

REVISION OF TERTIARY SPECIES OF *ANASKOPORA* WASS
(BRYOZOA: CRIBRIMORPHA)

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Abstract

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The subgenus *Anaskopora* Wass, 1975 is raised to generic rank, separated from the genus *Corbulipora*, and redefined. The type species, *Cribrilina elevata* MacGillivray, 1895, is a Tertiary fossil from Victoria with small globular colonies formed principally by a special kind of interzooidal frontal budding. Other Tertiary fossil species with a similar colony structure, here assigned to *Anaskopora*, are *Cribrilina cornuta* MacGillivray, 1895 and *Lepralia rotundata* MacGillivray, 1895. Two further new Tertiary species, *A. simplex* and *A. mesa*, from Victoria and South Australia have small encrusting colonies. A key to species is given.

Introduction

Revision of the cribrimorph genus *Corbulipora* MacGillivray, 1895 means that its subgenus *Anaskopora* Wass, 1975 also requires redefinition (Bock and Cook, 2001). *Anaskopora* is considered here to be generically distinct from *Corbulipora* and to include *Cribrilina cornuta* MacGillivray, 1895, a species which Wass (1975) referred to *Corbulipora*.

Frontal budding is unusual in the Cribrimorpha. It occurs in *Corbulipora* principally as a result of expansions of cuticle and coelomic tissue derived from the pelmatidia on the frontal surface of the costae which form the calcified frontal shield or pericyst. Pelmatidia are usually absent in *Anaskopora* and if present are infrequent and restricted to the margins of the horizontal median area of costal fusion of the pericyst. Frontal buds are however commonly present and these arise in a series, often sur-

rounding each autozooid and originate from a special type of pore-chamber. These also occur in *Corbulipora* and are termed chambered pores (Bock and Cook, 2001). Chambered pores consist of a calcified chamber arising around one or more septular pores in a vertical zooid wall. The chamber is uncalcified frontally and usually expands to form an interzooidal kenozooid. These pores somewhat resemble the pore-chambers found in *Celleporella* and *Hippothoa* (Gordon and Hastings, 1979) but are larger and less regularly positioned. Avicularia occur in series with these pores which are also the origin of rhizoids in Recent species (Arnold and Cook, 1997).

All the species described here are fossils from Victoria and South Australia and the specimens are from the collections of Museum Victoria (NMV). All species are illustrated by SEM, in many cases for the first time.

Key to species of *Anaskopora*

1. Autozooids large (Lz >1 mm). Costae curved, median area of costal fusion narrow, lacunae rare.....*A. simplex* sp. nov.
- Autozooids smaller (Lz <0.75mm). Costae with vertical marginal, and horizontal median elements, median area of costal fusion wide.....2
2. Vertical costal components distinct, well separated..... 3
- Vertical costal components very short, closely apposed..... 4
3. Colony usually a globular ectoproctolith. Costae <11, median area with 8–12 large, rounded lacunae. Pelmatidia absent.....*A. elevata*
- Colony encrusting minute substrata. Costae >14, marginally raised with a single series of pelmatidia; medially horizontal with >15 scattered lacunae.*A. mesa* sp. nov.

4. Median area of fusion with 12–24 regularly radiating costae, alternating with rows of 6–8 lacunae.....*A. cornuta*
 — Median area of fusion with no obvious costae but with numerous scattered minute lacunae with intervening tubercles.....*A. rotundata*

Anaskopora Wass

Corbulipora (*Anaskopora*) Wass, 1975: 170.

Type species. *Cribrilina elevata* MacGillivray, 1895.

Description. Colonies encrusting, usually on very small substrata, with subsequent interzooidal frontal budding and overgrowth forming globular ectoproctoliths. Basal zooid walls calcified only peripherally, autozooids with marginal gymnocyst and extensive, costate pericyst. Peripheral, vertical component of costae without lateral fusions; central, horizontal component constituting the median area of fusion. Lacunae present, sometimes numerous; pelmatidia absent or rare, marginal only. Secondary calcified orifice with or without lateral condyles; peristome raised distally, forming a curved plate which is often marginally fimbriated. Oral spines paired, sometimes wide and flattened, or inflexed and fused medially above the secondary calcified orifice. Chambered pores large, forming kenozooids surrounding each autozooid; 1–3 distally and 2–4 laterally; calcification becoming extrazooidal later in ontogeny. Avicularia interzooidal, budded in series with kenozooids, usually distal or distolateral and single, occasionally proximal and even paired. Rostrum raised, palate rounded or subtriangular, orientated distally or laterally, with paired condyles. Dimorphic brooding zooids and ovicells unknown.

Remarks. The principal characters separating *Anaskopora* from *Corbulipora* s.s. are the regular presence of small interzooidal kenozooids surrounding autozooids, the distal or distolateral interzooidal avicularia present beside each autozooid and the raised distal oral fimbriated plate. The chambered pores resemble those of *Corbulipora* but are more regularly placed surrounding each autozooid and are presumably in communication with both neighbouring autozooids. In the globular colonies, nearly all budding after the earliest encrusting stages, is interzooidal and frontal. Each new layer of autozooids is derived from enlarged kenozooids of the previous layer. The virtual absence of pelmatidia and the apparent complete absence of multiphase growth also distinguishes *Anaskopora* from *Corbulipora*.

In nearly all species of *Anaskopora* the median area of fusion of each autozooid is delineated sharply from the peripheral component of the costae, making a distinct angle at the margin of the shield where there is occasionally a single pelmatidium. The vertical component is often elongated and never bears any costal fusions although the costae may be closely apposed in some species. The species described here form a series. In *A. simplex* sp. nov. the costae have no distinct vertical element and are curved with only terminal lateral fusions. At the other extreme, in *A. rotundata*, costae are hardly discernable and the median area is wide, consisting of numerous scattered lacunae and small tubercles. In contrast, *A. cornuta* has regular rows of costae with numerous costal fusions whereas in *A. elevata* and *A. mesa* sp. nov. the median area consists of scattered lacunae. The constant occurrence of a distal avicularium and a distal plate, together with the distinctive kenozooids arising from chambered pores, suggests that although the frontal shield shows a great diversity of structures these species all form a fairly natural grouping. All species appear to encrust minute substrata early in ontogeny. *A. elevata* and *A. rotundata* are known only with globular frontally budded colonies; *A. simplex* and *A. mesa* have few or no frontally budded zooids. Colonies of *A. cornuta*, however, occur in both states. All these species occur in the Tertiary deposits of Victoria and South Australia. Living species assignable to *Anaskopora* have only recently been recognised; they occur from Queensland and New South Wales, and were described by Arnold and Cook (1997) as *A. doliaris* (Maplestone) and *A. parkeri*. These Recent colonies are small and globular and are anchored by well-developed rhizoids.

The complete absence of ovicells or of any zooid with modified skeletal morphology which might be interpreted as a brooding zooid raises the suspicion that some kind of multiphase growth may occur in *Anaskopora* as it does in *Corbulipora* (Bock and Cook, 1994). However if this were true any alternative growth phase or phases which might have had a reproductive function have not as yet been recognised in any fossil or Recent assemblage. One species which was referred to *Anaskopora* by Wass (1975; *A. ampulla*, p. 170, pl. 8, figs 5, 6) remains

unrecognised in the material examined here. Maplestone (1901: 207, pl. 37, fig. 9) originally described *Corbulipora ampulla* from Mornington and the type slide (NMV P10156) was examined by Wass together with one of the specimens described as *C. sp. aff. ampulla* by Brown (1958: 54). The type material consists of a few isolated zooids only, one of which was presumably that figured by Wass (1975). None of the zooids has a distal avicularium which was, however, mentioned by Brown in his specimens, and which are therefore assumed to belong to *Anaskopora*. The peripheral vertical component of the costae forms an angle with the median area which has approximately 20 large rounded lacunae but no regularly placed costal fusions. There are also about 20 costae, the vertical components being closely apposed; according to Wass (1975) the distal pair are elongated to form a hood over the orifice. *Anaskopora ampulla* has some characters similar to those of *A. mesa* sp. nov. but differs in several respects from that species.

Brown (1958: 55, fig. 33) also described as *Corbulipora pennata* an encrusting Tertiary species with costae raised and extended laterally. A large distal avicularium was described but not figured by Wass who redescribed and figured the unique holotype. The encrusting habit and distal avicularium suggest that *C. pennata* may be referable to *Anaskopora* but as the specimen is no longer present in the NMV collection its assignment must remain uncertain.

Anaskopora elevata (MacGillivray)

Figures 1–2, Table 1

Cribrilina elevata MacGillivray, 1895: 59, pl. 8, fig. 19.—Maplestone, 1904: 201 (listed).

Corbulipora elevata.—Brown, 1958: 54.

Corbulipora (Anaskopora) elevata.—Wass, 1975: 170, pl. 8, figs 1, 2, 4.

Material examined. Lectotype. NMV P27641, Schnapper Point, Victoria, Miocene (selected by Wass, 1975).

Other material. Balcombe Bay, Bairnsdale, Fyansford, Warrambine Creek, Muddy Creek.

Distribution. Additional records given by Maplestone (1904) include Shelford, Griffins, Campbells Point, Mornington and Mitchell River; records in Brown (1958) include Localities XI and XIV on the Glenelg River at Werriook (south-western Victoria), and at Mount Gambier, South Australia. All records are Miocene (Appendix).

Description. *Anaskopora* with globular colonies formed by interzooidal frontal budding from an early stage encrusting a very small substratum. Autozooids with a distinct gymnocyst, frontal shield with 8–10 costae, the vertical components widely spaced, inflexed sharply to form a median area of fusion. Costae bifurcate terminally, and with some lateral fusions produce 8–12 relatively large lacunae. Secondary calcified orifice not greatly raised distally, with a pair of short oral spines. Recessed junction of suboral costae forming a proximally sinuate secondary orifice. Distal avicularium fairly large, length of rostrum equal or exceeding that of autozooid orifice; rostrum rounded and directed distally.

Remarks. The secondary orifice is distinctly sinuate. Many zooids communicate directly through septular pores and the chambered pores are small, forming kenozooids at the corners of the autozooids. The calcification becomes extrazooidal late in ontogeny surrounding the autozooids.

Powell (1967: 223) suggested that *C. elevata* might be 'closely allied' to the type species of *Cribralaria* Silén, *C. curvirostris* Silén (1941: 122, figs 182–183) from the north-western Pacific. *Cribralaria curvirostris* has autozooids with numerous, rounded lacunae and no chambered pores. The ovicell is partially immersed in the subrostral chamber of the large distal avicularium which has a raised acute rostrum. The only feature superficially similar to the avicularium of *A. elevata* is its distal position (see also Gordon, 1989: 15). *Anaskopora elevata* differs from the other globular species in its small number of widely spaced costae and scattered median lacunae.

Table 1. Measurements in mm of species of *Anaskopora*. Lz, lz, length and width of zooid; Lo, lo, length and width of orifice; Lav, lav, length and width of avicularium; Lr, length of rostrum.

	Lz	lz	Lo	lo	Lav	lav	Lr
<i>A. elevata</i>	0.46–0.54	0.37–0.50	0.14–0.15	0.13–0.17	0.17–0.23	0.10–0.12	0.09–0.15
<i>A. cornuta</i>	0.66–0.78	0.45–0.66	0.15–0.18	0.12–0.16	0.12–0.18	0.08–0.10	0.08–0.10
<i>A. rotundata</i>	0.60–0.70	0.41–0.51	0.10–0.14	0.12–0.13	0.08–0.10	0.06–0.08	0.05–0.07
<i>A. simplex</i> sp. nov.	0.95–1.40	0.58–0.70	0.18–0.23	0.23–0.25	0.13–0.19	0.12–0.14	0.07–0.10
<i>A. mesa</i> sp. nov.	0.53–0.88	0.40–0.50	0.09–0.13	0.17–0.23	0.10–0.18	0.06–0.09	0.07–0.10

Anaskopora simplex sp. nov.

Figures 3–4, Table 1

Material examined. Holotype. NMV P140964, Balcombe Bay, Victoria, Miocene.

Other material. Princetown, Cape Otway, Victoria.

Distribution. See above, Miocene to Oligocene (Appendix).

Etymology. *Simplex* (Latin) — simple, referring to the pericyst.

Description. Colonies encrusting minute substrata, with occasional isolated frontal buds arising from small chambered pores at the corners of the autozooids. Autozooids large, gymnocyst marginal; pericyst formed by 18–28 flattened costae, widely spaced and curved over the frontal with no sharp angle of inflexion. Median area of fusion narrow, formed by apposition and fusion of terminal and subterminal costal bifurcations, with very few lateral fusions. Secondary calcified orifice raised to form fimbriated distal plate. Suboral bar raised and swollen; with 1 pair of oral spines. Distal avicularium relatively small, the rostrum less than half length of autozoid orifice, subtriangular to rounded, with large paired condyles. Chambered pores include more than 1 septular pore and tend to occur at corners of autozooids, forming small kenozooids and extra-zoidial calcification late in ontogeny.

Remarks. The specimens from Princetown and Cape Otway include only a few isolated groups of zooids but the material from Balcombe Bay is plentiful comprising more than 250 zooids most of which encrust fragments of the bryozoans *Porina* and *Laminopora*. The largest specimen has more than 80 autozooids. The relative simplicity of the costal shield resembles those of *Figularia* and *Membraniporella* and the apposed ends of the costae are raised in small tubercles similar to those of the species illustrated as *M. bifurca* Powell by Gordon (1984: pl. 19A).

Anaskopora cornuta (MacGillivray)

Figures 5–7, Table 1

Cribrilina cornuta MacGillivray, 1895: 58, pl. 8, figs 10–12.—Maplestone, 1904: 201 (listed).

Corbulipora cornuta.—Brown, 1958: 55.—Wass, 1975: 168, pl. 7 figs 3–6, pl. 8 fig. 3.

Material examined. Lectotype. NMV P27635, Schnapper Point, Victoria, Miocene (selected by Wass, 1975).

Other material. Balcombe Bay, Warrambine Creek, Muddy Creek, Coorimungle, Princetown, Victoria and Mount Schanck, South Australia.

Distribution. Additional records given by MacGillivray (1895) include Corio Bay and Gellibrand; by Maplestone (1904) include Spring Creek, Shelford, Griffins, Campbells Point, Mornington and Mitchell River; and by Brown (1958) include localities XI, Glenelg River at Werrikoo, and XVI, Crawford River at Glenaulin, all in Victoria. All records are Miocene, except Spring Creek and Glenaulin which are Oligocene (Appendix).

Description. Colonies encrusting minute substrata, or cylindrical to globular, principally formed by interzoidial frontal budding. Autozooids with a narrow gymnocyst and a pericyst formed by 12–24 costae; vertical components short and closely apposed. Median area of fusion very regular, with radiating rows of small lacunae between the costae, which overlap or abut terminally. Secondary calcified orifice small with a slight but distinct distal plate, paired oral spines and condyles. Recessed junction of the suboral costae forming a proximal sinus. Avicularium distal or distolateral, sometimes in pairs or triads, with a short, rounded, raised rostrum about two-thirds length of autozoidial orifice. Chambered pores not obvious but small interzoidial kenozooids are numerous surrounding each autozoid and becoming extra-zoidial in older colonies.

Remarks. Like *A. rotundata*, the globular colonies have randomly orientated zooids and are almost completely composed of frontal buds. *Anaskopora cornuta* differs from *A. elevata* in its dimensions and much more numerous straight rows of costae and lacunae. It differs from *A. rotundata* in the regularity of the rows of costae and lacunae and its slightly larger avicularia. A significant number of the many specimens examined encrust small shell and bryozoan fragments like the colonies of *A. simplex* and *A. mesa*.

Anaskopora rotundata (MacGillivray)

Figures 8, 12–16, Table 1

Lagenipora rotundata MacGillivray, 1895: 78, pl. 10, fig. 18.

Lagenipora morningtoniensis Maplestone, 1902: 24, fig. 15.—Maplestone, 1904: 216 (listed).

Material examined. Holotype. NMV P27688, Lake Bullenmerri, Victoria, Miocene.

Holotype of *L. morningtoniensis*. NMV P10205, Mornington, Victoria, Miocene.

Other material. Balcombe Bay, Bairnsdale, Fyansford, Coorimungle, Victoria and Mount Schanck, South Australia.

Distribution See above, Miocene (Appendix).

Description. Colonies globular, formed principally by interzooidal frontal budding and some overgrowth, from zooids encrusting very small substrata. Autozooids with distinct, narrow gymnocyst, pericyst formed by 20–24 closely apposed costae with very little vertical component. Horizontal area of fusion formed by random and repeated bifurcations and lateral fusions, producing a finely punctate shield, with small tubercles among lacunae formed where various costal elements have met and fused. Tubercles may occur in central longitudinal series in some zooids. Secondary calcified orifice has raised fimbriated distal plate and paired oral spines which are often flattened and curved. Proximal sinus formed by recessed costae of suboral bar together with paired condyles. Distal avicularium is small, rounded rostrum less than half length of autozooid orifice. Autozooids become surrounded by kenozooids late in ontogeny.

Remarks. MacGillivray's (1895) account and figure did not adequately describe this species which he noted was represented by a 'single minute fragment'. The type specimen consists of approximately 15 worn zooids encrusting and almost completely enclosing a minute shell fragment on both sides. Most of the zooid orifices and the avicularia are so worn that few characters remain. The minutely tuberculate frontal shields are, however, better preserved and can be seen to be identical with those of the lectotype of *Lagenipora morningtoniensis*. MacGillivray's (1895) figure did not show the distal avicularium which he had not recognised as being present but did illustrate the frontal shield and the distal plate of a single zooid. Not surprisingly, Maplestone (1902) did not consider that his material had been described before. He referred *L. morningtoniensis* to the ascophoran genus *Lagenipora* because he considered that the finely punctate and tuberculate pericyst was a 'granulated' frontal shield and that the distal plate and flattened curved oral spines which tend to surround the secondary orifice constituted an 'irregularly elevated peristome.' This structure he thought was 'very similar to *L. simplex*, MacG.' *Lagenipora simplex* MacGillivray (1890: 109, pl. 5 fig. 8) is a Recent species from Western Port, Victoria, referable to *Celleporina bidenticulata* Busk, 1881 (Busk, 1881, 1884; Bock, personal observation).

Anaskopora rotundata occurs frequently together with *A. elevata* and *A. cornuta* from a wide range of Victorian and South Australian localities. It has not been reported since its

description and neither has *L. morningtoniensis*, probably because the colonies have not been recognised as distinct from those of *A. cornuta* which they greatly resemble. The autozooids and avicularia are very similar in size and shape but the structure of the zooidal frontal shields of *A. cornuta* and *A. rotundata* are totally dissimilar.

Anaskopora mesa sp. nov.

Figures 9–11, Table 1

Material examined. Holotype. NMV P140965, Balcombe Bay, Victoria, Miocene.

Other material. Balcombe Bay, Bairnsdale, Victoria; Mount Schanck, South Australia.

Distribution. See above, Miocene (Appendix).

Etymology. *Mesa* (Spanish) — a plateau at the summit of a mountain, referring to the shape of the autozooid pericyst.

Description. Colonies encrusting minute substrata. Autozooids with distinct vertical gymnocyst and peripheral component of 16–24 costae. Median area of fusion wide, with crenulated peripheral rim formed by spinous processes bordering single marginal series of pematidia. Horizontal component of costae not obvious, shield formed by calcification surrounding 25–35 large, often irregular lacunae, some with raised rim. Secondary calcified orifice rounded, distal plate distinct, sometimes with paired spinous processes. Oral spines large, paired, occasionally with additional distal spine and often raised and inflexed above orifice and fused medially. Distal avicularium small, length of rostrum less than that of orifice. Rostrum subtriangular to rounded, not raised, with paired condyles. Chambered pores and kenozooids present at corners of autozooids, small pore-chambers and septular pores also present.

Remarks. The material from Mount Schanck is not well preserved and none of the autozooids shows the raised, inflexed and fused oral spines present in the Victorian specimens. These spines are remarkably similar to those which sometimes occur in *Corbulipora ornata* (encrusting and kenozooidal phases only, Bock and Cook, 2001).

One specimen from Balcombe Bay differs from all the others. It comprises only a few, rather worn zooids (Fig. 11). Although the frontal shield resembles those of the other colonies, the secondary calcified orifice differs in having little or no raised distal plate but a large square tooth projecting proximally into the orifice from the distal

wall. In a few zooids the suboral bar is raised above the orifice, forming a partial peristome similar to that described by Wass (1975) in material he assigned to *A. ampulla*. Until this and additional specimens become available for examination it is not possible to decide whether this specimen represents a species distinct from *A. mesa* sensu stricto or is identical with *A. ampulla*.

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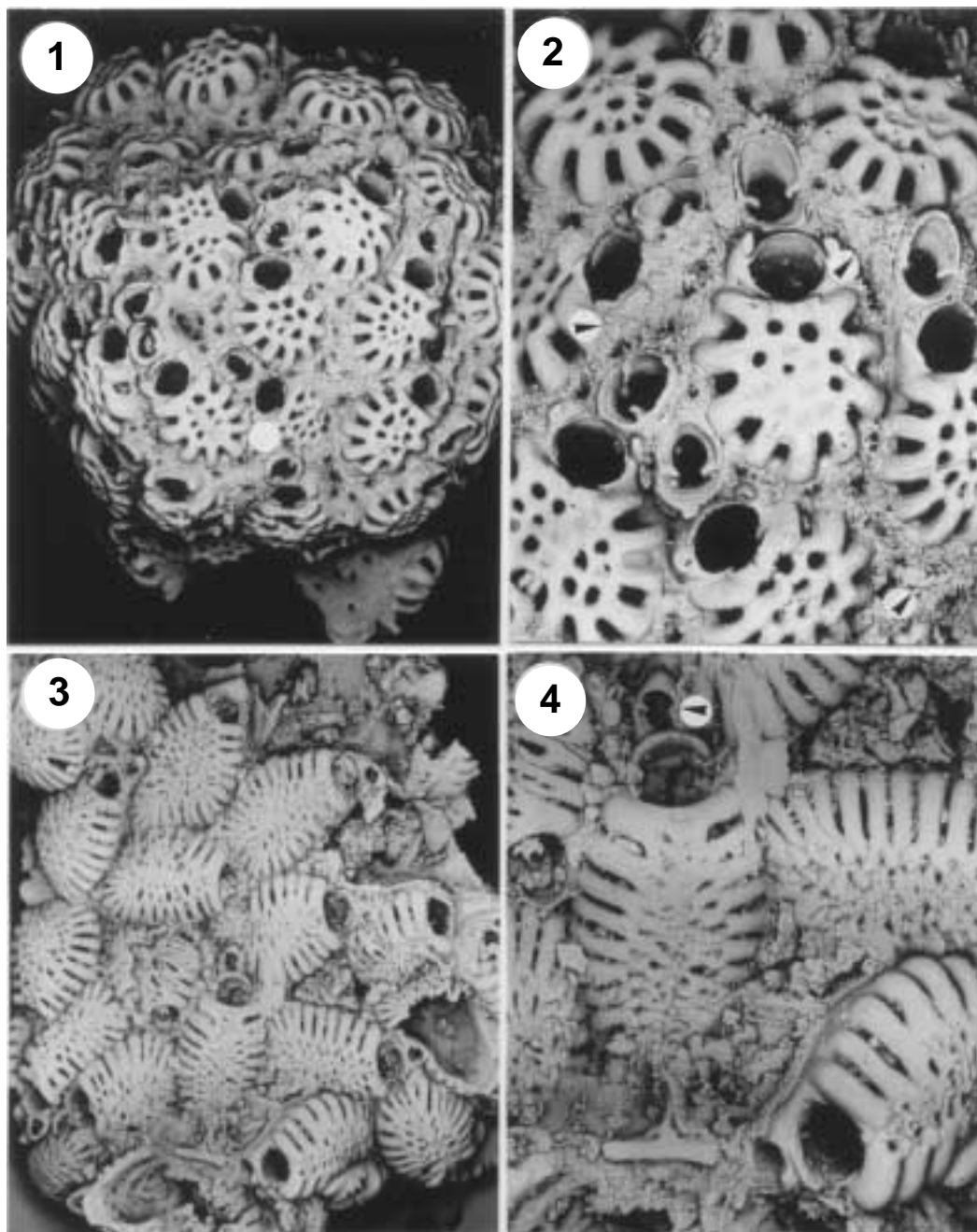
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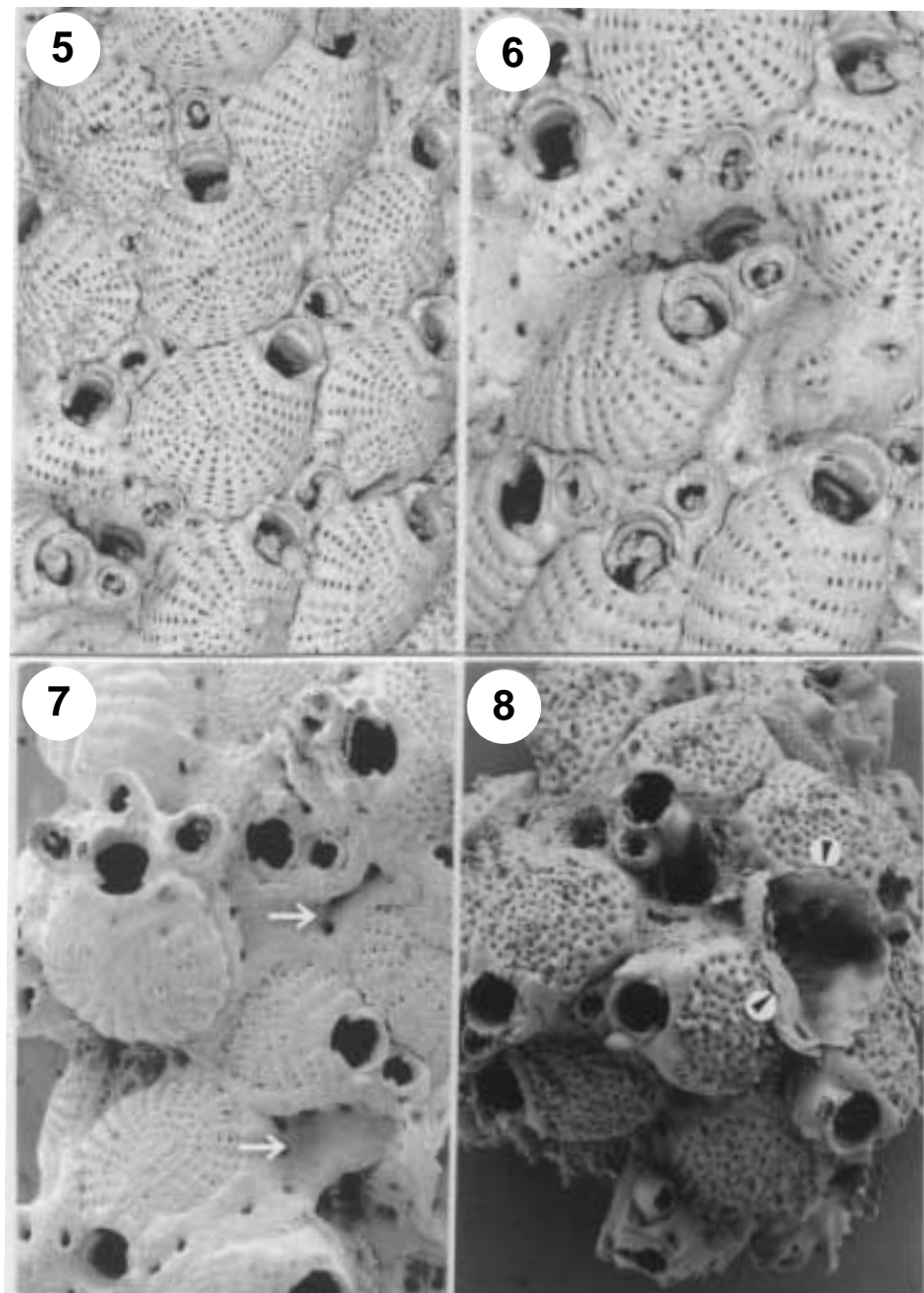
Appendix. Details of Tertiary localities mentioned in the text

- Bairnsdale (Skinners): Mitchell River bank, about 12 km W of Bairnsdale, Vic. 37°47.9'S, 147°29.5'E.
- Balcombe Bay: Also known as Fossil Beach, Mornington, Mount Martha and possibly 'Schnapper Point' (MacGillivray); on coast of Port Phillip Bay, about 3 km S of Mornington, Vic. 38°14.5'S, 145°01.7'E. Fyansford Clay. Balcombian; Middle Miocene, (Langhian).
- Batesford Quarry: Upper levels of limestone Quarry, 7 km W of Geelong, Vic. 38°06.5'S, 144°17.3'E, Fyansford Clay. Middle Miocene (Balcombian).
- Bird Rock: Coastal section, about 3 km W of Torquay, Vic. 38°21.4'S, 144°17.8'E. Jan Juc Formation. Janjukian; Late Oligocene, (Chattian). Also known as Spring Creek.
- Campbells Point: On Lake Connewarre, 12.5 km SE of Geelong, Vic. 38°13.7'S, 144°26.7'E. Middle Miocene.
- Cape Otway: Also Point Flinders, Locality AW1. Coastal section 2 km NW of Cape Otway, Vic. 38°51.1'S, 143°29.5'E. Glen Aire Clay. Early Oligocene (Rupelian/Latorfian).
- Cooriemungle area: Road cuttings about 18 km N of Princetown. 38°32.4'S, 143°08.1'E. Gellibrand Marl. Balcombian.
- Corio Bay: Coastal exposures between 2 and 6 km N of Geelong, Vic. Middle to Late Miocene.
- Fyansford: This locality was mentioned by Maplestone (1904) and is almost certainly in the same area as the Batesford Quarry (see above).
- Gellibrand: This locality was mentioned by MacGillivray (1895) and is in the same area as Princetown.

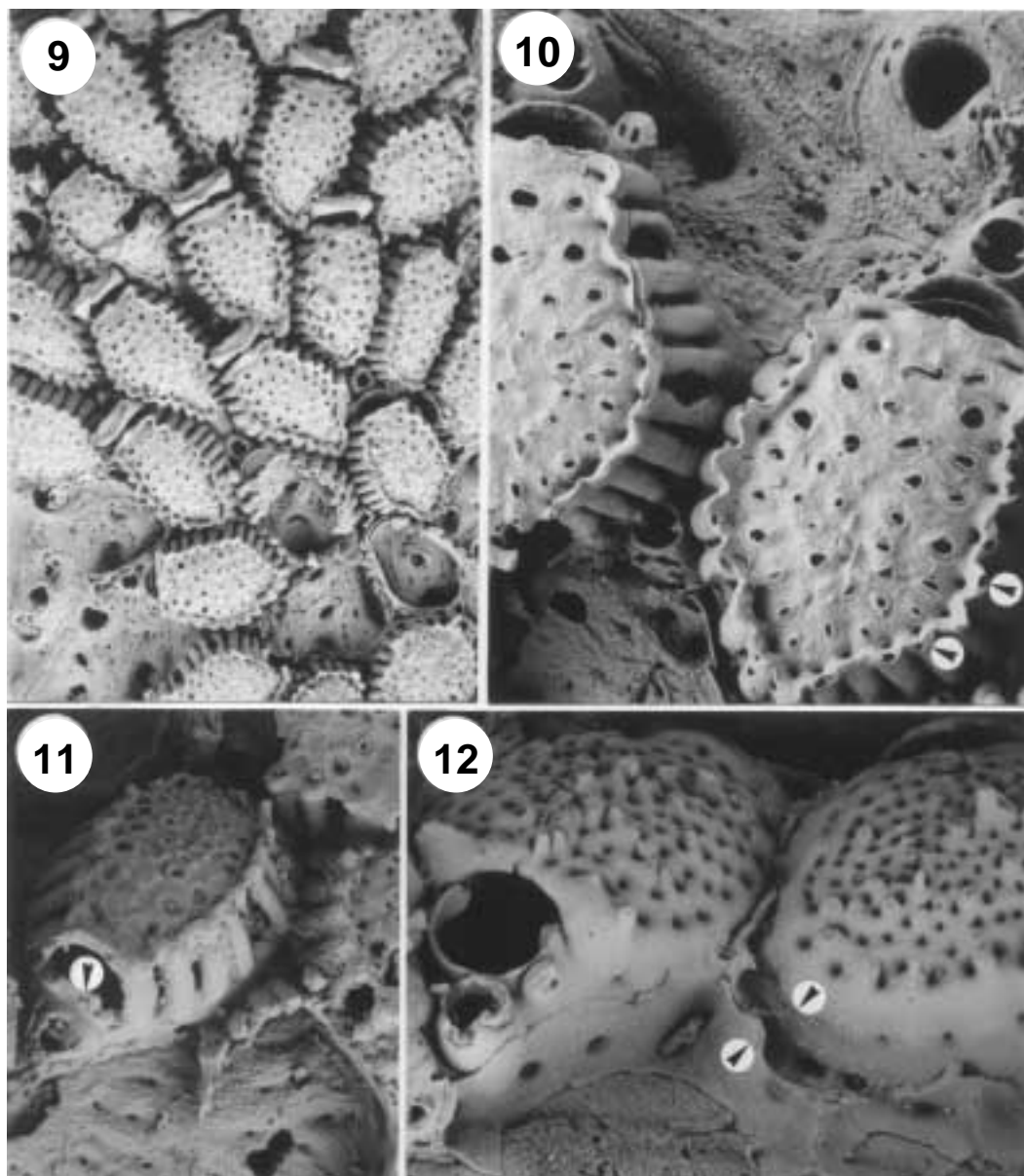
- Glenaulin: Locality XVI of Brown (1958). Limestone, South landslip, Allotment 1, Parish of Glenaulin, south-western Vic. Janjukian, Late Oligocene (Chattian).
- Glenelg Group: Locality XI of Brown (1958). Limestone Creek cliff, Allotment 16, and Locality XIV, near base of section at Caldwell's Cliff, Allotment 68b, both Parish of Werriook, south-western Vic. Myaring Beds, upper Gambier Limestone. Longfordian, Early Miocene (Burdigalian).
- Griffins: This locality is listed in Mapleston's checklist (1904). The locality was one of the limestone quarries on the Moorabool River, about 8 km NW of Gee. This is close to the Batesford Quarry (above).
- Lake Bullenmerri: One of the rare inland outcrops of the uppermost Gellibrand Marl. 38°16.9'S, 143°06.2'E. Middle Miocene.
- Mount Gambier: Abandoned quarry on road to Port MacDonnell, about 7 km S of Mount Gambier, SA. 37°53.5'S, 140°43.2'E. Gambier Limestone. Longfordian(?) Early Miocene.
- Mount Schanck: Limestone quarry about 1 km W of Mount Schanck, about 15 km S of Mount Gambier, SA. 37°57'S, 140°43.2'E. Gambier Limestone. Longfordian; Early Miocene.
- Muddy Creek: Clifton Bank, Muddy Creek, 8 km W of Hamilton, Vic. 37°44.6'S, 141°56.4'E, Muddy Creek Marl (= Gellibrand Marl). Balcombian.
- Prinetown (Gigantocypraea locality): Coastal section, about 2 km W of Prinetown, Vic. 38°41.9'S, 143°08.3'E. Gellibrand Marl. Balcombian.
- Shelford (Red Bluff): Road cutting 35 km WNW from Geelong, Vic., 38°3.1'S, 143°59.2'E. Middle Miocene.
- Warrambine Creek: Stream section beside the bridge on the Inverleigh-Winchelsea Road, 31 km W of Geelong, Vic. 38°7.0'S, 144°00.4'E. Middle to Late Miocene.



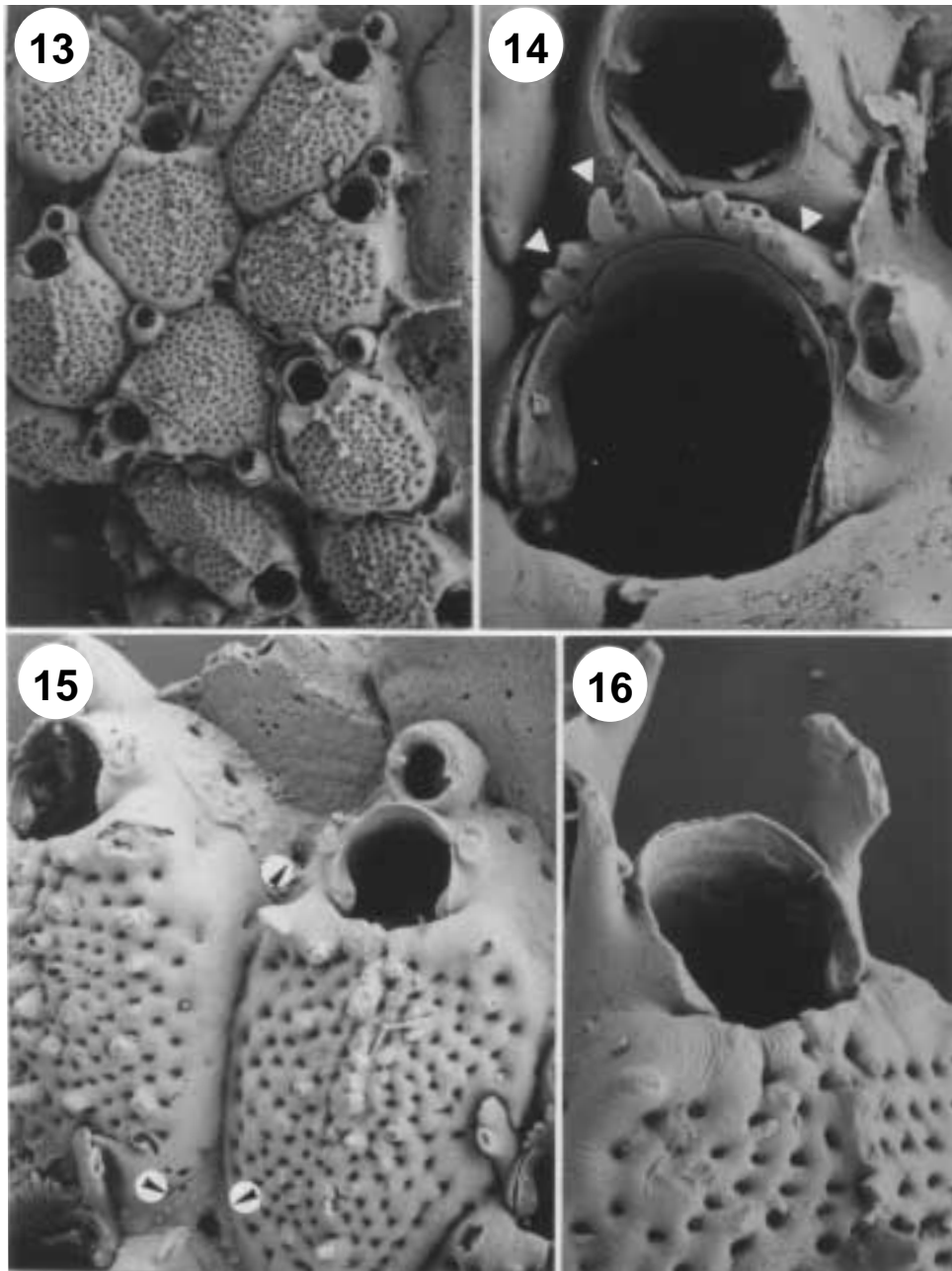
Figures 1–4. *Anaskopora elevata*. Balcombe Bay, Vic. Fig. 1, globular colony, showing frontal buds ($\times 40$). Fig. 2, enlargement of zooids from the same colony. Note distal avicularia and large area of extrazoooidal calcification surrounding zooids (arrowed) ($\times 80$). Figures 3–4. *Anaskopora simplex* sp. nov. Balcombe Bay, Vic. Fig. 3, part of a small encrusting colony ($\times 23$). Fig. 4, enlargement of zooids from the same colony, distal avicularium arrowed ($\times 50$).



Figures 5–8. *Anaskopora cornuta*. Balcombe Bay, Vic. Fig. 5, slightly worn zooids, showing regular rows of intercostal lacunae ($\times 52$). Fig. 6, enlarged zooids ($\times 70$). Fig. 7, frontally budded zooids and avicularia. Interzooidal kenozooids and developing frontal buds arrowed ($\times 60$). Fig. 8. *Anaskopora rotundata*. Balcombe Bay, Vic. Globular colony with developing frontal bud (arrowed) ($\times 65$).



Figures 9–12. *Anaskopora mesa* sp. nov. Balcombe Bay, Vic. Fig. 9, encrusting colony; zooids with raised medially fused oral spines ($\times 37$). Fig. 10, enlargement of zooids from the same colony, marginal pelmatidia arrowed ($\times 128$). Fig. 11, zooid of *A. aff. mesa* showing distal oral tooth (arrowed) ($\times 72$). Figure 12. *Anaskopora rotundata* Balcombe Bay, Vic. Zooids from growing edge of encrusting colony, showing lateral septular pores and developing chambered pore (arrowed) ($\times 125$).



Figures 13–16. *Anaskopora rotundata*. Balcombe Bay, Vic. Fig. 13, colony encrusting basal side of erect bryozoan ($\times 48$). Fig. 14, Secondary calcified orifice, showing condyles and fimbriated distal plate (arrowed) ($\times 360$). Fig. 15, zooids showing tuberculate frontal shield and chambered pores developing as kenozooids at 'corners' of zooids (arrowed) ($\times 127$). Fig. 16, orifice, showing distal plate and oral spines ($\times 240$).