as long as the diameter of the spire. – Ribs 24.2 per whorl, *i.e.* 7.5 per cm.

PILSBRY (1949) called all specimens from Cayman Brac *Cerion copium*. Being obliged to make a choice between *lineotum* and *copium*, the latter was taken, neglecting page precedence.

PILSBRY (1949) – when studying the shells collected by C. BERNARD LEWIS on Cayman Brac in 1940, amply discussed MAYNARD's species, referring to a most elucidating plate of "*Cerion copium* and varieties":

"*Strophia copia*. Widely distributed in western and southern parts of the island . . . *S. lineota*. South side . . . with *S. copia*, which it resembles except by having brownish purple

intervals of the ribs. There are 25 to 27 ribs on the penult whorl. Also occurs on Little Cayman.

S. intermedia . . . has scattered, unequally spaced ribs, and is rather small, 20–23 mm. long. Many specimens are indistinguishable from *S. perplexa*, but some *perplexa* have the ribs more reduced and fewer.

S. perplexa . . . Ribs are very weak and irregularly, widely spaced on the last two whorls, but their number and size vary widely. It is about the size of *S. copium* and intergrades fully with *S. intermedia*.

S. parva . . . is a small edition of *C. copium*, less than 18 mm. long.

S. glaber . . . is a form of *parva*, differing from that by having the ribs very weak on the last three whorls.”

“It is well known that in many land shells having color markings, there are populations in which part of the individuals, or sometimes all of them, have lost the color markings leaving them plain. The genes carrying color in inheritance have been dropped out. The same applies in some degree to characters of the whole organism . . .

Maynard’s *S. copia* and *S. lineota* are . . . varying members of a single species. *S. intermedia* and *S. perplexa* are forms of *copia* in which variation is expressed in dropping out some of the ribs; but this is different in every specimen, and they occur in the *C. copium* territory, sporadically. *S. glaber* . . . is a similar modification of *S. parva* . . . *S. parva* is fully connected with *C. copium* by specimens of intermediate size, and might perhaps be regarded as a little race which had been evolved in isolation and subsequently mingled with *C. copium*, with production of hybrids.”

LEWIS’ collecting localities were (according to PILSBRY’s map, fig. 1):

- 1, shore of Stake Bay (near *p*)
- 2, “at the north end of Stake Bay, south of the road”, “on the bluff” (near *q* and 999)
- 3, “midway across the island, south of Stake Bay,” “on the bluff” (south of 999)
- 4, “south end of bluff path”, northwest of Cedar Point (west of *e*)
- 5, shore south of bluff path, west of Cedar Point (west of *e*)
- 6, shore near Cedar Point (near *e*)
- 7, shore east of Cedar Point, at Spots (east of *e*)
- 8, shore between Cedar Point and Sea Feather Bay (west of *d*)
- 9, shore from Sea Feather Bay to Cat Head Bay (including *d*, 994, 993, *c* and *b*)
- 10, shore southeast of Knob Hill (near 995)
- 11, shore near Dennis Point (near *h*)
- 12, shore of South East Bay (near *g*)

LEWIS’ specimens are as follows (PILSBRY, p. 46–47):

“*C. copium* is typically uniform white, but specimens with dark interstices or some mottling (which Maynard called *S. lineota*) occur with the white shells in all lots I have seen from the localities 1, 5, 6, 8, 9, 10, 11, 12 . . . In some places, such as localities 1 and 10, white shells predominate; in some other localities shells with dark intercostal intervals are quite prevalent, or form a majority, or even, as at locality 12, all seen are dark. . . . The size varies, the length 24 to 26 mm. or in some lots the average is somewhat smaller. Frequently there are some much shorter shells among these of normal populations . . .

Perfectly typical specimens of form *parva* occur with normal *C. copium* in localities 5 and 11. The size diminishes from *copium* measuring: Length 22, diameter 10.3 mm., 10 whorls, 26 ribs on penult whorl, and length 23.5, diameter 9.3 mm., 10½ whorls, 22 ribs on penult whorl,

through intermediate sizes to *parva* measuring: length 15, diameter 7.3 mm., 9½ whorls, 21 ribs on the penult whorl . . .

Locality no. 7 . . . furnished small shells, 15 to 22 mm. long, mostly less than 20 mm. Some individuals agree wholly with Maynard's *S. parva* . . .

Localities 2, 3, and 4 are situated on the bluff, higher than any of the preceding. Only dead shells which had lost most or all of the color they may have had, were gathered. In locality 2 . . . figs. 5a–d, the ribs are narrower than in *copium* of the lower areas, and more numerous, up to 32 on the penult whorl . . . Evidently Maynard did not collect this form or he would have made another "species". In the same lot there are also some shells which approach form *intermedia*, with about 18 spaced ribs . . .

At locality 3 . . . there are also rather narrow, close riblets, 28 . . . in a shell 25 mm. long. In this lot there are shells down to 15 mm. long, and one "*intermedia*" with narrow, unevenly spaced riblets.

Locality 4 . . . has shells like the larger ones at locality 3 . . ."

It so happened that the habitat of Sta. 999, on the limestone bluff at Stake Bay, proved to be the same as that of LEWIS' Locality 2. By a lucky chance it also yielded a number of living cerions "in which the ribs are narrower than in *copium* of the lower areas", and a few old shells "which approach form *intermedia*" (cf. PILSBRY's pl. 4 figs. 5a–d, and Pl. XV g–i).

As a matter of fact those narrowly ribbed specimens – uniformly vivid-brown in life – looked so much different from all other cerions found, that – for comparison with more typical *copia* – the following description of this *bluff-type* material may be given, based on specimens from Sta. 999, *t*, and 003 (see Pls. XV g–h, XVI g–i and XVIII c):

Shell ovoid, less commonly tending to subcylindrical, with an acute apex; length 1.7–2.1–2.4 times major diameter of spire. Altitude 16.5–21.0–26 mm; diameter of spire 8.0–10.1–11.5 mm; maximum diameter of shell 10.5 mm. – Whorls about 10.5; last whorl very slightly protruding. – Aperture subovate or subcircular, about 1.1 times as long as wide, 8.5 × 7.7 mm, about 0.85 as long as the diameter of the spire. – Ribs 23–28–34 per whorl on the widest part of the spire, i.e. 7–9–11 per cm. – Colour generally almost uniformly vivid-brown, the crests of the ribs mostly more lightly coloured; internal parts, including the margin of the peristome, flesh-coloured.

Except for a single recent specimen found among the common copiums near Stake Bay Point (*s*), all *bluff-type* specimens were collected near the northern edge of the limestone terrace of Cayman Brac, often merging into

the cerions of the other areas. It was the only type of *copium* which was found living among the high shrubs, hiding in the fissures of the pitted upland which certainly deserves a more thorough scientific exploration.

***Cerion caymanicum* sp. n.**

(Pls. XVI b-e, XVIII f-h)

The classification of several small, minutely striated, subrecent shells which were discovered on the north coast of Cayman Brac raised more problems, still unsolved. In comparison with the recent common copiums collected in the same locality near Stake Bay Point, these specimens from Sta. *s* may be described as follows (*cf* Pls. XVI b-e and XVIII f-h):

Shell subcylindrical to ovoid, with an acute apex; length 2.0-2.3-2.7 times major diameter of spire. Altitude 11.7-15.3-19.2 mm; diameter of spire 6.0-6.75-8.35 mm; maximum diameter of shell 7.35 mm. - Whorls about 10.0; last whorls slightly protruding in full-grown specimens. - Aperture subovate or subcircular, somewhat angular at the upper side, about 1.15 times as long as wide, 6.0 × 5.3 mm, almost 0.9 as long as the diameter of the spire. Margin reflected and thickened; frontal bar rather well developed. Upper tooth-like lamella distinct, somewhat above the middle of the parietal wall, the lower one less conspicuous. - Ribs 23-26-31 per whorl on the widest part of the spire, *i.e.* 10-12.3-16 per cm; they are mostly very slightly depressed just below the suture and generally not beaded by the ends of the riblets. - Colour unknown, yellowish brown in the subrecent specimens.

These specimens from Sta. *s* and a few other localities (*q*, 999, *u*) on Cayman Brac are considered to belong to a new species because of their deviating characteristics and peculiar occurrence, notwithstanding the superficial likeness with some dwarfed specimens of *C. martinianum* and *C. copium*.

The holotype figured on Pl. XVI d-e and the two paratypes depicted on Pls. XVI b-c and XVIII f-h have been deposited in the Museum of Comparative Zoology, Harvard University, Cambridge (Mass.).

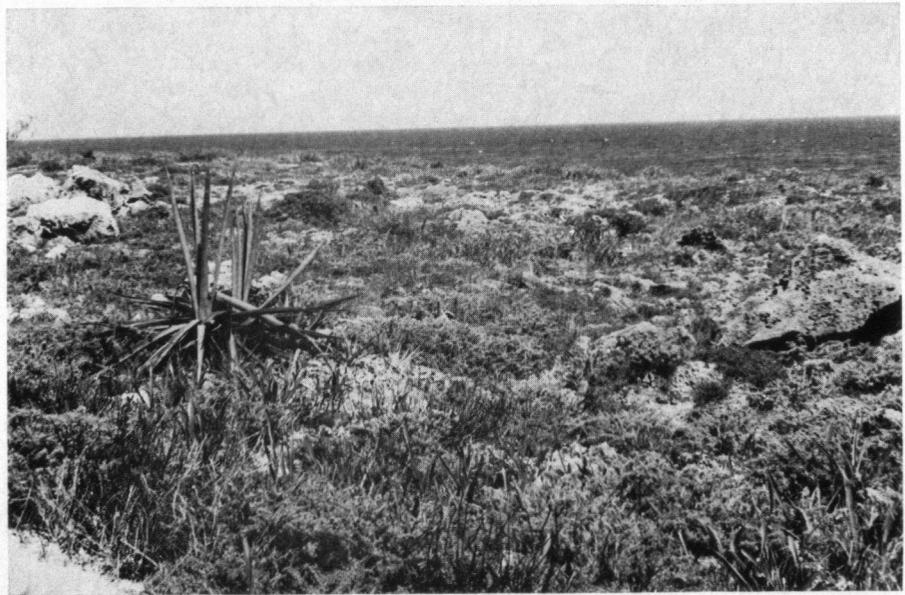
Considering the many still unsolved problems raised by the study of the present material, and admitting his insufficient knowledge of other cerion populations which might have affected the fauna of the Cayman Islands, the author has to restrict himself to this incomplete picture of the present situation.

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PLATES



Ia. GRAND CAYMAN. Barkers Peninsula, south of Palmetto Point, Sta. 952, 17.V.1973: A beachrock flat near the margin of a mangrove swamp which proved to be the habitat of a flourishing population of *Cerion martinianum*. (See Pl. X a-d)

Ib. GRAND CAYMAN. White Sand Bay, east of Half Moon Bay, Sta. 973, 25.V.1973: A sparsely covered limestone terrace on which another living population of *Cerion* was found. (See Pl. X 1)



IIa. GRAND CAYMAN. West Bay beach, south of Timms Point, Sta. 957, 19.V.1973: A shrubby place in which only empty *Cerion* shells were found, though this locality looked much more attractive than the disturbed sandy area some 2 km south (Sta. *c*) where some living animals occurred.

IIb. GRAND CAYMAN. North of Gun Bay Village, Sta. 974, 25.V.1973: Some low dunes along the easternmost shore yielded only shells of an extinct population of *Cerion martinianum* with specimens of unusually large size and strongly developed peristome. (See Pl. XI a-d)

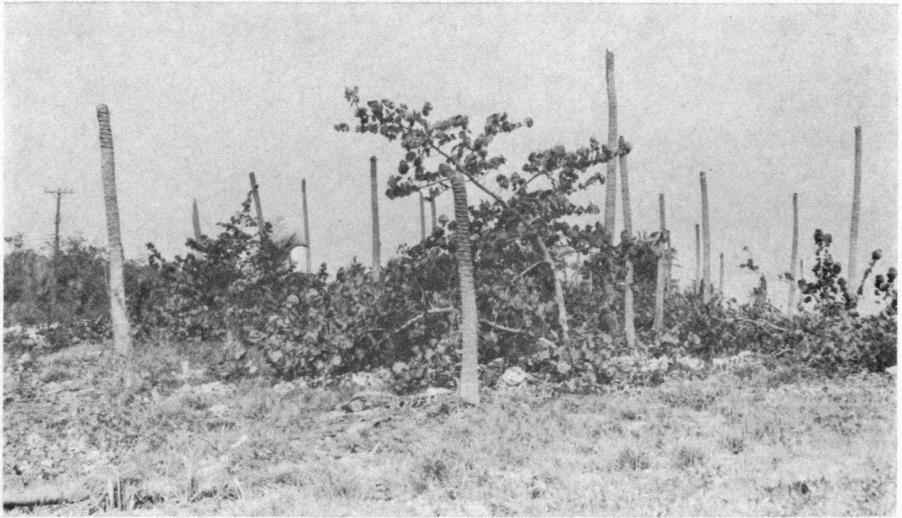


IIIa. LITTLE CAYMAN. Sandy Point, Sta. *g*, 4.VI.1973: On this easternmost part of the island a new start has been tried after the coconut grove was destroyed.

IIIb. LITTLE CAYMAN. Blossom Village, Sta. *n*, 4.VI.1973: The sandy grounds of this hamlet, near the airstrip, still harbours a living population of ribbed and smooth specimens of *Cerion pannosum*.

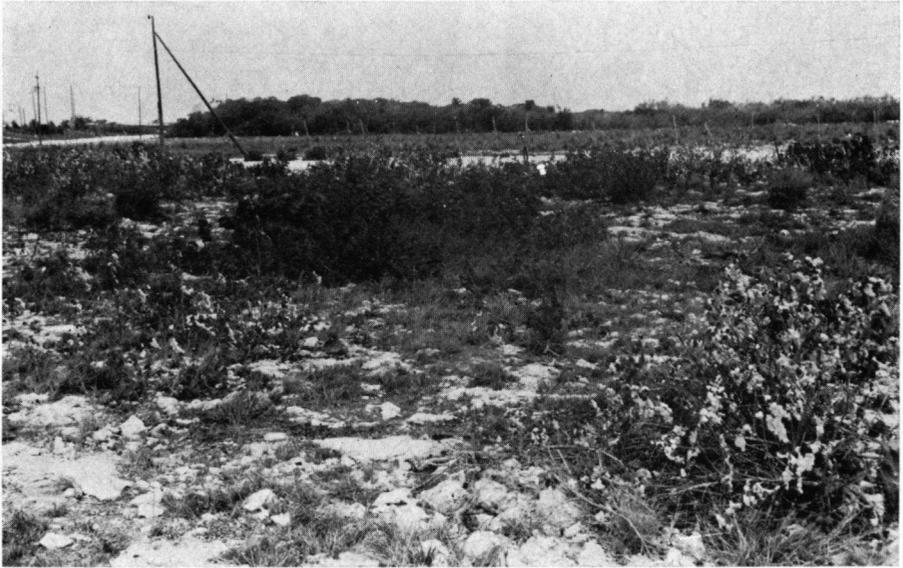


IVa. CAYMAN BRAC. Pollard Bay, Sta. a, 31.V.1973: The place where the path following the south coast comes to an end and The Bluff continues eastward into the sea.
 IVb. CAYMAN BRAC. At Pollard Bay large specimens of *Cerion copium* can be found, together with *Tectarius muricatus*, attached to driftwood, bare rock and *Ipomoea*, in the burning midday-sun. At this locality, Sta. a, the cerions are varying from coarsely ribbed to almost smooth. (See Pl. XIV a-d)



Va. CAYMAN BRAC. North coast near The Rock, Sta. o, 30.V.1973: One of the many places where bare stems, *Coccotheca* trees and *Ipomoea*, give evidence of the times in which MAYNARD could locate his *Cerion* populations by reference to now long-abandoned coconut groves. (See Pl. XV d-e)

Vb. CAYMAN BRAC. Southeast coast near Cat Head Bay, Sta. b, 31.V.1973: Only a little distance from Pollard Bay, coconuts have been successfully planted in coarse coral rubble, only covered by a little plant decay. *Cerion copium* appeared to be very common among beach vegetation and on driftwood, together with *Tectarius*.



Via. CAYMAN BRAC. Southwest coast near Knob Hill, Sta. 995, 2.VI.1973: In an area where Cotton was grown several years ago, and which at places is somewhat swampy, a *Cerion* population occurred with small specimens – similar to *Strophia parva* – predominating. On low-lying limestone rock, a few tens of meters towards the north, *Cerion copium* attained its normal size. (See Pl. XIV k–n and o)

Vib. CAYMAN BRAC. Near the edge of the 20 m high bluff at Stake Bay, Sta. 999, 2.VI. 1973: Among the pitted limestone, covered by rather dense shrubs, uniformly brown *Cerion copium* of the bluff-type was found. (See Pl. XV g–i)



VIIa. CAYMAN BRAC. Stake Bay Point, Sta. s, 1.VI.1973: A wall of coral rubble along the north coast with beach vegetation, including scattered *Coccoloba uvifera* and *Ipomoea pes-caprae*, on which recent *Cerion copium* was commonly found, together with a few very old shells of quite another type.

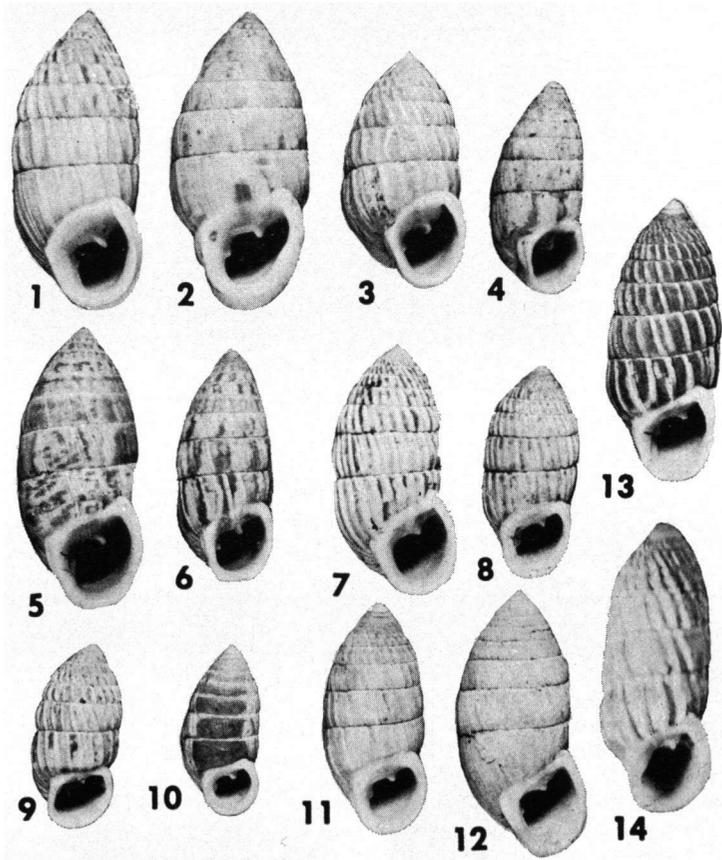
VIIb. CAYMAN BRAC. Near Stake Bay Point, Sta. s, 1.VI.1973: In places there is a "pavement" of common *Cerion copium* among which a single *bluff-type* was found. Subrecent cerions looking like *C. pannosum* are scattered in the soil, together with small, minutely ribbed *C. caymanicum*. (See Pl. XVI a-g)



VIII. CAYMAN BRAC. Fruit garden on the northeast coast at Spot Bay, Sta. w, 30.V.1973: On a grassy area, where several kinds of fruit trees were grown, a uniform population of *Cerion copium* was observed, consisting of hundreds of small-sized snails, clinging to trees and shrubs, up to a height of 2-3 m, exceptionally 5 meters. (See Pl. XVI j-k)

IX. Type specimens of MAYNARD's "species" as published by CLENCH 1964, p. 369-370 & 375, fig. 1.

1. *Strophia pannosa*, 31.0 × 13.5 mm, lectotype from "west end of Little Cayman."
 2. *Strophia levigata*, 30.5 × 15.0 mm, lectotype from "west end of Little Cayman."
 3. *Strophia intermedia*, 25.0 × 13.0 mm, holotype from "south side of Little Cayman and south side of Cayman Brac."
 4. *Strophia acuta*, 22.0 × 9.0 mm, lectotype from "south side of Little Cayman."
 5. *Strophia festiva*, 29.5 × 12.5 mm, lectotype from "western path ½ mile from the sea, Little Cayman."
 6. *Strophia picta*, 24.0 × 9.5 mm, lectotype from "west end of Little Cayman."
 7. *Strophia lineota*, 26.0 × 12.5 mm, lectotype from "south side of Little Cayman and south side of Cayman Brac."
 8. *Strophia copia*, 21.5 × 10.0 mm, holotype from "west end of Cayman Brac and north side of Little Cayman."
 9. *Strophia parva*, 19.0 × 9.0 mm, lectotype from "west end of Cayman Brac."
 10. *Strophia glaber*, 17.5 × 8.0 mm, lectotype from "west end of Cayman Brac."
 11. *Strophia perplexa*, 23.5 × 10.0 mm, lectotype from "Cayman Brac, 2 miles from west end."
 12. *Strophia nitela*, 27.5 × 12.0 mm, lectotype from "west end of Little Cayman."
 13. *Strophia fusca*, 28.0 × 11.5 mm, holotype from "west end of Little Cayman."
 14. *Strophia nanx*, 14.5 × 5.5 mm, lectotype from "west end of Little Cayman."
- According to CLENCH 1964, p. 371, "All names in the synonymy above refer to but a single species", *Cerion pannosum* (Maynard), with exception of the latter, *Cerion nanus* (Maynard).



X. *Cerion martinianum* (Küster) from GRAND CAYMAN (northwestern, western and southern part).

a-d, Sta. 952, Head of Barkers Peninsula, south of Palmetto Point; altitude 22½, 22½, 20 and 21½ mm respectively (a = b; cf. Pl. Ia).

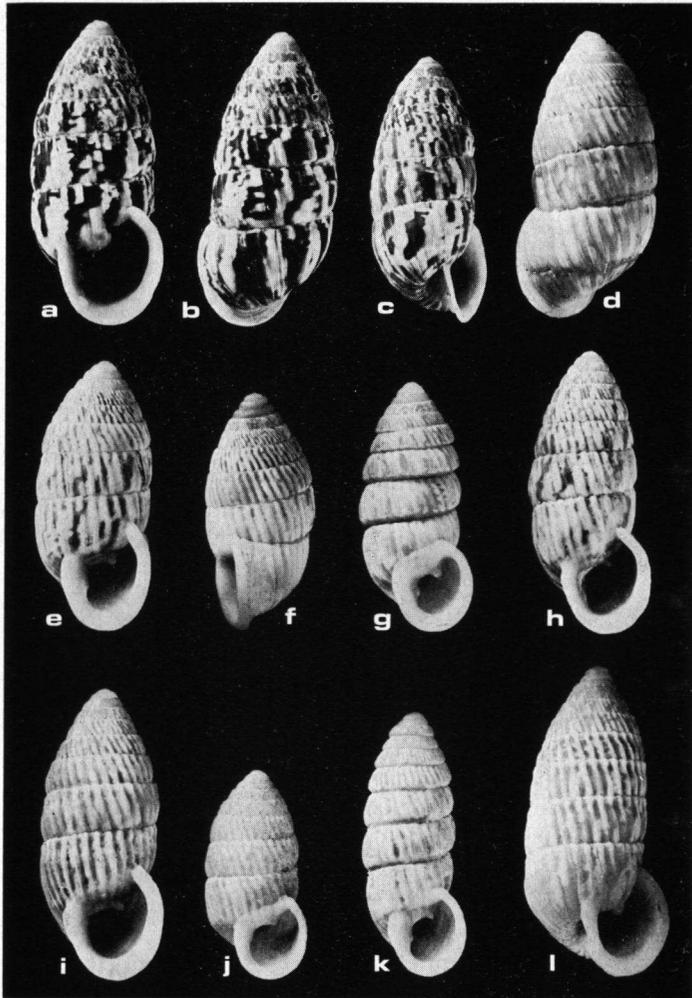
e-g, Sta. a, Head of Barkers Peninsula, eastern tip; 20, 17½ and 18½ mm (g scalariform).

h, Sta. c, Galleon Beach, West Bay; 21 mm.

i, Sta. 961, near shore of South Sound; 21½ mm.

j-k, Sta. k, disturbed area SW of airstrip; 16 and 19 mm (old shells, k almost scalariform; j somewhat resembling *C. caymanicolum*).

l, Sta. 973, east of Half Moon Bay; 23 mm (cf. Pl. Ib).



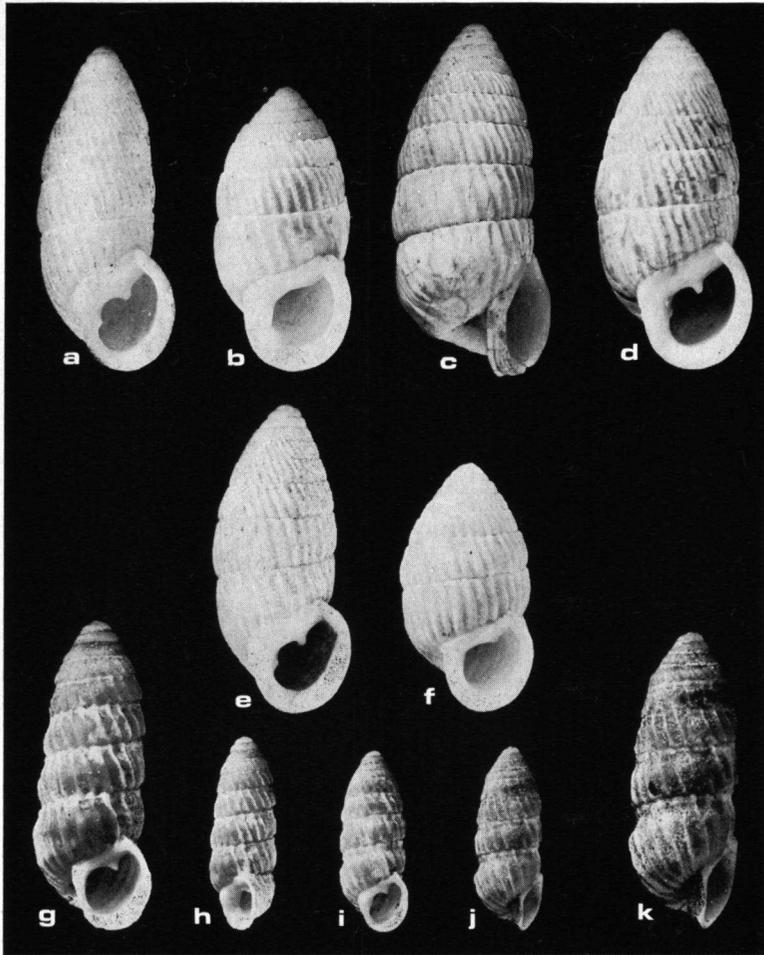
XI. *Cerion martinianum* from GRAND CAYMAN (eastern and northeastern part).

a–d, Sta. 974, north of Gun Bay Village; altitude 24, 20½, 26½ and 25 mm respectively (from an extinct population; cf. Pl. IIb).

e–f, Sta. *t*, east of Old Man Village; 22½ and 18½ mm (extinct population).

XI. *Cerion nanus* (Maynard) from LITTLE CAYMAN (West End).

g–k, Paratypes of *Strophia nana*, collected by Maynard; g = h 15 mm, i = j = k 14 mm (g and k more enlarged than all other specimens).



XII. *Cerion pannosum* (Maynard) from LITTLE CAYMAN (western part).

a–d, Sta. 985, West End Point near light tower; altitude 29, 28, 30 and 25 mm respectively (a–c typical form, d smooth specimen similar to *Strophia acuta*).
e, Sta. b, Spot Bay; 29½ mm (smooth specimen similar to *S. festiva*).

XII. *Cerion copium* (Maynard) from LITTLE CAYMAN (eastern part).

f–h, Sta. e, Mary's Bay; 27½, 25½ and 23 mm.
i, Sta. 987, Northeast Point near Callabash Spot; 25 mm.
j–l, Sta. i, east of Diggary's Point; 21½, 25½ and 26½ mm (k empty shell; considered as *Strophia lineota*).



XIII. *Cerion copium* from LITTLE CAYMAN (southern part).

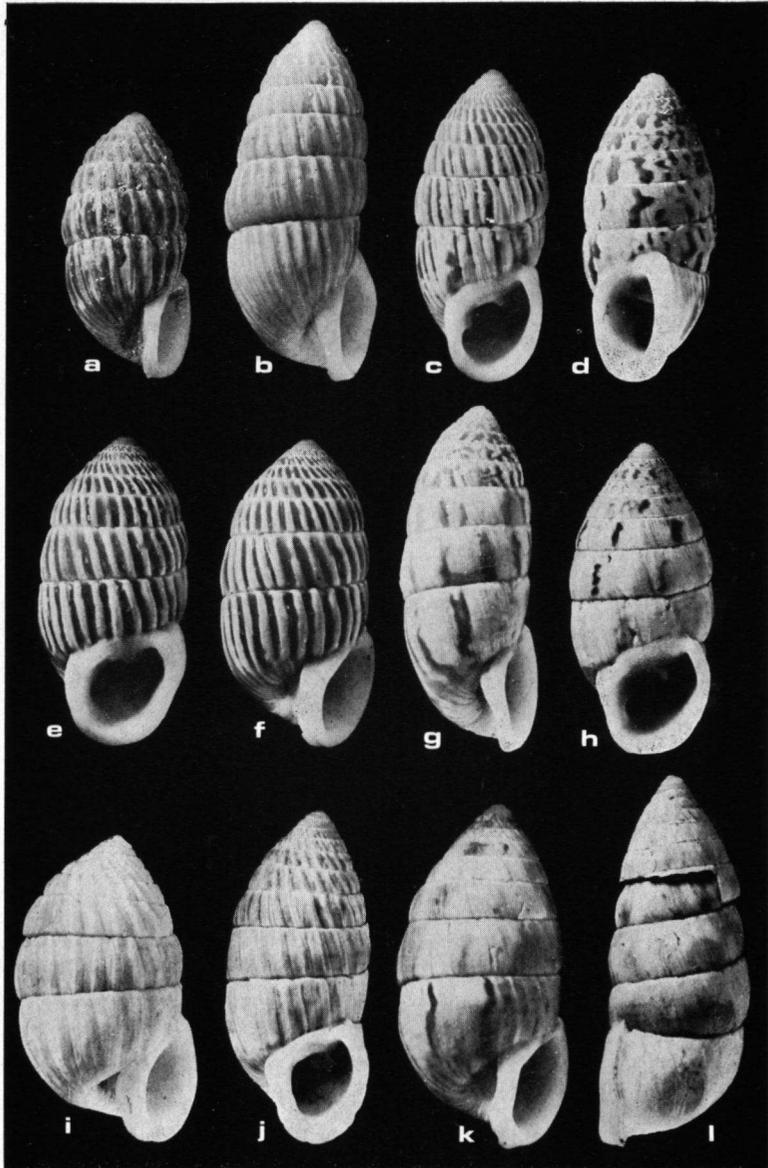
a-b, Sta. *j*, Diggary's Point; altitude 20½ and 28½ mm respectively (b empty shell).

c, Sta. *k*, east of Rocky Point; 24 mm.

d-f, Sta. *m*, coconut grove at South Sound; 23½, 24 = 24 mm (d smooth specimen similar to *Strophia picta*; a, c and e-f considered as *S. lineata*).

XIII. *Cerion pannosum* from LITTLE CAYMAN (southwestern part).

g-l, Sta. *o*, Air Strip terminal, west of Blossom Village; 27, 24, 24, 25½, 27 and 29 mm (g, h, k and l smooth or almost desculpt specimens, similar to *Strophia festiva*, *picta* or *levigata*; l crushed but repaired shell.).



XIV. *Cerion copium* from CAYMAN BRAC (southeastern and southern part).

a-d, Sta. a, Pollard Bay beach; altitude 25, 24, 24 and 17 mm respectively (b, c and d with weakly developed ribs or almost smooth; c somewhat resembling descult *pannosum*; cf. Pl. IV a-b).

e-h, Sta. c, Tom Jennet's Bay; 17, 25, 12 and 19 mm (g similar to *Strophia parva*).

i-j, Sta. h, near Dennis Point; 22½ and 25 mm.

k-n, Sta. 995A, east side of Knob Hill, from same small shrub; 22, 13½, 18 and 20 mm (l *S. parva*; cf. Pl. VIa).

o, Sta. 996, Knob Hill; 23½ mm (i, j and o considered as typical *S. copia*).



XV. *Cerion copium* from CAYMAN BRAC (western and northwestern part).

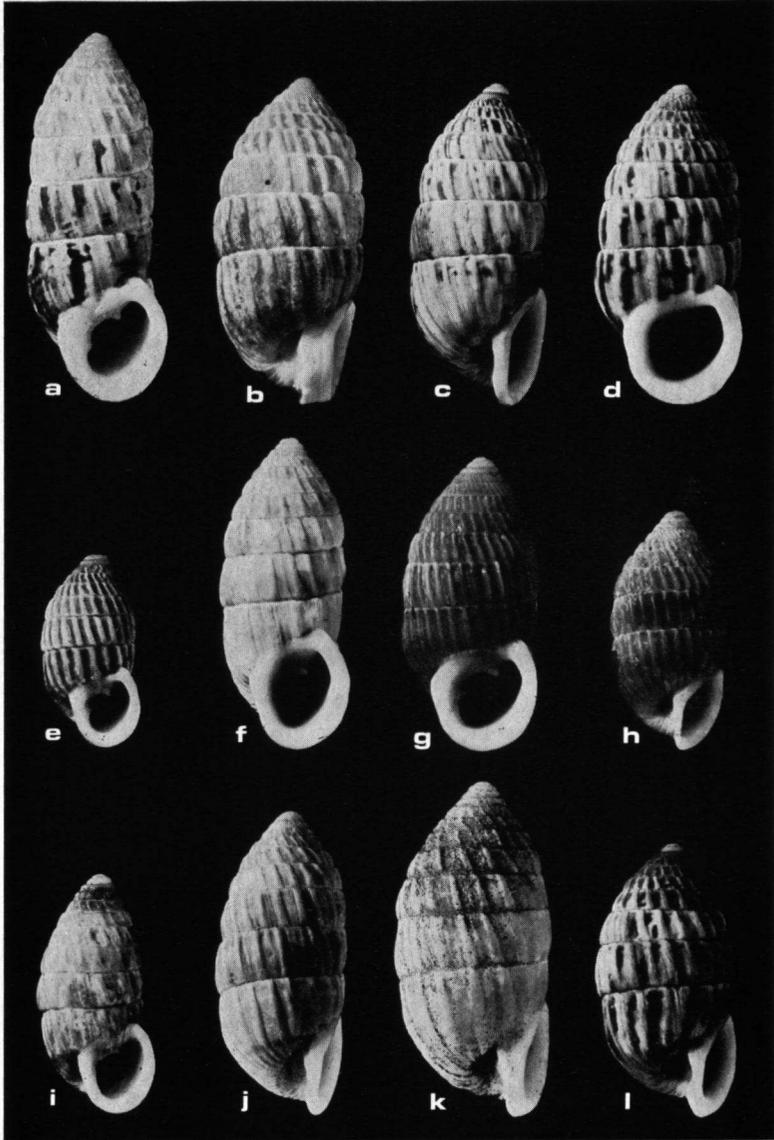
a-c, Sta. *l*, West End Point; altitude 29, 26 and 25 mm respectively (b old shell, somewhat similar to *pannosum*).

d-e, Sta. *o*, near The Rock; 25 and 15 mm (e similar to *Strophia parva*); cf Pl. Va).

f, Sta. *p*, eastern Stake Bay; 24 mm.

g-i, Sta. 999, bluff at Stake Bay; 22½, 18½ and 18 mm (g and h specimens of the *bluff-type*, uniformly brown with many narrow ribs; i old shell with few, weakly developed broad ribs; cf. Pl. VIb).

j-l, Sta. *r*, near Deadman's Point; 24, 26½ and 21½ mm (k old shell, rather similar to *pannosum*).



XVI. *Cerion copium* from CAYMAN BRAC (northern and northeastern part).

a, f–g, Sta. s, Stake Bay Point; altitude 25, 18½ and 21½ mm respectively (g *bluff-type*; cf. Pl. VII a–b).

h–i, Sta. t, west of Tibbett's Turn; 23 and 23 mm (*bluff-type*).

j–k, Sta. w, fruit garden at Spot Bay; 21 and 17 mm (cf. Pl. VIII).

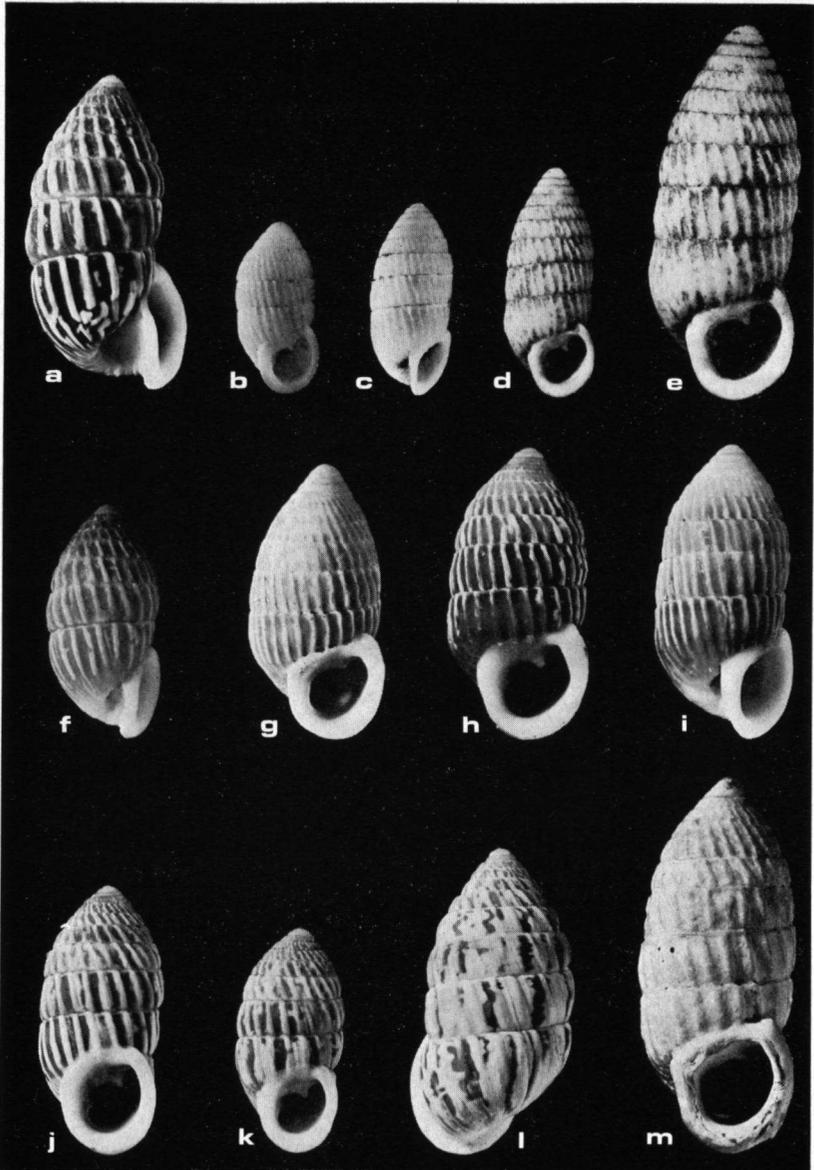
l, Sta. x, east of Spot Bay; 25 mm.

XVI. *Cerion caymanicum* sp. n. from CAYMAN BRAC (northcoast).

b–e, Sta. s. Stake Bay Point: altitude 13, 16, 18 and 18 mm (subrecent type specimens, d = e holotype; MCZ).

XVI. Specimen similar to *Cerion pannosum* from northeastern CAYMAN BRAC.

m, Sta. 004, near The Bluff, east of Spot Bay; 29 mm (subrecent).



XVII. Cerions from Grand Cayman and Little Cayman, showing sculpture and internal structure. – Take note of the shallow depression below the suture in *C. martinianum*, most distinct in the shells from the Bodden Town cave deposits, less distinct or hardly discernable in other specimens.

Cerion martinianum from GRAND CAYMAN.

a–b, Sta. 952, Barkers Peninsula; altitude 20 and 19 mm respectively.

c–d, Sta. 973, east of Half Moon Bay; 20½ and 21 mm.

e & h, Sta. 974, north of Gun Bay Village; 25 and 24 mm.

f–g, from limestone cave near Bodden Town (FSM); 21½ mm.

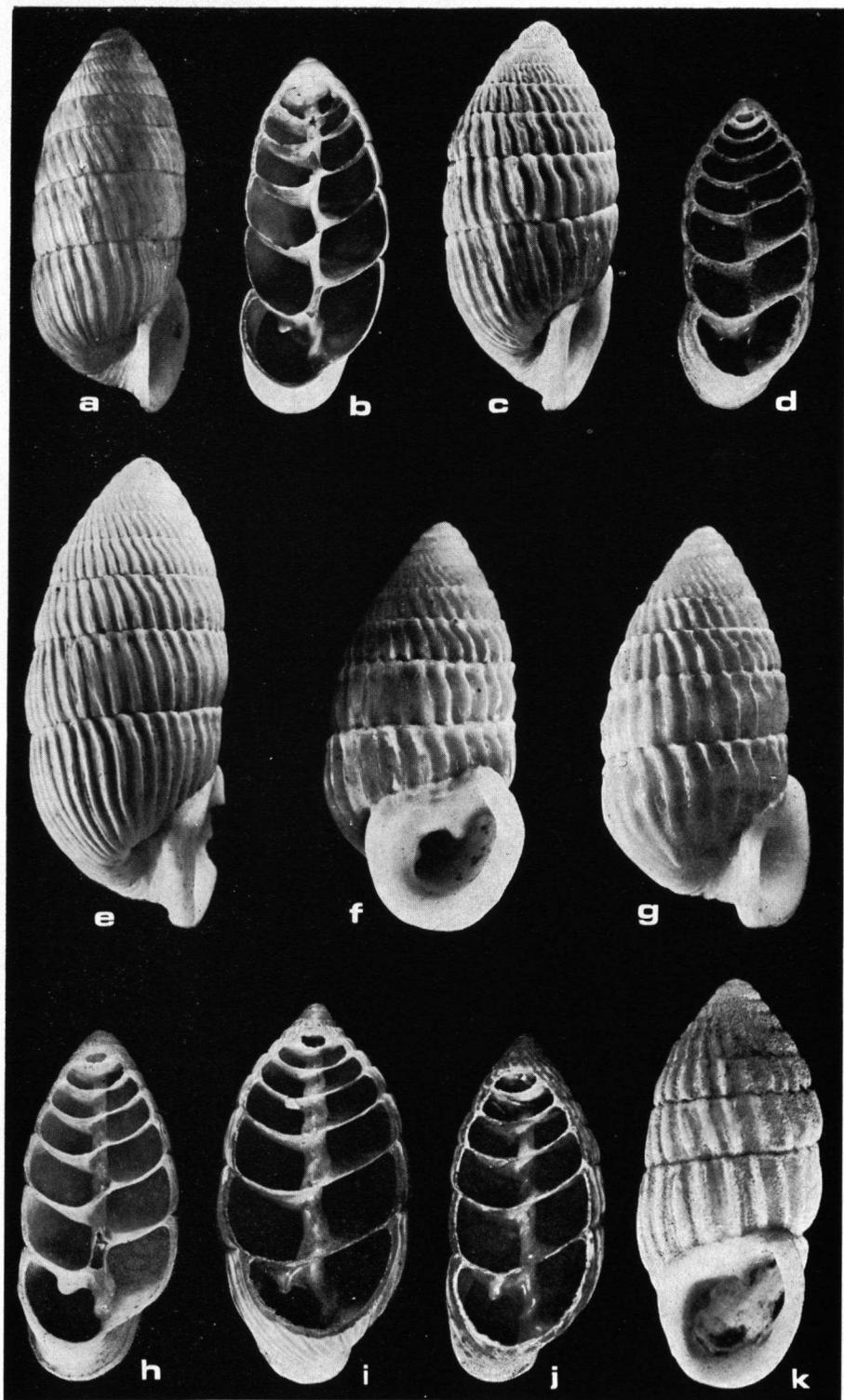
Cerion pannosum from LITTLE CAYMAN.

i, Sta. 985, West End Point; 28 mm (cf. Pl. XIIb).

Cerion copium from LITTLE CAYMAN.

k, Sta. 987, Northeast Point; 25 mm (cf. Pl. XII i).

l, Sta. 990, Owens Island; 20 mm (old shell from extinct population of small-sized specimens).



XVIII. Cerions from Cayman Brac and Little Cayman, showing sculpture and internal structure. – Take note of the weakly developed depression below the suture in *C. caymanicolum* and *C. nanus*, as a rule absent in other species.

Cerion copium from CAYMAN BRAC.

- a, Sta. 995A, Knob Hill; altitude 20 mm (= Pl. XIV n).
- b, Sta. a, Pollard Bay; 24 mm (cf. Pl. XIVc).
- c, Sta. 999, Stake Bay; 18½ mm (*bluff-type*, = Pl. XVh).
- d, Sta. c, near The Rock; 26 mm.
- e, Sta. p, east of Stake Bay; 24 mm (= Pl. XVf).

Cerion caymanicolum from CAYMAN BRAC.

- f–h, Sta. s, subrecent type specimens from Stake Bay Point; 13 and 15 mm (= Pl. XVI b and c; g=h; MCZ).

Cerion nanus from LITTLE CAYMAN.

- i–k, from the central part of the West End; 14½ and 14 mm (paratypes, j and k same specimen, = Pl. XI h–k).

