



## Taxonomy of Upper Cretaceous scleractinian corals of the Gosau Group (Weissenbachalm, Steiermark, Austria)

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6 Text-Figures, 6 Tables and 8 Plates

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*scleractinian corals,*  
*taxonomy,*  
*Upper Cretaceous,*  
*Gosau Group,*  
*Austria*

### Contents

Abstract .....	441
Zusammenfassung .....	441
1. Introduction .....	442
2. Weissenbachalm .....	442
2.1. Location .....	442
2.2. Rudist-Coral-Brachiopod Facies (assemblages 'WB 12' and 'WB14') .....	442
2.3. Coral Marls (assemblages 'WB 1' and 'WB 1A') .....	443
3. Systematic Paleontology .....	443
4. Preliminary Palaeogeographical Comparison .....	463
Acknowledgements .....	463
References .....	463

### Abstract

Four corals assemblages (WB 1, WB 1A, WB 12, WB 14) are presented and taxonomically described from marls ('Coral Marls') and marly limestones ('Rudist-Coral-Brachiopod Facies') of the Weissenbachalm. The coral marl associations WB 1 and WB 1A, are distinctly dominated by solitary forms, e. g. *Aulosmilia* and *Rennensismilia*, whereas the faunas of the 'Rudist-Coral-Brachiopod Facies' (WB 12 and WB 14) are nearly all colonial taxa. One species is new: *Corbariastraea weissenbachalmensis* n. sp.

### Taxonomie oberkretazischer Korallen (Scleractinia) der Gosau Gruppe, Weissenbachalm, Steiermark, Österreich

#### Zusammenfassung

Von Mergeln sowie mergeligen Kalken ('Rudisten-Korallen-Brachiopoden-Fazies') der Lokalität Weissenbachalm werden 4 Korallenvergesellschaftungen vorgestellt und taxonomisch beschrieben. Die Korallenfaunen, welche den Mergeln entstammen (WB 1 und WB 1A), setzen sich fast ausschliesslich aus solitären Formen, z. B. *Aulosmilia* und *Rennensismilia*, zusammen. Die Korallenvorkommen der 'Rudisten-Korallen-Brachiopoden-Fazies' (WB 12 und WB 14) dagegen bestehen fast vollständig aus kolonialen Taxa. Eine neue Art wird beschrieben: *Corbariastraea weissenbachalmensis* n. sp.

## 1. Introduction

The earliest studies of the geology of the Gosau Group in the Weissenbachalm region – situated east of Bad Aussee – dates back to the classical paper by SEDGWICK & MURCHISON (1831). In 1852 PETERS gave the first detailed description of the stratigraphic sequence and macrofauna. PETERS distinguished 4 members: the Lower Conglomerate, followed by 'the fossiliferous marl-limestone-sandstone-complex', the upper fossiliferous sandstone with coal particles, and the Upper Conglomerate. With respect to corals PETERS mentioned the forms *Placosmilia cuneiformis* and *Cyclolites* sp. from the Gosau marls. In 1854 REUSS published the first monographic paper on the Gosau corals, some of which derived from the Bad Aussee area. Since then, other monographic works dealing with Gosau corals have been published (FELIX, 1903; OPPENHEIM, 1930; BEAUVAIS, 1982; HÖFLING, 1985; BARON-SZABO, 1997). However, coral assemblages from the Weissenbachalm region remained undescribed.

Recently, the working group of HARRY LOBITZER of the Geologische Bundesanstalt Wien has started a project, focusing on the geological and paleontological aspects of the Weissenbachalm region. The present paper deals with the coral material that was collected during their initial field work session. What follows is a preliminary report on the faunal contents of the coral assemblages.

The purpose of the present paper is to taxonomically describe coral assemblages of the Weissenbachalm region, giving the first insight into the character of these associations.

## 2. Weissenbachalm

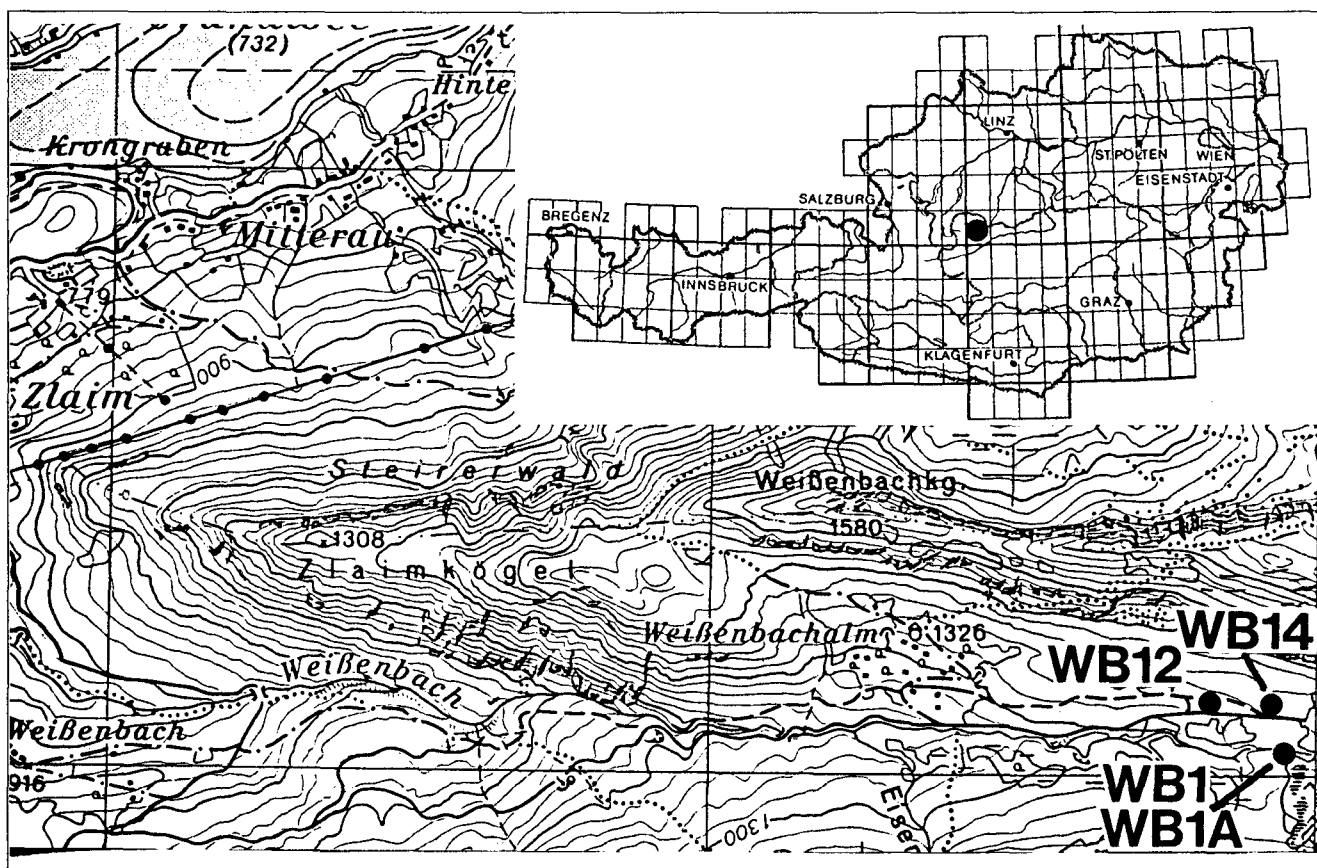
In the following only a short description of the lithology and stratigraphy is given. For more details see the papers by HRADECKÁ et al. and SZENTE et al., this volume.

### 2.1. Location

The Weissenbachalm (Text-Fig. 1) is situated in the Styrian part of Salzkammergut, east of Bad Aussee village and south of Grundlsee. The region is accessible only by a private road owned by the state forests.

### 2.2. Rudist-Coral-Brachiopod Facies (assemblages 'WB 12' and 'WB 14')

The name of this characteristic limestone was coined by KOLLMANN & SUMMESBERGER (1982) as a modification of the 'rudist-coral facies' sensu ZAPPE (1937). This lithological unit represents a part of the 'fossiliferous marl-limestone-sandstone-complex' by PETERS (1852). The corals of WB 12 and WB 14 derived from the succession situated along the forest road, on its northern slope (Text-Fig. 1). The outcropping sequences consist of loose or slightly bound (marly-) limestones boulders, that vary in size. Most of the boulders are composed of leached fossils, with rudists and corals dominating (Text-Fig. 2). Frequently, brachiopods occur. Rarely, gastropods and echinoids (ŽITT, in SZENTE et al., 1999) are observed. The macrofos-



Text-Fig. 1.

Location map of the fossiliferous outcrops of the 'Coral marls' (sample points WB 1, WB 1A) and the 'Rudist-Coral-Brachiopod Facies' (sample points WB 12, WB 14).



Text-Fig. 2.  
Sample point WB 14 exposing marly limestone boulders of the "Rudist-Coral-Brachiopod-Facies".



Text-Fig. 3.  
Sample point WB 1 exposing "coral marls" close to the source of Weissenbach stream.

sils show infrequent encrustations by serpulids. The "Rudist-Coral-Brachiopod Facies" represents deposits composed of loosely bound debris of reworked small bioherms rather than solid reef structures. According to the bivalve fauna an Upper Santonian-Campanian age for the Rudist-Coral-Brachiopod Facies is suggested (SZENTE, in SZENTE et al., 1999).

The coral assemblages WB 12 and WB 14 are distinctly dominated by colonial forms, of which the majority shows a cerioid, thamnasterioid, or plocoid integration of polyps (Tables 1 and 2).

### 2.3. Coral Marls (assemblages 'WB 1' and 'WB 1A')

The coral marls are exposed close to the source of Weissenbach stream, east of Weissenbachalm (Text-Fig. 3 shows outcrop WB 1). The samples designated as WB 1A come from the same outcrop, they were collected, however, as loose pieces in the river load.

The soft, dark colored, carbonatic marls show a small content of quartz, dolomite, plagioklas, muscovite, pyrite, and kaolinite. In places considerable amounts of gypsum are present. Frequently, traces of kalifeldspar and chlorite occur (OTTNER, in HRADECKÁ et al., 1999). The association of nanofossils (ŠVÁBENICKÁ, in HRADECKÁ et al., 1999) and the index benthic foraminifera taxa indicate an Upper Turonian age of the coral marls (HRADECKÁ et al., 1999). The foraminifera assemblage is suggesting an inner neritic environment (*sensu* WAGREICH & FAUPL, 1994) with water depths around 10–20 m. Ostracods are depicted by forms of shallow water assemblages (ZORN, in HRADECKÁ et al., 1999). The palyno-

morphs indicate the Complexiopollis-Zone (SIEGL-FARKAS, in HRADECKÁ et al., 1999).

The coral assemblages WB 1 and WB 1A are distinctly dominated by solitary forms (Tables 3 and 4).

### 3. Systematic Paleontology

Abbreviations for the dimensions in the text are as follows: d = corallite diameter; in corallites that are not circular 'd' refers to the maximum diameter; c-c = distance between centers of calices; s = number of septa; s/mm = density of septa; h = height of corallum.

Note that the diameter of the colonies ranges from 8 to 15 cm, if not indicated otherwise in the description.

Chapters on the distribution of species do not include the present occurrence.

Class Anthozoa EHRENBERG, 1834  
Subclass Zoantharia BLAINVILLE, 1830  
Order Scleractinia BOURNE, 1900

Suborder Archaeocoeniina ALLOITEAU, 1952  
Family Actinastraeidae ALLOITEAU, 1952  
Genus *Actinastrea* D'ORBIGNY, 1849  
Type species: *Astrea geminata* GOLDFUSS, 1826

*Actinastrea fromenteli* ALLOITEAU, 1954  
Pl. 1, Figs. 1–2

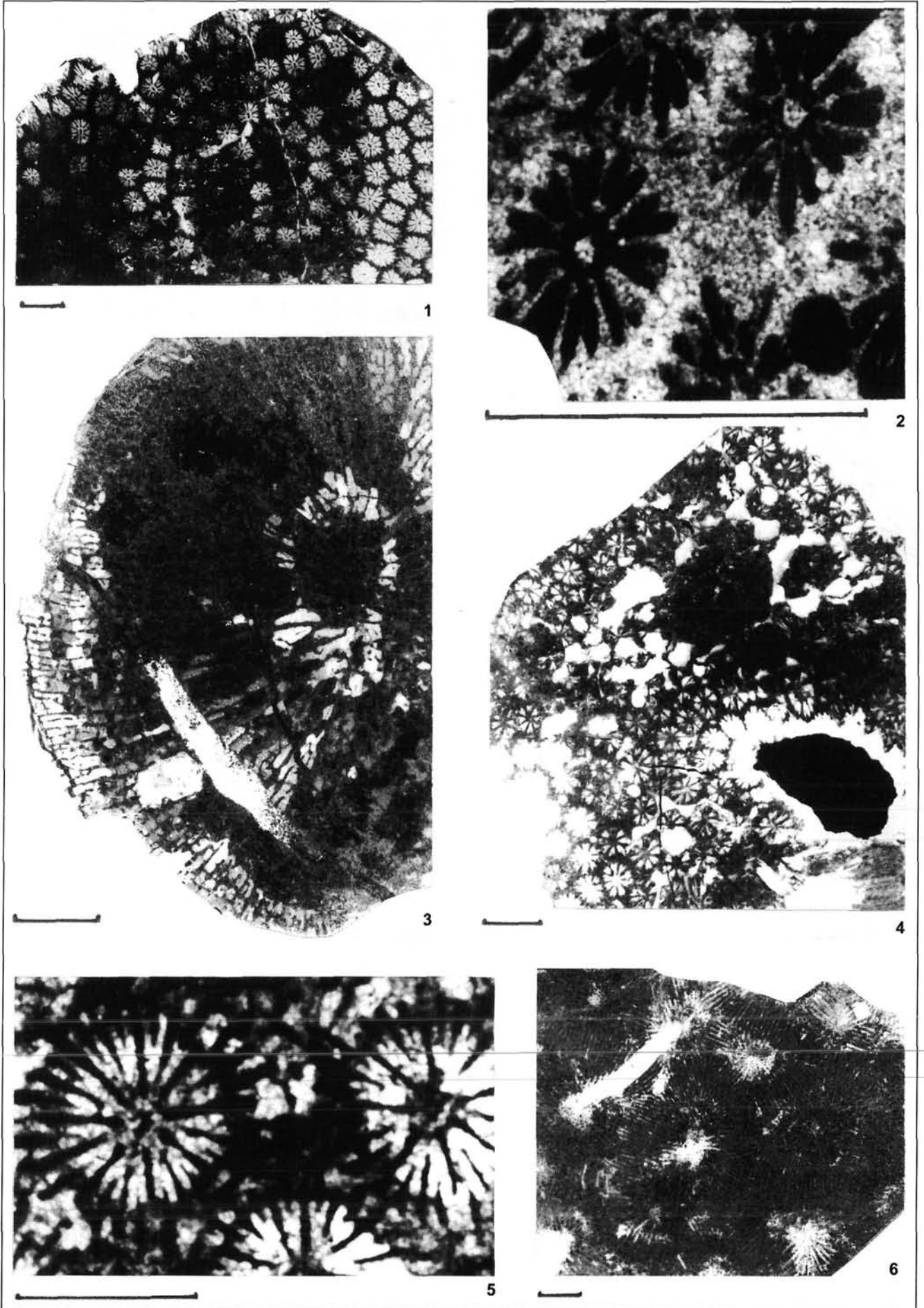


Table 1:

Coral assemblage of the Weissenbachalm horizon WB 12 with growth form and integration of polyps.

species	growth form	integration of polyps
<i>Actinastrea fromenteli</i> Alloiteau, 1954	massive, knobby, or multicolumnar	cerioid
<i>Columactinastrea formosissima</i> (Sowerby, 1831)	massive, knobby, or multicolumnar	cerioid
<i>Paraplococoenia orbignyana</i> (Reuss, 1854)	massive	plocoid
<i>Placocoenia major</i> Felix, 1903	massive	plocoid
<i>Placosmia turonensis</i> (Fromentel, 1877)	flabelliform	meandroid
<i>Astrogyra orbignyi</i> (Fromentel, 1877)	massive	meandroid
<i>Rhabdopsammia</i> sp.	branching	phaceloid
<i>Brachycoenia leptophyllia</i> (Reuss, 1854)	massive	thamnasterioid
<i>Pleurocora</i> cf. <i>alternans</i> Milne-Edw. & Haime, 1849	branching	phacelo-dendroid
<i>Actinacis elegans</i> Reuss, 1854	massive, lamellar or multicolumnar	plocoid
<i>Neocoeniopsis corollaris</i> (Reuss, 1854)	massive	plocoid
<i>Valliculastrea texta</i> (Oppenheim, 1930)	massive	thamnasterioid
<i>Corbariastrea weissenbachalmensis</i> n. sp.	massive	thamnasterioid
<i>Elephantaria lindstroemi</i> Oppenheim, 1930	massive, bulbous	(?) thamnasterioid
<i>Kobya rigausensis</i> Beauvais, 1982	massive, knobby	thamnasterioid

\*1954 *Actinastrea fromenteli*: ALLOITEAU, p. 33–34, pl. IV, fig. 2, pl. VI, fig. 6.

**Dimensions:** d: 1–1.8 mm; c-c: (1) 1.5–2.2 mm; s: (14-) 20.

**Description:** The corallum is massive, knobby, cerioid, about 3 cm in diameter. Polygonal corallites are directly united by their walls. Costosepta are thin, straight, non- or subconfluent, compact, and arranged in 2 cycles in 10 systems, which are unequally developed. Their lateral surfaces are covered by delicate spiniform or rounded granules. The ten septa of the first cycle reach the center of the calice, where they may meet and fuse with the columella. Septa of the second cycle are very thin and reach about half the length of the oldest ones. Inner ends of septa can be cuneiform or irregularly thickened. The columella is styliform. Wall is septothecal, rarely synapticulothecal. The endotheca consists of thin, vesicular dissepiments. Microstructural features are not preserved.

**Distribution:** Upper Turonian of France.

**Material:** WB 12-1; WB 12-4; WB 12-28; WB 14-2.

Genus *Columactinastrea* ALLOITEAU, 1952

Type species: *Columactinastrea rennensis* ALLOITEAU, 1952

### *Columactinastrea formosissima* (SOWERBY, 1831)

Pl. 1, Fig. 4

\*1831 *Astrea formosissima*: SOWERBY, pl. 37, fig. 6.

1841 *Astrea reticulata*: MICHELIN, p. 20 and 301, pl. V, fig. 1.

1849 *Stephanocoenia formosissima* (SOWERBY): MILNE-EDWARDS & HAIME, p. 301.

1857 *Stephanocoenia formosissima* (SOWERBY): MILNE-EDWARDS & HAIME, tome II, p. 266.

1884 *Stephanocoenia formosissima* (SOWERBY): FROMENTEL, p. 536, pl. 147, fig. 2.

1914 *Stephanocoenia formosissima* (SOWERBY): FELIX, pars 7, p. 237.

1930 *Stephanocoenia formosissima* (SOWERBY): OPPENHEIM, p. 474–476, pl. XXXVI, figs. 9-9a.

1998 *Columactinastrea formosissima* (SOWERBY): BARON-SZABO, p. 173, pl. 1, fig. 3.

**Dimensions:** d: 1.2–2.2 mm; c-c: 1.5–3 mm; s: 12–20.

**Description:** The corallum is massive, knobby or multicolumnar, cerioid, with calices united by their walls. Corallites are polygonal or rounded in outline. Costosepta are compact, non- or subconfluent and arranged in 2–3 cycles in 6, 7 or 8 systems. Septa of the first cycle extend to the axial region. Trabecular prolongations of their inner ends may fuse with the columella. Septa of the second cycle are distinctly shorter and thinner. Septal flanks are covered by delicate granules, varying in shape. Pali irregularly occur axial to S1 or S2. Columella is substyliform or irregularly trabecular. The wall is septothecal with rare pores. Endotheca is formed by thin, vesicular or subtabulate dissepiments. Microstructure is not preserved.

**Distribution:** Turonian-Senonian of south France, Coniacian-Santonian of other localities of the Gosau Group (e. g. Nefgraben, Zimmergraben), Campanian of north Spain (Catalonia).

**Material:** WB 12-2; WB 12-3; WB 12-5; WB 12-6; WB 12-7; WB 14-1.

Suborder Faviina VAUGHAN & WELLS, 1943

Family Placocoeniidae ALLOITEAU, 1952

Genus *Paraplococoenia* BEAUVAIS, 1982

Type species: *Placocoenia orbignyana* REUSS, 1854

### *Paraplococoenia orbignyana* (REUSS, 1854)

Pl. 4, Fig. 4, Pl. 7, Figs. 1–2, Text-Fig. 4

?1850 *Phyllocoenia marticensis*: D'ORBIGNY, tome II, p. 204.

\*1854 *Placocoenia orbignyana*: REUSS, p. 99, pl. IX, figs. 1, 2.

1857 ? *Cyphastraea orbignyana* (REUSS): MILNE-EDWARDS & HAIME, tome II, p. 277.

1899 *Phyllocoenia excelsa* FROMENTEL: SÖHLE, pl. X, fig. 1.

1903 *Placocoenia orbignyana* REUSS: FELIX, p. 296, fig. 48.

?1937 *Placocoenia orbignyana* REUSS: BATALLER, p. 105.

1982 *Paraplococoenia orbignyana* (REUSS): BEAUVAIS, tome I, p. 114–116, pl. IX, figs. 1–2 (older synonyms cited therein).

**Dimensions:** d: 2.5–4.5 (5) mm; d (lumen): 1.8–3.5 mm; c-c: 3.2–5 mm; s: (16) 24 (32).

## Plate 1

Fig. 1: *Actinastrea fromenteli* ALLOITEAU, 1954, cross section, sample WB 12-4.

Fig. 2: *Actinastrea fromenteli* ALLOITEAU, 1954, cross section, slightly oblique, sample WB 12-1.

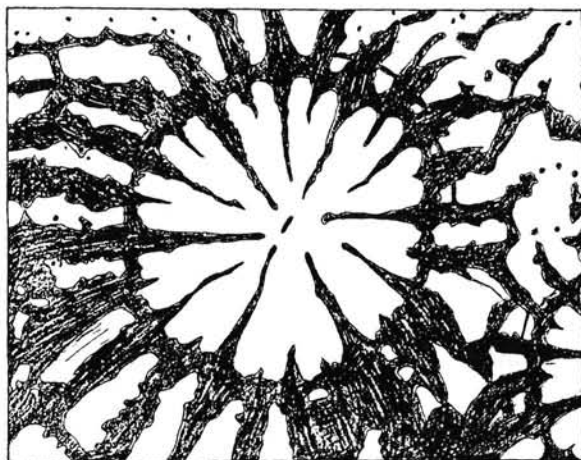
Fig. 3: *Acrosmia conica* D'ORBIGNY, 1850, cross section of corallum, sample WB 14-7.

Fig. 4: *Columactinastrea formosissima* (SOWERBY, 1831), cross section, sample WB 12-7.

Fig. 5: *Placocoenia major* FELIX, 1903, cross section, sample WB 12-8.

Fig. 6: *Brachycoenia leptophyllia* (REUSS, 1854), cross section, sample WB 12-21.

Scale bar: 3 mm.



Text-Fig. 4.  
Transverse section of *Paraplococoenia orbignyana* (REUSS, 1854).  
Diagram of corallite. Scale bar: 1mm, sample WB 12-10.

**Description:** The corallum is massive and plocoid, with circular or slightly elliptical calices. Increase is by extracalicular budding. Costosepta are compact, nonconfluent, rarely subconfluent, and generally arranged in 3 complete cycles in 6 systems. Septa of the first cycle extend to the center of the corallite. Their inner ends may be cuneiform or can terminate into claviform thickenings. Septa of the second and third cycle regularly alternate in length and thickness. Septal flanks are ornamented with spiniform granules or vertical carinae. Intercorallite areas are crossed by costae when corallites are close together, when they are more distant, costae dissociate into a reticulated coenenchyme. Columella is lamellar, short, thin, or rudimentary. Wall is septoparathecal, rarely parathecal. Endotheca is formed by thin, vesicular dissepiments. Exotheca consists of vesicular or cellular dissepiments. Microstructure is made of medium-sized divergent trabeculae (septa) and medium-sized monaxial and polyaxial portions (perithecal and intercorallite areas).

**Remarks:** BEAUVAIS (1982) lists *Paraplococoenia orbignyana* (REUSS) as a junior synonym of *Phyllocoenia marticensis* D'ORBIGNY, but gives the first priority over the latter. However, the Weissenbachalm specimens very closely agree with the description and illustrations of *Paraplococoenia orbignyana* (REUSS) in BEAUVAIS (1982). Because, the author has not seen the type of *Phyllocoenia marticensis* D'ORBIGNY, *Paraplococoenia orbignyana* (REUSS) is tentatively regarded as the primary species.

**Distribution:** Upper Cretaceous of south France (Provence), Santonian of northeast Spain (Catalonia), Santonian-Campanian of other localities of the Gosau Group (Nefgraben, Zimmergraben, Edelbachgraben, Hofergraben, Obergeschröpfungfen).

**Material:** WB 12-10; WB 14-4.

Genus *Placocoenia* D'ORBIGNY, 1849

Type species: *Astrea macrophtalma* GOLDFUSS, 1826

***Placocoenia major* FELIX, 1903**

Pl. 1, Fig. 5, Pl. 2, Figs. 1, 3

\*1903 *Placocoenia major*: FELIX, p. 298-299, pl. XX, fig. 1, text-fig. 50.

- 1914 *Placocoenia major* FELIX: FELIX, pars 7, p. 155.  
1930 *Heliastaea corollaris* (REUSS): OPPENHEIM, p. 318, pl. XLVIII, fig. 13.  
1930 *Placocoenia major* FELIX: OPPENHEIM, p. 407, pl. XXXVII, figs. 8-8a.  
1982 *Placocoenia major* FELIX: BEAUVAIS, tome I, p. 111-112, pl. VII, fig. 5, pl. VIII, figs. 2-3.  
1996 *Placocoenia major* FELIX: BARON-SZABO, in BARON-SZABO & STEUBER, p. 11, pl. II, fig. 3.  
1997 *Placocoenia major* FELIX: BARON-SZABO, p. 60-62, pl. 4, figs. 2, 4, pl. 5, fig. 5.

**Dimensions:** d: 3.5-5.5 mm; d (lumen): 2.5-4 mm; c-c: 4-6 (7.5) mm; s: 32 (8s1 + 8s2 + 16s3)

**Description:** The corallum is massive plocoid with circular or slightly elliptical calices that are regularly disposed over the colony. Costosepta are compact, nonconfluent, straight, and arranged in 3 cycles in 8 systems, radially or bilaterally. Septa of the first cycle reach the center of the calice. Septa of the second and third cycle regularly alternate in length and thickness. Inner ends of septa are cuneiform. Their lateral surfaces have delicate granulations. Columella is lamellar. The wall is septothecal. Endotheca is made of numerous thin, tabulate dissepiments. Well-developed exotheca consists of large vesicular or subtabulate dissepiments. Microstructure is not preserved.

**Distribution:** Coniacian-Santonian of other localities of the Gosau Group (Nefgraben, Zimmergraben, Brandenburg, Seeleiten, Paß Gschütt, Mühlbach), Lower Coniacian of south France (Corbière), Aptian of central Greece.

**Material:** WB 12-8.

Genus *Astrogyra* FELIX, 1900

Type species: *Gyrosmlia edwardsi* REUSS, 1854

***Astrogyra orbigny* (FROMENTEL, 1877)**

Pl. 3, Figs. 1, 4, Pl. 8, Fig. 1

- \*1877 *Pachygyra orbigny*: FROMENTEL, p. 441, pl. 104.  
1914 *Pachygyra orbigny* FROMENTEL: FELIX, pars 7, p. 149.  
1930 *Astrogyra edwardsi* REUSS: OPPENHEIM, p. 308, pl. XXXII, figs. 5-5a.  
1982 *Astrogyra orbigny* (FROMENTEL): BEAUVAIS, tome I, p. 80-81, pl. V, fig. 1.

**Dimensions:** d (serie): 11-14 mm; d (peritheca): 1.5-5 mm; s/ mm: 7-10/5.

**Description:** The corallum is massive and meandroid, with corallites that are arranged in long, parallel, slightly wavy series. Series are united by well-developed perithecal walls, which are marked by ambulacrae. Costosepta are compact, nonconfluent, thin, straight, and developed in 3 generations. Septal flanks are finely granulated. Primary and secondary septa are of the same length, but differ in thickness. Their inner ends are rhopaloid, rarely claviform, and may fuse with neighbouring ones. Tertiary septa reach about three quarters the length of the oldest septa. Columella is lamellar and very thin. Endotheca consists of numerous vesicular or subtabulate dissepiments. Microstructure is poorly preserved, but in places large compound trabeculae formed by multiple simple elements are present.

**Distribution:** Santonian of south France (Provence), Santonian of other localities of the Gosau Group (Zimmergraben, Geschröpfungfen).

**Material:** WB 12-27.

Family Placosmiliidae ALLOITEAU, 1952  
 Genus *Placosmilia* MILNE-EDWARDS & HAIME, 1848  
 Type species: *Turbinolia cymbula* MICHELIN, 1846

***Placosmilia turonensis* (FROMENTEL, 1877)**  
 Pl. 5, Fig. 2

- \*1877 *Rhipidogyra turonensis*: FROMENTEL, p. 437, pl. 98, fig. 1.
- 1900 *Lasmogyra tortuosa*: FELIX, p. 3.
- 1903 *Lasmogyra tortuosa* FELIX: FELIX, p. 247, pl. XXI, fig. 12, text-fig. 26.
- 1914 *Rhipidogyra turonensis* FROMENTEL: FELIX, pars 7, p. 148.
- 1914 *Lasmogyra tortuosa* FELIX: FELIX, pars 7, p. 164.
- 1930 *Lasmogyra tortuosa* FELIX: OPPENHEIM, p. 302, pl. XXXII, figs. 1-1b.
- 1956 *Placosmilia tortuosa* (FELIX): WELLS, part F, p. F.400, fig. 298,2.
- 1982 *Placosmilia turonensis* (FROMENTEL): BEAUVAIS, tome I, p. 63-65, pl. II, fig. 8, pl. III, fig. 4, pl. IV, fig. 1.

**Dimensions:** d: 16-22 mm; s/ mm: 13-17/ 10.

**Description:** Flabelliform corallum, very elongated in outline. Costosepta are compact and thick, becoming thin and flexuous toward the axial region. Three generations of septa irregularly alternate in length and thickness. Oldest septa reach the center of the corallum, where they may meet and fuse with the columella. Their inner ends terminate into thickenings, varying in size and shape. Septal flanks have a few spiniform and thick rounded granules laterally. The columella is very thin, lamellar and discontinuous. Wall is parathecal-epicostate. Endotheca is made of vesicular dissepiments. Microstructural features are not preserved.

**Distribution:** Coniacian-Santonian of other localities of the Gosau Group (Nefgraben, Gottes Schacht, Zimmergraben, Geschrópfalfen, Edelbachgraben, Brunstloch, Rußbach, Paß Gschüttgraben, Piesting, Scharergraben), Upper Santonian of south France (Provence).

**Material:** WB 1-13; WB 1-20; WB 12-25; WB 1A-31.

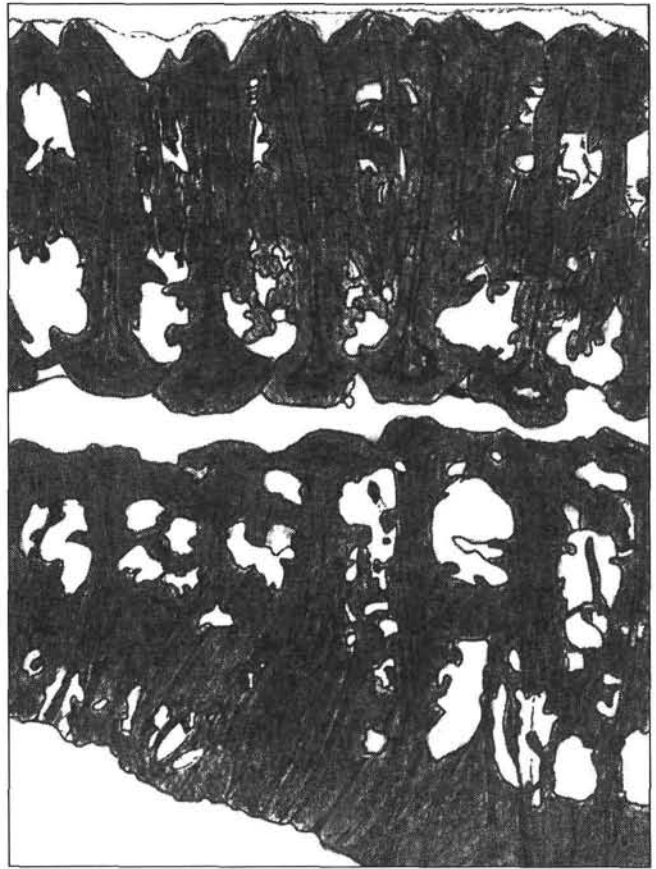
Suborder Meandriina ALLOITEAU, 1952  
 Family Meandriidae ALLOITEAU, 1952  
 Subfamily Euphyllinae ALLOITEAU, 1952  
 Genus *Rennensismilia* ALLOITEAU, 1952  
 Type species: *Trochosmilia didyma* FROMENTEL, 1867  
 (non GOLDFUSS, 1826)

***Rennensismilia complanata* (GOLDFUSS, 1826)**  
 Pl. 6, Fig. 3, Text-Fig. 5

- \*1826 *Turbinolia complanata*: GOLDFUSS, p. 53, pl. XV, fig. 10.
- 1849 *Trochosmilia complanata* (GOLDFUSS): MILNE-EDWARDS & HAIME, p. 238.
- 1854 *Trochosmilia complanata* (GOLDFUSS): REUSS, p. 85, pl. II, figs. 3, 4.
- 1903 *Trochosmilia complanata* (GOLDFUSS): FELIX, p. 328-329.
- ?1974 *Phyllosmilia complanata* (GOLDFUSS): L. & M.BEAUVAIS, p. 485.
- 1978 *Rennensismilia complanata* (GOLDFUSS): TURNŠEK, p. 77-78, 109, pl. 7, figs. 1-4, pl. 8, figs. 1-3.

**Dimensions:**

maximum diameter of the calice (D): 30-45 mm



Text-Fig. 5.  
 Transverse section of *Rennensismilia complanata* (GOLDFUSS, 1826). Diagrammatic view. Scale bar: 2 mm, sample WB 1A-12.

minimum diameter of the calice (d): 7-8 mm

s: 150-200

s/ mm: 5-7/2

d/D: 0.18-0.27

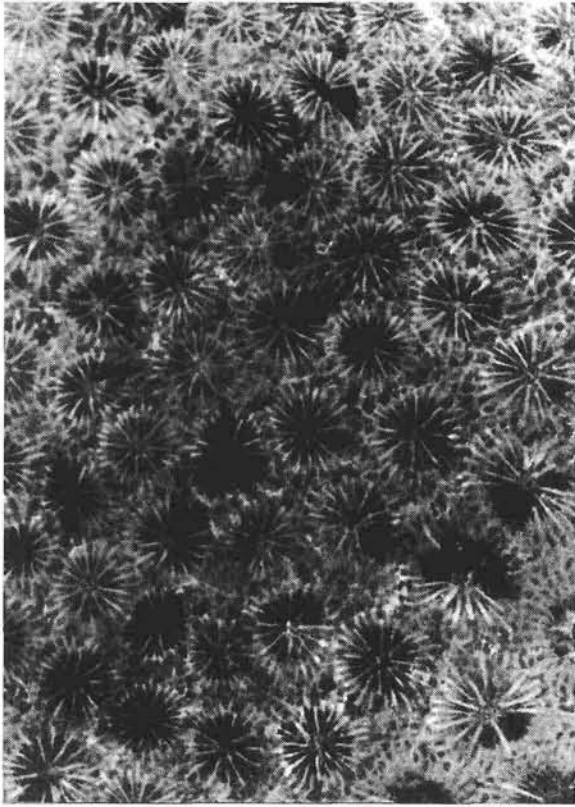
**Description:** The corallum is simple, flabellate, very elongated in outline. Costosepta are compact. According to their length and thickness 5 generations of septa can be distinguished. In places the beginning of a sixth generation is present. The inner ends of primary, secondary and tertiary septa are claviform or rhopaloid. Younger septa are cuneiform or slightly, but irregularly thickened. There is no columella. Endotheca consists of vesicular dissepiments, which mainly occur in the peripheral region of the corallum. The wall is parathecal or septoparathecal. Microstructure is not preserved.

**Distribution:** Santonian of other localities of the Gosau Group (Nefgraben, Traunwand), Santonian of south France (e. g. Corbière, Provence), Senonian of northwest Croatia and Slovenia.

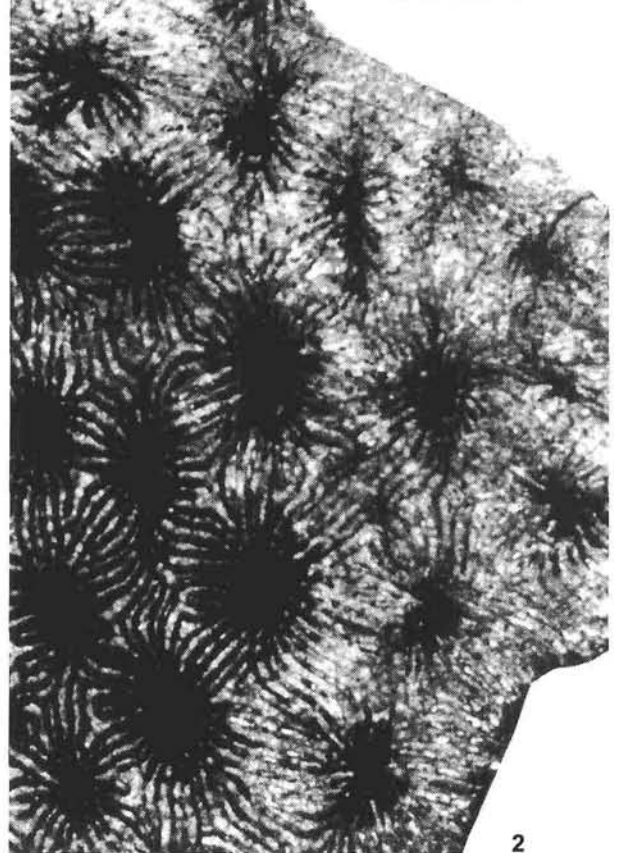
**Material:** WB 1-3; WB 1-4; WB 1A-12.

***Rennensismilia inflexa* (Reuss, 1854)**  
 Pl. 2, Fig. 5, Pl. 3, Fig. 5, Pl. 4, Fig. 1

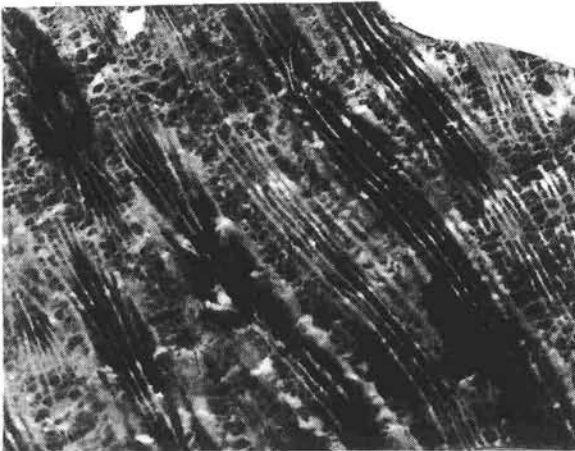
- \*1854 *Trochosmilia inflexa*: REUSS, p. 86, pl. V, figs. 3-5.
- 1864 *Trochosmilia inflexa* REUSS: FROMENTEL, p. 270-271, pl. 39, figs. 1, 1a-b.
- 1873 *Trochosmilia inflexa* REUSS: STOLICZKA, p. 15, pl. II, figs. 1-4.



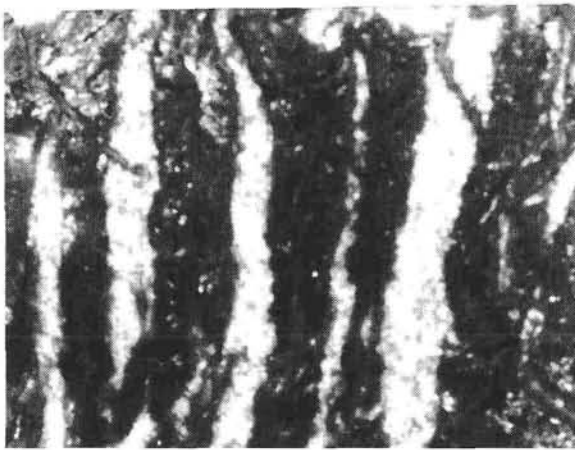
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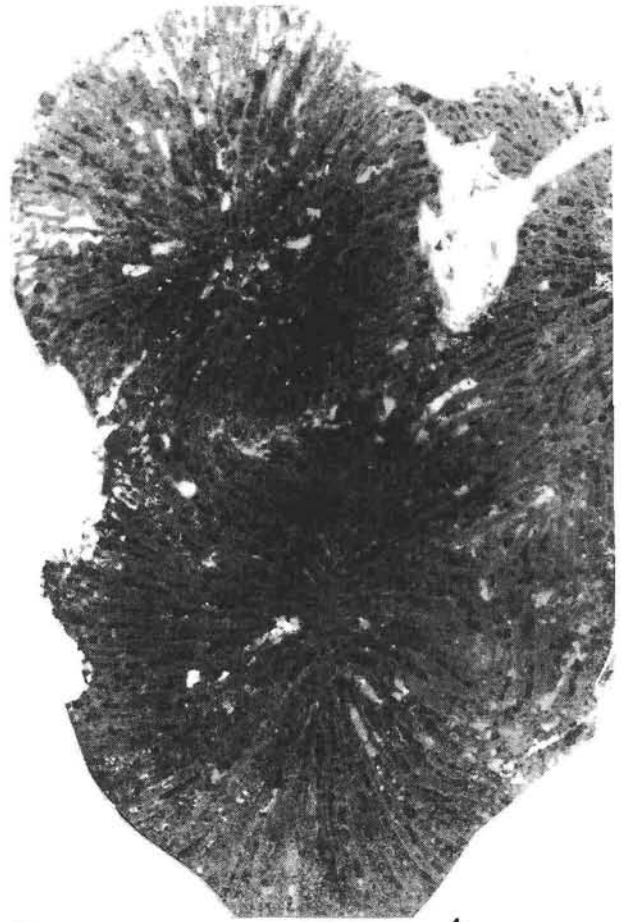
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4



- 1903 *Trochosmilia inflexa* REUSS: FELIX, p. 326.  
 1914 *Trochosmilia inflexa* REUSS: FELIX, pars 7, p. 216.

**Dimensions:**

maximum diameter of the calice (D): 30–47 mm

minimum diameter of the calice (d): 17–25 mm

s: 130–160

d/D: 0.5–0.73

**Description:** The simple corallum is flabellate, slightly elongated or elliptical in outline. Septa are costate, long, compact, and become wavy or flexuous toward the axial region. According to their length and thickness 5 cycles of septa with the beginning of a sixth one can be observed, regularly alternating. Their lateral sides are covered by numerous thick spiniform or rounded granules. The inner ends of primary, secondary and tertiary septa terminate into claviform or rhopaloid thickenings. There is no columella. The wall is parathecal or septoparathecal. Endotheca is made of a few vesicular dissepiments. Microstructural features are not preserved.

**Remarks:** The Weissenbachalm specimens very closely agree with the type material of *Rennensismilia inflexa* (REUSS).

**Distribution:** Turonian of France and south India (Trichinopoly Group).

**Material:** WB-1-5; WB 1-6; WB 1-7; WB 1A-1; WB 1A-9.

Subfamily Meandrininae VAUGHAN & WELLS, 1943

Genus *Aulosmilia* ALLOITEAU, 1952

Type species: *Trochosmilia archiaci* FROMENTEL, 1867

***Aulosmilia cuneiformis* (MILNE-EDWARDS & HAIME, 1849)**

Pl. 5, Fig. 1

- \*1849 *Placosmilia cuneiformis*: MILNE-EDWARDS & HAIME, tome IV, p. 234.  
 1869 *Placosmilia cuneiformis* MILNE-EDWARDS & HAIME: DUNCAN, p. 27, pl. X, figs. 1–5.  
 1903 *Placosmilia cuneiformis* MILNE-EDWARDS & HAIME: FELIX, p. 337.  
 1914 *Placosmilia cuneiformis* MILNE-EDWARDS & HAIME: FELIX, pars 6, p. 129–130, pars 7, p. 222.  
 1957 *Placosmilia cuneiformis* MILNE-EDWARDS & HAIME: ALLOITEAU, p. 100.  
 1978 *Aulosmilia cuneiformis* (MILNE-EDWARDS & HAIME): TURNŠEK, p. 71, 104, pls. 1–2.  
 1997 *Aulosmilia cuneiformis* (MILNE-EDWARDS & HAIME): BARON-SZABO, p. 74–75, pl. 9, fig. 6.

**Dimensions:**

maximum diameter of the calice (D): 35–52 mm

minimum diameter of the calice (d): 8–14 mm

s: about 160

d/D: 0.21–0.29

**Description:** The corallum is simple, flabellate, compressed. Costosepta are compact and developed in 5–6 genera-

Table 2:

Coral assemblage of the Weissenbachalm horizon WB 14 with growth form and integration of polyps.

species	growth form	integration of polyps
<i>Actinastrea fromenteli</i> Alloiteau, 1954	massive, knobby, or multicolumnar	cerioid
<i>Columactinastrea formosissima</i> (Sowerby, 1831)	massive, knobby, or multicolumnar	cerioid
<i>Paraplacocoenia orbignyana</i> (Reuss, 1854)	massive	placoid
<i>Acrosmilia conica</i> d'Orbigny, 1850	conical (? turbinate)	-
<i>Neocoeniopsis corollaris</i> (Reuss, 1854)	massive	placoid

tions, regularly alternating in thickness, and become flexuous toward the center of the corallite. The lateral surfaces of septa have delicate or thick spiniform and rounded granules. Inner ends of septa are irregularly thickened. The columella is lamellar, discontinuous. Wall is septothecal. The endotheca is made of thin vesicular dissepiments. Microstructure is not preserved.

**Distribution:** Cenomanian of England, other localities of the Gosau Group: Lower Coniacian (Brandenberg), Santonian (Nefgraben, Rontograben, Horneegg, Stöcklwaldgraben, Kreuzgraben, Hofergraben, Schrickpalfen, Traunwand), Santonian of south France, Santonian-Campanian of northwest Croatia and Slovenia.

**Material:** WB 1-9; WB 1-15; WB 1A-10; WB 1A-11; WB 1A-34; WB 1A-36.

***Aulosmilia aspera* (SOWERBY, 1831)**

Pl. 6, Fig. 5

- \*1831 *Turbinolia aspera*: SOWERBY, p. 417, pl. XXXVII, Fig. 1.  
 pars 1857 *Montlivaultia rudis*: MILNE-EDWARDS, vol. II, p. 314.  
 1864 *Placosmilia arcuata* MILNE-EDWARDS & HAIME: FROMENTEL, p. 219, pl. XIX, figs. 1–4.  
 pars 1914 *Trochosmilia chondrophora* FELIX, pars 7, p. 213.  
 1974 *Aulosmilia aspera* (SOWERBY): L. & M. BEAUVAIS, p. 485.  
 1978 *Aulosmilia aspera* (SOWERBY): TURNŠEK, p. 72, 104–105, pl. 3, figs. 1–4.  
 1982 *Aulosmilia aspera* (SOWERBY): BEAUVAIS, tome I, p. 218–220, pl. XVIII, fig. 6, pl. XIX, fig. 2.  
 1998 *Aulosmilia aspera* (SOWERBY): BARON-SZABO, p. 139, pl. 3, fig. 5, text-fig. 4.

**Dimensions:**

maximum diameter of the calice (D): 25–26 mm

minimum diameter of the calice (d): 10–15 mm

s: 96–110

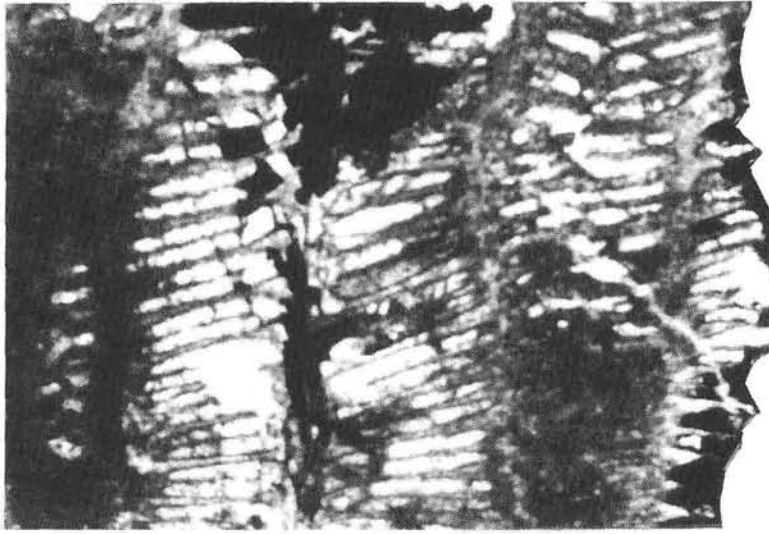
d/D: 0.44–0.58

**Description:** The corallum is simple, trochoid, slightly compressed. Septa are costate, compact, long, thin, becoming curved toward the center of the corallite. Based on their length and thickness 3 size orders of septa can be distin-

**Plate 2**

- Fig. 1: *Placocoenia major* FELIX, 1903, cross section, sample WB 12-8.  
 Fig. 2: *Fungiastraea exigua* (REUSS, 1854), cross section, sample WB 1a-2.  
 Fig. 3: *Placocoenia major* FELIX, 1903, longitudinal section, sample WB 12-8.  
 Fig. 4: *Rhabdopsammia* sp., cross section of corallum, sample WB 12-24.  
 Fig. 5: *Rennensismilia inflexa* (REUSS, 1854), longitudinal section, WB 1A-9.

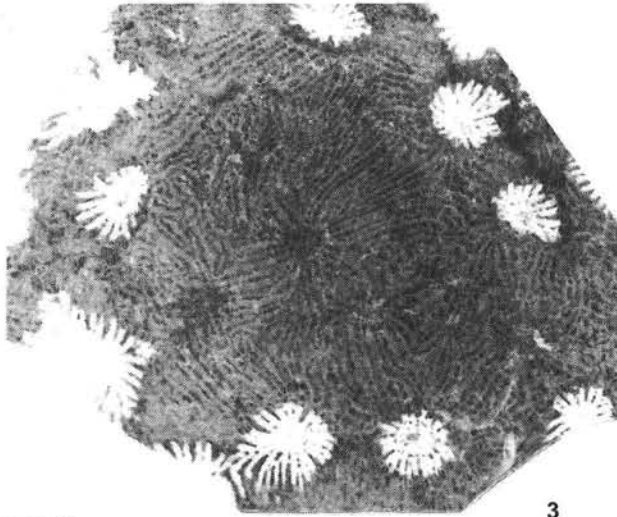
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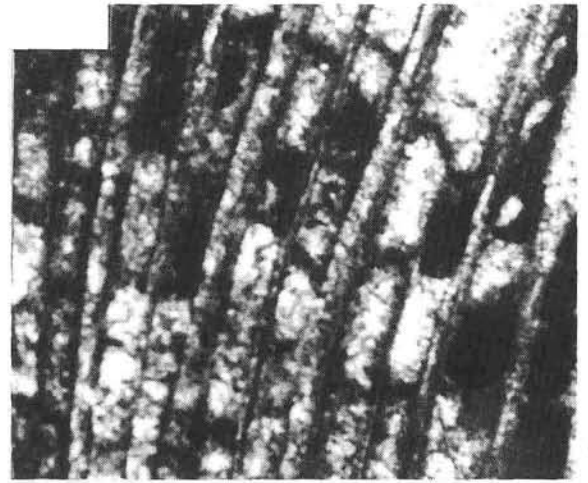
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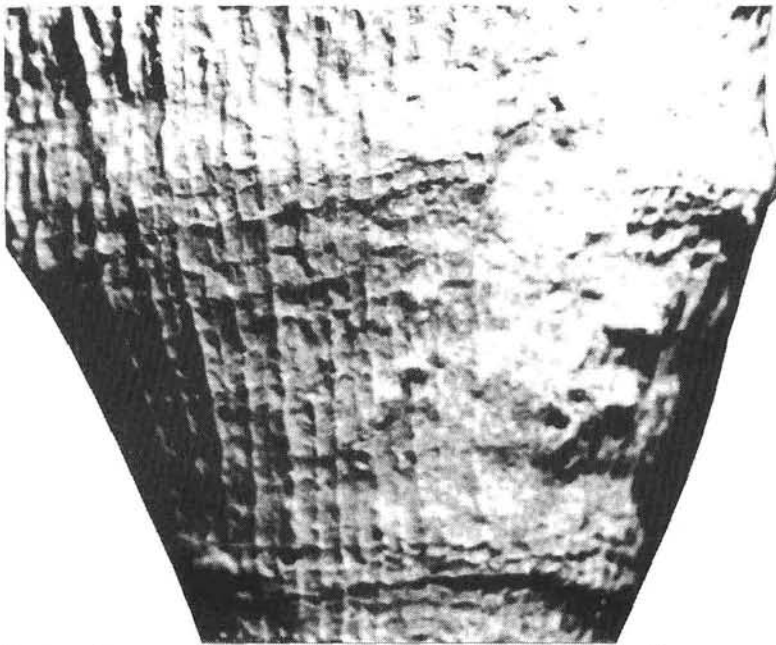
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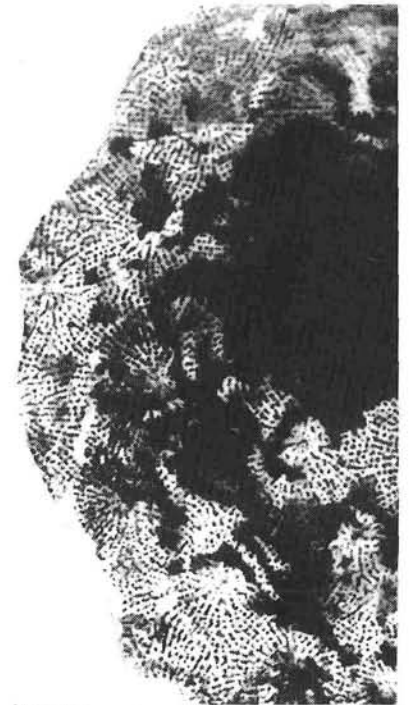
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Table 3:

Coral assemblage of the Weissenbachalm horizon WB 1 with growth form and integration of polyps. The WB 1 fauna only consists of solitary forms. Therefore, the integration of polyps is exclusively negative.

species	growth form	integration of polyps
<i>Rennensismilia complanata</i> (Goldfuss, 1826)	simple, flabellate	-
<i>Rennensismilia inflexa</i> (Reuss, 1854)	simple, flabellate	-
<i>Aulosmilia cuneiformis</i> (Milne-Edw. & Haime, 1849)	simple, flabellate	-
<i>Aulosmilia aspera</i> (Sowerby, 1831)	simple, trochoid	-
<i>Smilotrochus jacobi</i> Alloiteau, 1936	simple, trochoid	-
<i>Phyllosmilia didymophila</i> (Felix, 1903)	simple, flabellate	-
<i>Phyllosmilia aegiale</i> Felix, 1903	simple, flabellate	-

gushed. Primary septa, being 24 in number, and some of the secondary ones extend to the axial region. In general, secondary and tertiary septa are distinctly thinner, most of which reach about three quarters and half the length of the oldest ones, respectively. Inner ends of septa are claviform or irregularly thickened. Septal flanks are smooth or finely granulated. The columella is lamellar, thin. Wall is septothecal. Endotheca consists of rare vesicular dissepiments. Microstructure is not preserved.

**Distribution:** Coniacian-Santonian of other localities of the Gosau Group (Augerleithgraben, Ober-Stöckl, Edelbachgraben, Hochmoos, Finstergraben, Rigausbach, Hofergraben, Obergeschröpfungalen, Rontograben), Middle Coniacian and Upper Santonian of south France (Corbière, Provence), Santonian-Campanian of Slovenia, Campanian of north Spain.

**Material:** WB 1-8; WB 1A-13.

Family Smilotrochidae ALLOITEAU, 1952

Genus *Smilotrochus* MILNE-EDWARDS & HAIME, 1851  
Type species: *Turbinolia compressa* MORRIS, 1843

*Smilotrochus jacobi* ALLOITEAU, 1936

Pl. 4, Fig. 2

\*1936 *Smilotrochus jacobi*: ALLOITEAU, p. 12–14, pl. V, figs. 30–38, text-figs. 2a–e.

1996 *Smilotrochus jacobi* ALLOITEAU: BARON-SZABO, in BARON-SZABO & STEUBER, p. 20, pl. VIII, figs. 5–6.

#### Dimensions:

maximum diameter of the calice (D): 10–18 mm

minimum diameter of the calice (d): 7–11 mm

s: 48

d/D: 0.6–0.73

**Description:** The corallum is simple and trochoid, elliptical in outline. Costosepta are compact, thick, straight, and developed in 4 cycles in 6 regular or irregular systems. Their lateral surfaces are smooth or have spiniform granules. Primary and secondary septa, slightly alternating in length and thickness, reach the center of the polyp, where they may meet and fuse. Their inner ends are cuneiform or have claviform thickenings. Tertiary septa reach about half or three quarters the length of the oldest septa. Youngest septa are very short and thorn-like. There is no columella. The wall is septothecal. Endotheca consists of very rare vesicular dissepiments. Exothecal dissepiments are thin and vesicular. In places an epithelial wall can be observed. Septal microstructure is formed by minitracululae, which give off secondary ones, forming mid-septal lines.

**Distribution:** Aptian of central Greece, Upper Senonian of Madagascar.

**Material:** WB 1A-3; WB 1A-6; WB 1A-8; WB 1-10; WB 1A-33a.

Family Dendrogyridae ALLOITEAU, 1952

Genus *Diploctenium* GOLDFUSS, 1826

Type species: *Diploctenium cordatum* GOLDFUSS, 1826

*Diploctenium* sp.

Pl. 6, Figs. 1–2

**Dimensions:** d: 5–7 mm; s/ mm: 5–6/ 2.

**Description:** Flabelliform corallum, which can be arched so strongly that the extremities of its longer axis may descent below the stem. Costosepta are compact, long, thin, and developed in 2 generations. Primary and secondary septa may extend to, and fuse with, the columella. Columella is thin, lamellar and discontinuous. The endotheca consists of thin dissepiments. The wall is septothecal. Microstructural features are not preserved.

**Remarks:** Because the specimens only represent fragments of coralla they are not assigned to any species.

**Material:** WB 1A-33b; WB1A-35a; WB 1A-37; WB 1A-40; WB 1A-41.

Genus *Phyllosmilia* FROMENTEL, 1862

Type species: *Turbinolia basochesi* DEFRANCE, 1828

*Phyllosmilia didymophila* (FELIX, 1903)

Pl. 5, Fig. 5

\*1903 *Trochosmilia didymophila*: FELIX, p. 332–334, pl. XXIV, fig. 3, non fig. 6.

1914 *Trochosmilia didymophila* FELIX: FELIX, pars 7, p. 214.

1936 *Phyllosmilia catalaunica*: BATALLER, p. 45, figs. 40–44.

### Plate 3

Fig. 1: *Astrogyra orbigny* (FROMENTEL, 1877), cross section, sample WB 12-27.

Fig. 2: *Pleurocora* cf. *alternans* MILNE-EDWARDS & HAIME, 1849, cross section, slightly oblique, sample WB 12-26

Fig. 3: *Kobyia rigausensis* BEAUVAIS, 1982, cross section of corallum, sample WB 12-13.

Fig. 4: *Astrogyra orbigny* (FROMENTEL, 1877), longitudinal section, sample WB 12-27.

Fig. 5: *Rennensismilia inflexa* (REUSS, 1854), longitudinal view, WB 1A-6.

Fig. 6: *Actinacis elegans* REUSS, 1854, cross section, sample WB 12-14.

Scale bar: 3 mm

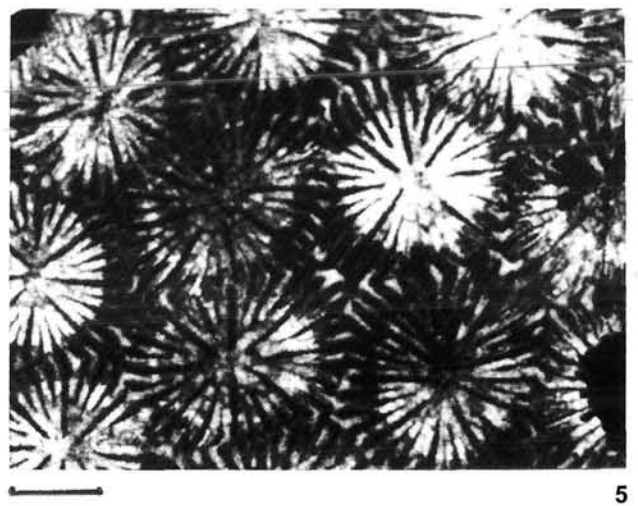
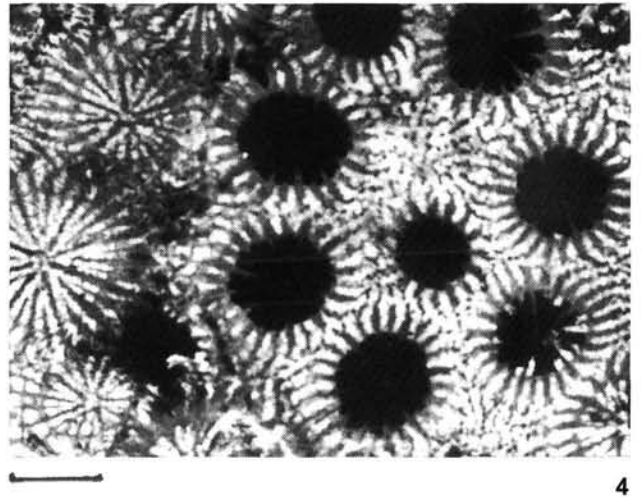
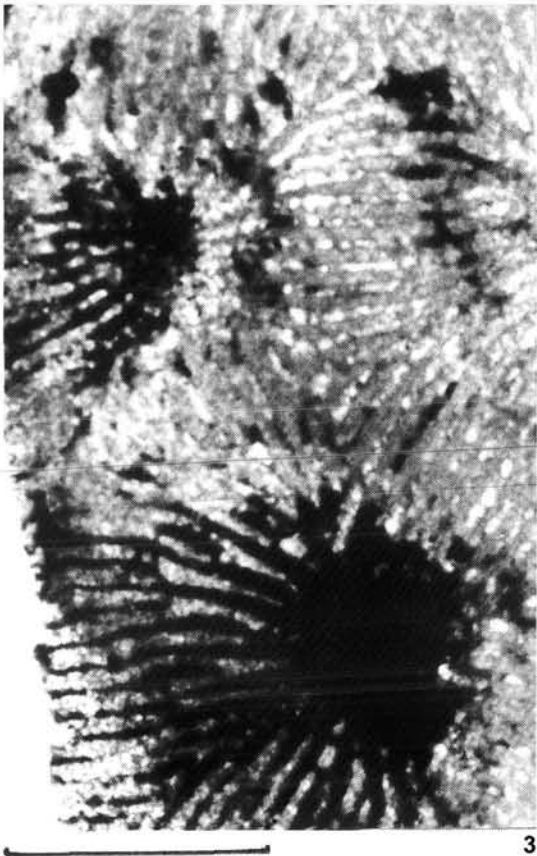
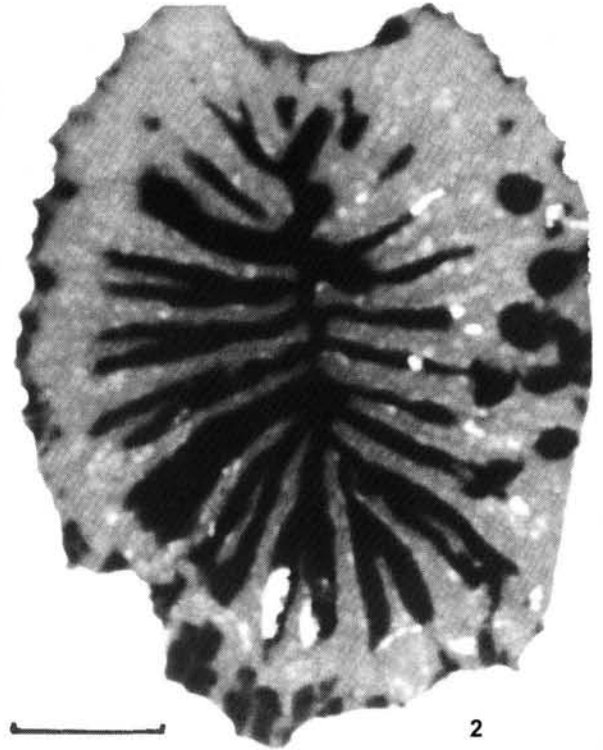


Table 4:

Coral assemblage of the Weissenbachalm horizon WB 1A with growth form and integration of polyps.

species	growth form	integration of polyps
<i>Placosmilia turonensis</i> (Fromentel, 1877)	flabelliform	meandroid
<i>Rennensismilia inflexa</i> (Reuss, 1854)	simple, flabellate	-
<i>Rennensismilia complanata</i> (Goldfuss, 1826)	simple, flabellate	-
<i>Aulosmilia cuneiformis</i> (Milne-Edw. & Haime, 1849)	simple, flabellate	-
<i>Aulosmilia aspera</i> (Sowerby, 1831)	simple, trochoid	-
<i>Smitotrochus jacobi</i> Alloiteau, 1936	simple, trochoid	-
<i>Diploctenium</i> sp.	flabelliform	meandroid
<i>Phyllosmilia aegiale</i> Felix, 1903	simple, flabellate	-
<i>Funglastraea exigua</i> (Reuss, 1854)	lamellar	thamnasterioid
<i>Latothelia</i> cf. <i>circularia</i> Baron-Szabo, 1998	branching	dendroid
<i>Cunoolites</i> sp.	discoid	-

- 1937 *Phyllosmilia catalaunica* BATALLER: BATALLER, p. 251, figure on p. 251.  
 1945 *Phyllosmilia catalaunica* BATALLER: BATALLER, p. 58, figure on p. 99.  
 1980 *Phyllosmilia catalaunica* BATALLER: VIDAL, p. 49–50, pl. IX, figs. 1–3.  
 1982 *Phyllosmilia didymophila* (FELIX): BEAUVAIS, tome I, p. 156–157, pl. XIII, fig. 7.  
 1998 *Phyllosmilia didymophila* (FELIX): BARON-SZABO, p. 143, pl. 7, fig. 2.

**Dimensions:**

maximum diameter of the calice (D): 47–50 mm

minimum diameter of the calice (d): 10–13 mm

s/ mm: 10–14/5

d/D: 0.2–0.28

**Description:** The simple corallum is flabelliform, with a compressed calice. Costosepta are compact, straight, and developed in 3 size orders. Primary and secondary septa extend to the axial region. They are of the same length, but alternate in thickness. Their inner ends have claviform thickenings. Tertiary septa are very thin, reaching about half the length of the oldest ones. The lateral surfaces of septa are irregularly granulated. Columella is lamellar and thin. The wall is a well-developed septotheca, forming a subperipheral stereozone. Endotheca consists of thin, vesicular dissepiments, occurring in the peripheral areas of the lumen. In places exo-thecal and epithecal developments are present. Microstructure is not preserved.

**Distribution:** Coniacian-Campanian of north Spain (Catalonia), Upper Santonian of other localities of the Gosau Group (Grabenbach, Tiefengraben, Gams, Hofergaben, Piesting, Nefgraben).

**Material:** WB 1-1; WB 1-11; WB 1-14.

***Phyllosmilia aegiale* FELIX, 1903**

Pl. 5, Fig. 4

- \*1903 *Phyllosmilia aegiale* FELIX, p. 346, pl. XXIV, figs. 9–11.  
 1914 *Phyllosmilia aegiale* FELIX: FELIX, pars 7, p. 223.  
 1930 *Phyllosmilia aegiale* FELIX: OPPENHEIM, p. 532, pl. XXIX, figs. 4–4a.  
 1937 *Phyllosmilia aegiale* FELIX: BATALLER, p. 250.  
 1956 *Phyllosmilia aegiale* FELIX: BENDUKIDZE, p. 111.  
 1982 *Phyllosmilia aegiale* FELIX: BEAUVAIS, tome I, p. 150–152, pl. XII, fig. 5.  
 non 1995 *Phyllosmilia aegiale* FELIX: ABDEL-GAWAD & GAMEIL, p. 18, pl. 18, fig. 1, pl. 19, fig. 2.  
 1998 *Phyllosmilia aegiale* FELIX: BARON-SZABO, p. 142, pl. 7, fig. 1.

**Dimensions:**

maximum diameter of the calice (D): 28–35 mm

minimum diameter of the calice (d): 9–12 mm

s/ mm: 11–16/ 5

d/D: 0.34–0.37

**Description:** The solitary corallum is flabelliform, with an elliptical or compressed calice. Costosepta are compact and developed in 3 size orders. Generally, septa of the first two orders are of the same length, but differ in thickness. They may extend to, and fuse with, the columella. Tertiary septa are significantly shorter and thinner. Septal flanks have delicate spiniform granulations. Inner margins of primary and secondary septa are claviform, rarely rhopaloid. Columella is lamellar and thin. The wall is septothecal, partly forming a stereozone. Endotheca is made of vesicular dissepiments. In places exothecal and epithecal developments are present. Microstructural features are not preserved.

**Distribution:** Coniacian-Santonian of other localities of the Gosau Group (Finstergraben, Traunwandalp, Edelbachgraben, Paß Gschütt, Nefgraben, Grabenbach, Hofergaben, Strobl-Weissenbach, Kaltwassergraben, Randoschberg, Stöcklwaldgraben, Brandenberg, Weisswasser, Sonnenwendjoch), Santonian-Campanian of Georgia (in Caucasia), Upper Santonian-Campanian of north Spain (Catalonia).

**Material:** WB 1-12; WB 1A-34; WB 1A-35b.

Suborder Dendrophylliina VAUGHAN & WELLS, 1943

Family Dendrophylliidae GRAY, 1847

Genus *Rhabdopsammia* ALLOITEAU, 1952

Type species: *Rhabdopsammia lanquinei* ALLOITEAU, 1952

***Rhabdopsammia* sp.**

Pl. 2, Fig. 4, Pl. 8, Fig. 2

**Dimensions:** d: 15–27 mm; c-c: 20–35 mm; s: 48 up to about 80; s/ mm: 8–11/5.

**Plate 4**

- Fig. 1: *Rennensismilia inflexa* (REUSS, 1854), cross section, WB 1A-9.  
 Fig. 2: *Smitotrochus jacobi* ALLOITEAU, 1936, cross section of corallum, sample WB 1A-6.  
 Fig. 3: *Brachycoenia leptophyllia* (REUSS, 1854), cross section, sample WB 12-21.  
 Fig. 4: *Paraplacocoenia orbignyana* (REUSS, 1854), cross section, sample WB 12-10.  
 Fig. 5: *Neocoeniopsis corollaris* (REUSS, 1854), cross section, sample WB 12-31.

Scale bar: 3 mm.

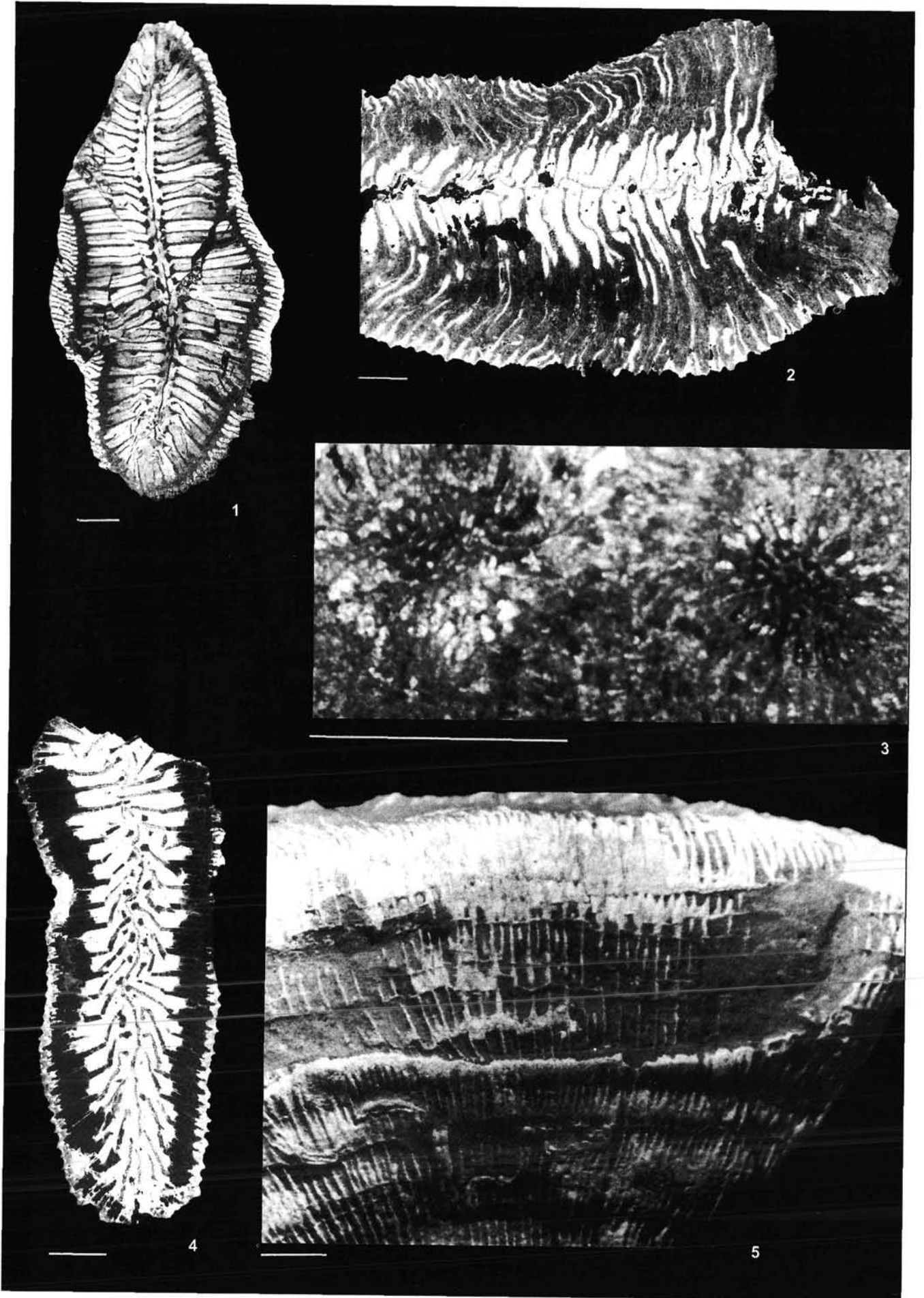


Table 5:  
Stratigraphic distribution of the coral species of the Weissenbachalm in the Upper and Lower Cretaceous.

coral species	Lower C.		Upper Cretaceous					
	Albian	Albian	Cenomanian	Turonian	Coniacian	Santonian	Campanian	Maastrichtian
<i>Actinastrea fromentell</i> Alloiteau, 1954								
<i>Colymactinastrea formosissima</i> (Sowerby, 1831)								
<i>Paraplacococenia orbignyana</i> (Reuss, 1854)								
<i>Placococenia major</i> Felix, 1903								
<i>Placosmilia turonensis</i> (Fromentel, 1877)								
<i>Astrogyra orbigny</i> (Fromentel, 1877)								
<i>Rennensmilia complanata</i> (Goldfuss, 1826)								
<i>Rennensmilia inflexa</i> (Reuss, 1854)								
<i>Aulosmilia cuneiformis</i> (Milne-Edw. & Haime, 1849)								
<i>Aulosmilia aspera</i> (Sowerby, 1831)								
<i>Smilitrochus jacobi</i> Alloiteau, 1936								
<i>Diploctenium</i> sp.								
<i>Phyllosmilia didymophila</i> (Felix, 1903)								
<i>Phyllosmilia aegiale</i> Felix, 1903								
<i>Rhabdopsammia</i> sp.								
<i>Brachycoenia leptophyllia</i> (Reuss, 1854)							?	?
<i>Pleurocora cf. alternans</i> Milne-Edwards & Haime, 1849					?			
<i>Actinacis elegans</i> Reuss, 1854								
<i>Acrosmilia conica</i> d'Orbigny, 1850								
<i>Neocoenopsis corollaris</i> (Reuss, 1854)								
<i>Valliculastraea texta</i> (Oppenheim, 1930)								
<i>Fungiastraea exigua</i> (Reuss, 1854)								
<i>Latohelia cf. circularia</i> Baron-Szabo, 1998								
<i>Corbariastraea weissenbachalmensis</i> n. sp.								
<i>Kobya rigausensis</i> Beauvais, 1982								
<i>Elephantaria lindstroemi</i> Oppenheim, 1930								
<i>Cunolites</i> sp.								

**Description:** Phaceloid colony with very short branches. Corallites are circular or elliptical in outline. Increase is due to intracalcinal budding. Septa are irregularly perforated, non- or subconfluent, confluent only in early budding stages, covered with numerous granules that vary in shape and size. Septal arrangement irregularly and incompletely follows the 'Portalès plan'. Septa can be subequal in thickness. Ten to twenty septa reach the center of the corallite, where they may meet and fuse. Their inner ends are irregularly swollen. There is no columella. Synapticulae are irregularly disposed. Endotheca is made of vesicular dissepiments. The wall in an incomplete synapticulotheca. Microstructure is poorly preserved, but in places thick-sized monaxial and polyaxial trabeculae are present.

**Remarks:** Because the Weissenbach specimen only represents a fragment of a colony it is not assigned to a species.

**Material:** WB 12-24.

Suborder Fungiina VERRILL, 1865  
Family Andemantastraeidae ALLOITEAU, 1952  
Genus *Brachycoenia* BEAUVAIS, 1982  
Type species: *Adelastrea leptophyllia* REUSS, 1854

*Brachycoenia leptophyllia* (REUSS, 1854)  
Pl. 1, Fig. 6, Pl. 4, Fig. 3

\*1854 *Adelastrea leptophyllia*: REUSS, p. 115, pl. XII, figs. 3–4.

- 1857 *Confusastraea leptophyllia* (REUSS): MILNE-EDWARDS & HAIME, tome II, p. 484.  
?1956 *Confusastraea leptophyllia* (REUSS): BENDUKIDZE, p. 85, pl. IX, figs. 2–2a.  
1982 *Brachycoenia leptophyllia* (REUSS): BEAUVAIS, tome II, p. 48–49, pl. XXVI, fig. 7, pl. XXVII, fig. 1 (older synonyms cited therein).

**Dimensions:** c-c: 5–12 mm; s: 30–56, in late budding stages the number of septa may be larger; s/ mm: 12–16/5.

**Description:** The massive and thamnasterioid colony has slightly protuberant calices, which appear to be subplocoid. Increase is due to intracalcinal gemmation. Septa are subcompact or porous, costate, confluent or subconfluent, subequal in thickness, and have delicate spiniform or coarse rounded granules and pennulae laterally. Their inner ends have the tendency to fuse. About 20 septa reach the center of the calice. The columella is spongy-papillose, well-developed. Pali can be frequently observed. Synapticulae are irregularly disposed. There is no wall between the corallites. Endotheca is formed by numerous vesicular or subtabulate dissepiments. Microstructure is not preserved.

**Distribution:** ? Senonian of Georgia (in Caucasia), Upper Santonian of other localities of the Gosau Group (Nefgraben, Scharergraben, Neue Welt).

**Material:** WB 12-15; WB 12-16; WB 12-19; WB 12-21; WB 12-23.

Family Haplaraeidae VAUGHAN & WELLS, 1943  
Genus *Pleurocora* MILNE-EDWARDS & HAIME, 1849  
Type species: *Lithodendron gemmans* MICHELIN, 1846

*Pleurocora cf. alternans* MILNE-EDWARDS & HAIME, 1849  
Pl. 3, Fig. 2

- \*1849 *Pleurocora alternans*: MILNE-EDWARDS & HAIME, p. 312.  
1857 *Pleurocora alternans* MILNE-EDWARDS & HAIME: MILNE-EDWARDS & HAIME, p. 603.  
1930 *Pleurocora cf. alternans* MILNE-EDWARDS & HAIME: KÜHN & ANDRUSOV, p. 5–6.  
1997 *Pleurocora cf. alternans* MILNE-EDWARDS & HAIME: BARON-SZABO, p. 77, pl. 10, figs. 4, 6.

**Dimensions:** d: 3–6 mm; s: 24–40.

**Description:** The phacelo-dendroid colony has circular or slightly elliptical calices. Septa are compact or subcompact, costate, thin, have spiniform or rounded granules laterally, and are arranged in 3 complete cycles in 6 systems. Inner ends of septa may be irregularly thickened and dissociate to paliform lobes. The columella is papillose or made of elongated segments. Endotheca consists of thin subtabulate dissepiments in the central region of the calice. In outer parts of the corallite thin vesicular dissepiments

## Plate 5

- Fig. 1: *Aulosmilia cuneiformis* (MILNE-EDWARDS & HAIME, 1849), cross section, sample WB 1A-34.  
Fig. 2: *Placosmilia turonensis* (FROMENTEL, 1877), cross section, sample WB 12-25.  
Fig. 3: *Latohelia cf. circularia* BARON-SZABO, 1998, cross section, sample WB 1A-5.  
Fig. 4: *Phyllosmilia aegiale* FELIX, 1903, cross section, sample WB 1-2.  
Fig. 5: *Phyllosmilia didymophila* (FELIX, 1903), longitudinal view, sample WB 1-11.

Scale bar: 3 mm.

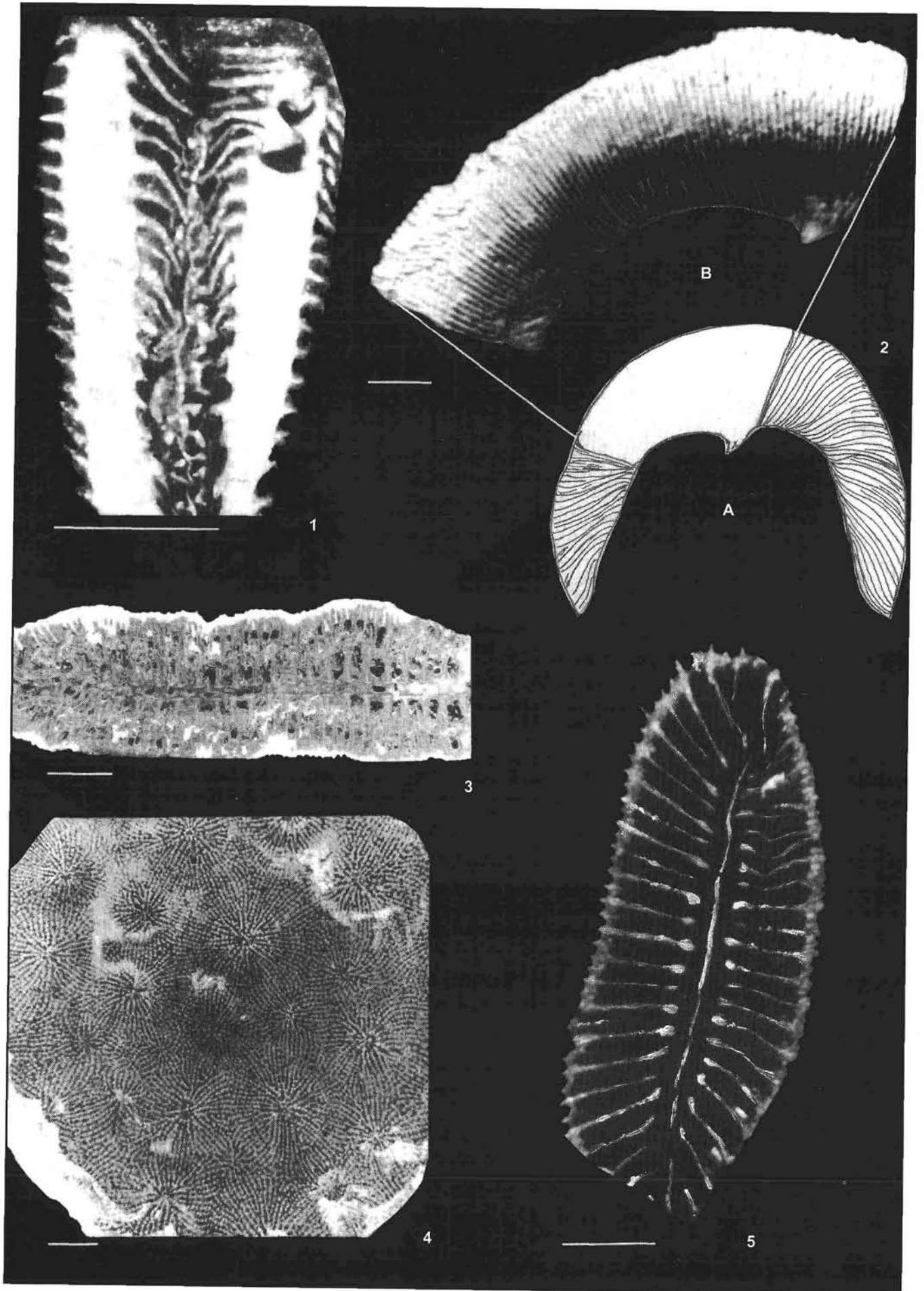




Table 6:

Geographic distribution of the coral species of the Weissenbachalm. Note that the present occurrence is not included.

coral species	Lower C.			Upper Cretaceous											
	France	Spain	Germany	Romania	France	Spain	Finland	Belgium	Slovakia	Czech Republic	Slovenia	Georgia in Caucasus	Madagascar	India	Gosau Group
<i>Actinastrea fromenteli</i> Alloiteau, 1954					X										
<i>Columactinastrea formosissima</i> (Sowerby, 1831)					X	X									X
<i>Paraplacocœna orbignyana</i> (Reuss, 1854)					X	X									X
<i>Placocœna major</i> Felix, 1903	X				X										X
<i>Placosmilia turonensis</i> (Fromentel, 1877)					X										X
<i>Astogyra orbigny</i> (Fromentel, 1877)					X										X
<i>Rennensismilia complanata</i> (Goldfuss, 1826)					X						X				X
<i>Rennensismilia inflexa</i> (Reuss, 1854)					X										X
<i>Aulosmilia cuneiformis</i> (Milne-Edw. & Haime, 1849)					X	X					X				X
<i>Aulosmilia aspera</i> (Sowerby, 1831)					X	X					X				X
<i>Smilotrochus jacobii</i> Alloiteau, 1936	X													X	
<i>Diploctenium</i> sp.							X								X
<i>Phyllosmilia didymophila</i> (Felix, 1903)							X								X
<i>Phyllosmilia aegiale</i> Felix, 1903							X					X			X
<i>Rhabdopsammia</i> sp.															X
<i>Brachyocœna leptophyllia</i> (Reuss, 1854)												X			X
<i>Pleurocora</i> cf. <i>alternans</i> Milne-Edwards & Haime, 1849								X	X						X
<i>Actinacis elegans</i> Reuss, 1854					X	X									X
<i>Acrosmilia conica</i> d'Orbigny, 1850					X										X
<i>Neocoenopsis corollaris</i> (Reuss, 1854)	X	X									X				X
<i>Vallulastrea lexta</i> (Oppenheim, 1930)					X										X
<i>Fungiastraea exigua</i> (Reuss, 1854)	X	X	X							X					X
<i>Latoheila</i> cf. <i>circularia</i> Baron-Szabo, 1998						X									
<i>Corbariastraea weissenbachalmensis</i> n. sp.															X
<i>Kobyia rigausensis</i> Beauvais, 1982															X
<i>Elephantaria lindstroemi</i> Oppenheim, 1930															X
<i>Cunolites</i> sp.															X

ments occur. The wall is synapticulothecal (or in places ? septothecal). Microstructure is not preserved.

**Remarks:** The Weissenbach specimen only represents a fragment of a colony, in which the total dimensions of the skeletal elements cannot be determined, but otherwise it agrees with *Pleurocora alternans* MILNE-EDWARDS & HAIME well.

**Distribution:** (?Upper Turonian-) Lower Coniacian of another locality of the Gosau Group (Brandenberg), Upper Santonian-Lower Campanian of Slovakia, Campanian of Belgium.

**Material:** WB 12-26.

Family Actinacididae VAUGHAN & WELLS, 1943

Genus *Actinacis* D'ORBIGNY, 1850

Type species: *Actinacis martiniana* D'ORBIGNY, 1850

***Actinacis elegans* REUSS, 1854**

Pl. 3, Fig. 6

\*1854 *Actinacis elegans*: REUSS, p. 128, pl. XXIV, figs. 16–18.

1858-61 *Actinacis elegans* REUSS: FROMENTEL, p. 249.

1860 *Actinacis elegans* REUSS: MILNE-EDWARDS, tome III, p. 171.

1903 *Actinacis elegans* REUSS: FELIX, p. 179.

1914 *Actinacis elegans* REUSS: FELIX, pars 7, p. 240.

1930 *Actinacis elegans* REUSS: OPPENHEIM, p. 18, pl. I, fig. 1, pl. X, figs. 1–1a.

1949 *Actinacis elegans* REUSS: BATALLER, p. 364.

1982 *Actinacis elegans* REUSS: BEAUVAIS, tome II, p. 270–271, pl. XLVII, fig. 4.

**Dimensions:** d: 2–4 mm; c-c: 3.5–7.5 mm; s: 20–30.

**Description:** The corallum is plocoid and lamellar or forms a massive, irregularly multicolumniform colony. Calices are circular and separated by a vermiculate coenenchyme. Septa are slightly costate, porous, confluent, nearly equal in thickness, but irregularly alternating in length, and have the tendency to fuse. The lateral surfaces of septa are covered by small spiniform granules and pennulae. Inner ends of septa dissociate to form paliform lobes. Up to 12 septa reach the center of the corallite. The columella is trabecular or made of small lamellar segments, which may be twisted. Synapticulae are scattered throughout the colony. The wall is a very incomplete synapticulotheca. Endotheca and exotheca consist of thin vesicular dissepiments. Microstructural features are poorly preserved. In places thick-sized monaxial trabeculae can be seen.

**Distribution:** Santonian of other localities of the Gosau Group (Zimmergraben, Edelbachgraben, Rußbachtal, Weissenbachtal, Rigausbach), Upper Santonian of south France (Corbière, Provence), Campanian of north Spain (Catalonia).

**Material:** WB 12-14.

Genus *Elephantaria* OPPENHEIM, 1930

Type species: *Elephantaria lindstroemi* OPPENHEIM, 1930

***Elephantaria lindstroemi* OPPENHEIM, 1930**

Pl. 6, Fig. 4

\*1930 *Elephantaria lindstroemi*: OPPENHEIM, p. 2, pl. 39, figs. 6–7.

?1937 *Elephantaria lindstroemi* OPPENHEIM: KÜHN & ANDRUSOV, p. 4–5.

1956 *Elephantaria lindstroemi* OPPENHEIM: WELLS, p. F393, fig. 286.2.

**Dimensions:** c-c: 4–8.5 mm; s/mm: 6–8/2.

**Description:** The corallum is massive, with calices, that are regularly distributed over the colony. Increase is due to extracalicular budding. Septa are subcompact or porous, equal in thickness, and have the tendency to fuse. Their inner ends might dissociate to form paliform lobes or fuse with the columella. Lateral surfaces of septa are covered with pennulae and granules that vary in size and shape. The columella is papillose or consists of twisted pieces. Numerous synapticulae are disposed over the colony.

## Plate 6

Fig. 1: *Diploctenium* sp., cross section, slightly oblique, sample WB 1A-35.

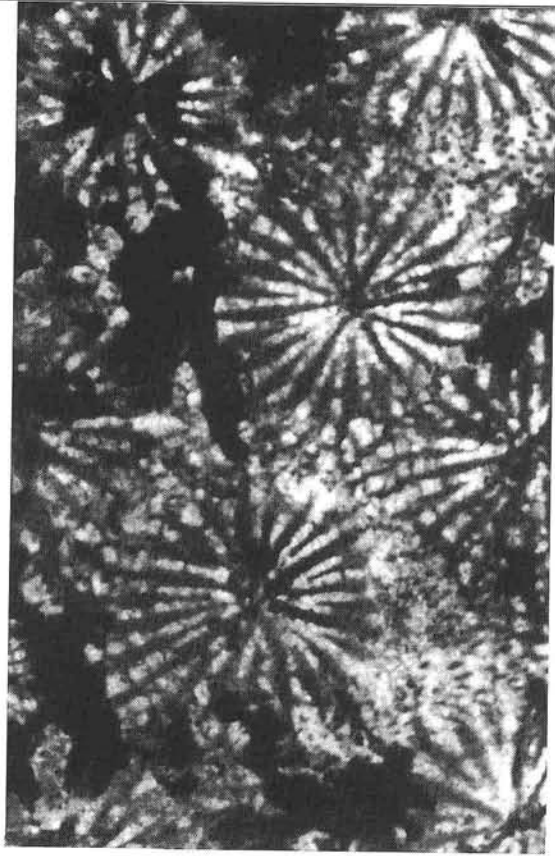
Fig. 2: A: Diagrammatic image of a corallum of *Diploctenium* sp., side view; B: *Diploctenium* sp., lateral view, WB 1A-33b.

Fig. 3: *Rennensismilia complanata* (GOLDFUSS, 1826), cross section, sample WB 1A-12.

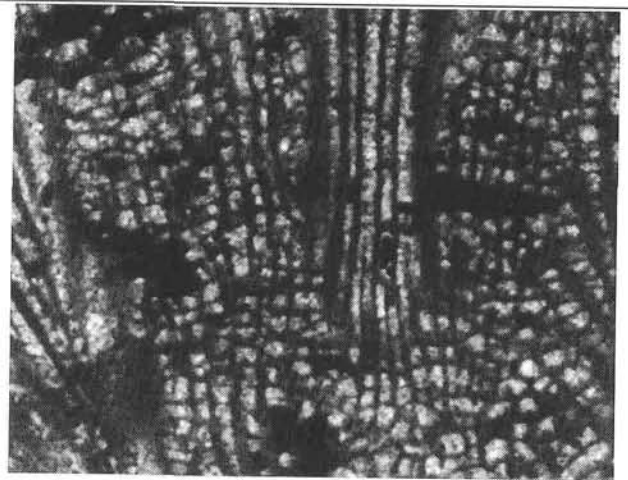
Fig. 4: *Elephantaria lindstroemi* OPPENHEIM, 1930, cross section, sample WB 12-18.

Fig. 5: *Aulosmilia aspera* (SOWERBY, 1831), cross section, sample WB 1A-13.

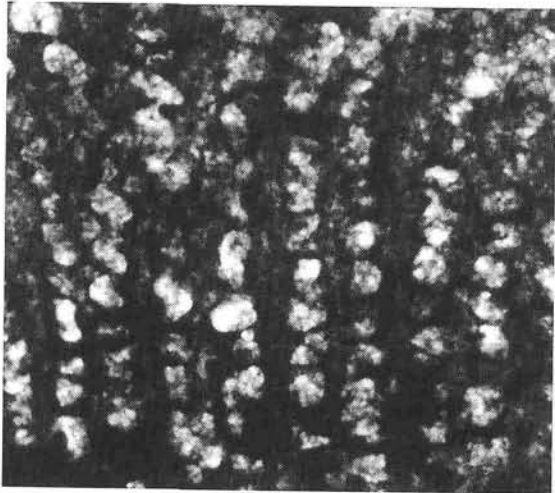
Scale bar: 3 mm.



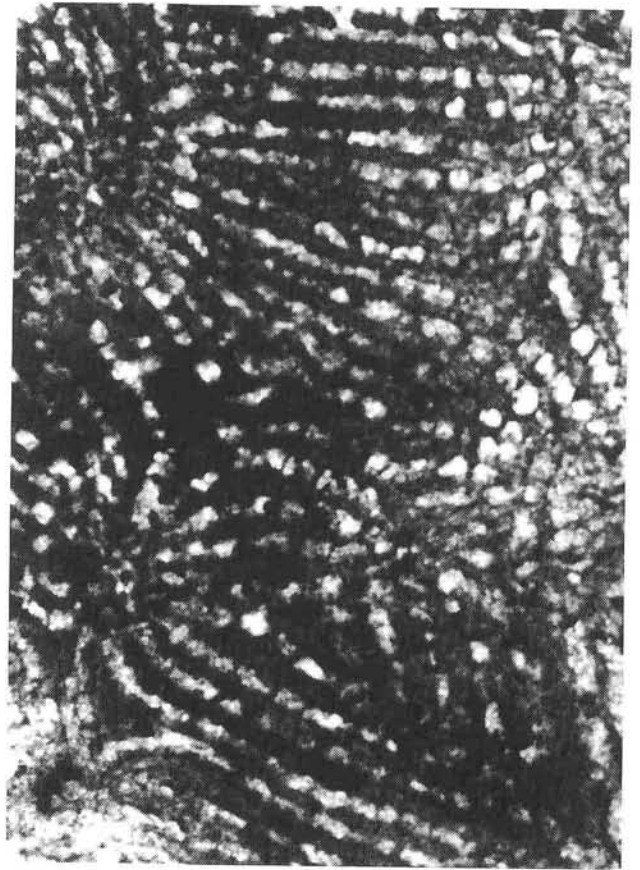
1



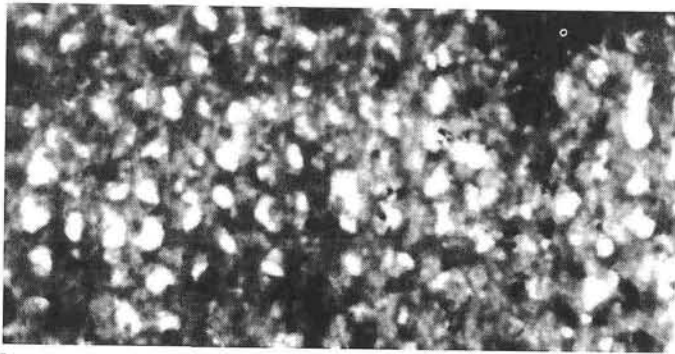
2



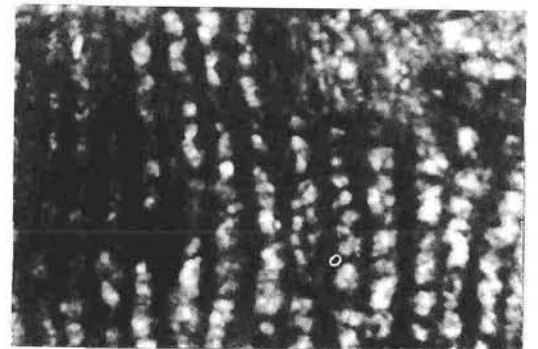
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6

There is no wall between the corallites. Endotheca is formed by rare, slightly arched dissepiments. Microstructural features are not preserved.

**Remarks:** According to WELLS (1956) *Elephantaria lindstroemi* OPPENHEIM occurs in the Turonian of the Austrian Gosau Group. However, later investigations on the stratigraphy revealed a Santonian-Campanian age for these strata (e.g. Nefgraben, Wegscheidgraben, Zimmergraben) (pers. comm. SANDERS, 1998).

In their documentation of *Elephantaria lindstroemi* OPPENHEIM, KÜHN & ANDRUSOV (1937) do not give any dimensions of skeletal elements nor illustrations of the material. Therefore, its systematic position remains unclear.

**Distribution:** Santonian-Campanian of other localities of the Gosau Group (Nefgraben, Wegscheidgraben, Zimmergraben), ? Upper Santonian-Lower Campanian of Slovakia.

**Material:** WB 12-18.

Family Acrosmiliidae ALLOITEAU, 1952

Genus *Acrosmilia* D'ORBIGNY, 1849

Type species: *Turbinolia cernua* MICHELIN, 1846

**Remarks:** During the last decades *Leptophyllia* REUSS, 1854 was considered to be a younger synonym of *Acrosmilia* D'ORBIGNY, 1849. Due to re-examination of type material by BEAUVAIS (1982) and recently by ELIÁŠOVÁ (1996) it is stated that *Leptophyllia* REUSS distinctly differs from *Acrosmilia* D'ORBIGNY by developing cunolite rather than acrosmiliid skeletal elements. Therefore, *Leptophyllia* REUSS is considered a valid genus.

#### *Acrosmilia conica* D'ORBIGNY, 1850

Pl. 1, Fig. 3

- \*1850 *Acrosmilia conica*: D'ORBIGNY, tome II, p. 203.  
 pars 1854 *Leptophyllia clavata*: REUSS, p. 101, pl. VI, figs. 3–6.  
 1851 *Trochosmia* ? *conica* (D'ORBIGNY): MILNE-EDWARDS & HAIME, p. 47.  
 1857 *Trochosmia* ? *conica* (D'ORBIGNY): MILNE-EDWARDS & HAIME, tome II, p. 165.  
 1858-61 *Acrosmilia conica* D'ORBIGNY: FROMENTEL, p. 100.  
 1867 *Leptophyllia conica* (D'ORBIGNY): FROMENTEL, p. 302, pl. 45, non figs. 2a–c.  
 pars 1903 *Leptophyllia clavata* REUSS: FELIX, p. 290.  
 1914 *Leptophyllia conica* (D'ORBIGNY): FELIX, pars 7, p. 194.  
 1930 *Leptophyllia conica* (D'ORBIGNY): OPPENHEIM, p. 148–150, pl. XVI, figs. 6–9, pl. XX, figs. 1–2.  
 ?1956 *Acrosmilia clavata* (REUSS): WELLS, part F, p. F. 385, fig. 277.2.  
 ?1978 *Acrosmilia conica* D'ORBIGNY: TURNŠEK, p. 82, 113, pl. 16, figs. 1–7.  
 1982 *Acrosmilia conica* D'ORBIGNY: BEAUVAIS, tome II, p. 138–140, pl. XL, figs. 2–3 (older synonym cited therein).

**Dimensions:** d: 26 x 35 mm; s: about 160, s/ mm: 9–11/ 5.

**Description:** Solitary corallum, ? turbinate, elliptical in outline. Septa are subcompact (primary, secondary and tertiary septa) or porous (quaternary and younger septa), thin, have rounded or spiny granules and a few pennulae laterally, and are arranged in 5 complete with a beginning sixth cycle in 6 systems. Twenty-four septa extend to the center of the calice, where trabecular prolongations of their inner ends may meet and fuse with the columella. Younger septa alternate in length. The columella is weakly developed, papillose. Synapticulae are irregularly disposed. Endotheca consists of thin, subtabulate dissepiments. The wall is synapticulothecal. In places an epithelial wall (mono- or multilamellar) is present. Microstructural features are not preserved

**Distribution:** Lower Coniacian-Upper Santonian of south France, Santonian of other localities of the Gosau Group (Edelbachgraben, Hofergraben, Paß Gschütt, Triebengraben, Rigausbach, Nefgraben), ?Senonian of Georgia (in Caucasia), ?Santonian of Slovenia and northwest Croatia.

**Material:** WB 14-7.

Family Pachyphylliidae BEAUVAIS, 1982

Genus *Neocoeniopsis* ALLOITEAU, 1957

Type species: *Phyllocoenia excelsa* FROMENTEL, 1884

#### *Neocoeniopsis corollaris* (REUSS, 1854)

Pl. 4, Fig. 5

- \*1854 *Astraea corollaris*: REUSS, p. 113-114, pl. IX, figs. 7-8.  
 1903 *Phyllocoenia corollaris* (REUSS): FELIX, p. 287, pl. XXV, fig. 5.  
 1905 *Phyllocoenia corollaris* (REUSS): ANGELIS D'OSSAT, p. 206–208, pl. XIV [I], fig. 9.  
 1914 *Phyllocoenia corollaris* (REUSS): FELIX, pars 5, p. 25, pars 6, p. 96, pars 7, p. 156.  
 1982 *Neocoeniopsis corollaris* (REUSS): BEAUVAIS, tome II, p. 107–109, pl. XXXVI, fig. 4.  
 1994 *Neocoeniopsis corollaris* (REUSS): TURNŠEK, p. 13, pl. 7, figs. 1–5.  
 1997 *Neocoeniopsis corollaris* (REUSS): BARON-SZABO, p. 78, pl. 10, fig. 2 (older synonyms cited therein).  
 1997 *Neocoeniopsis corollaris* (REUSS): TURNŠEK, p. 139, text-figs. A-E on p. 139.

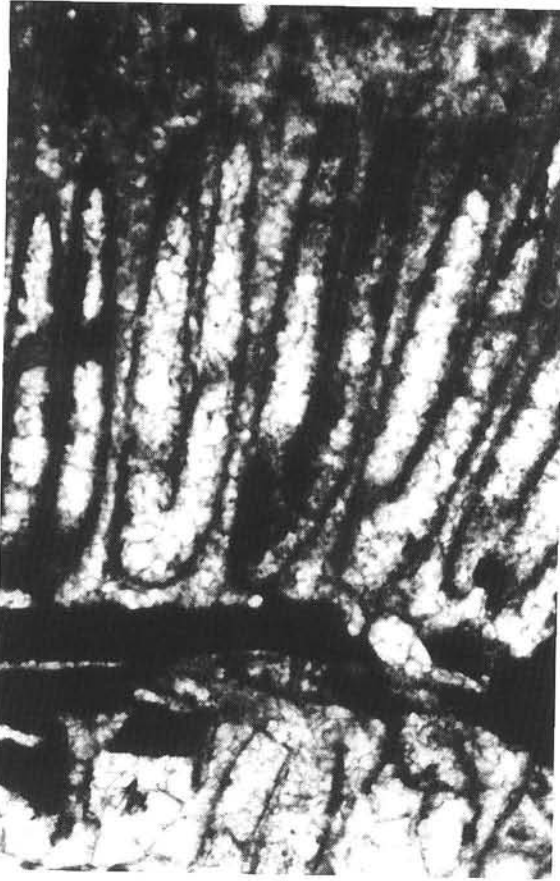
**Dimensions:** d: (4) 4.5–8 (9) mm; d (lumen): 4–5 mm (juvenile: 2.5 mm); c-c: 4.5–8 (10) mm; s: (24) 30–40 (48) (juvenile: 22).

**Description:** The corallum is massive and plocoid, with corallites, which are rounded or slightly elliptical in outline. Costosepta are compact or subcompact, nonconfluent, arranged in 3 complete cycles in 6 systems, and have delicate or coarse granulations laterally. In general, the begin-

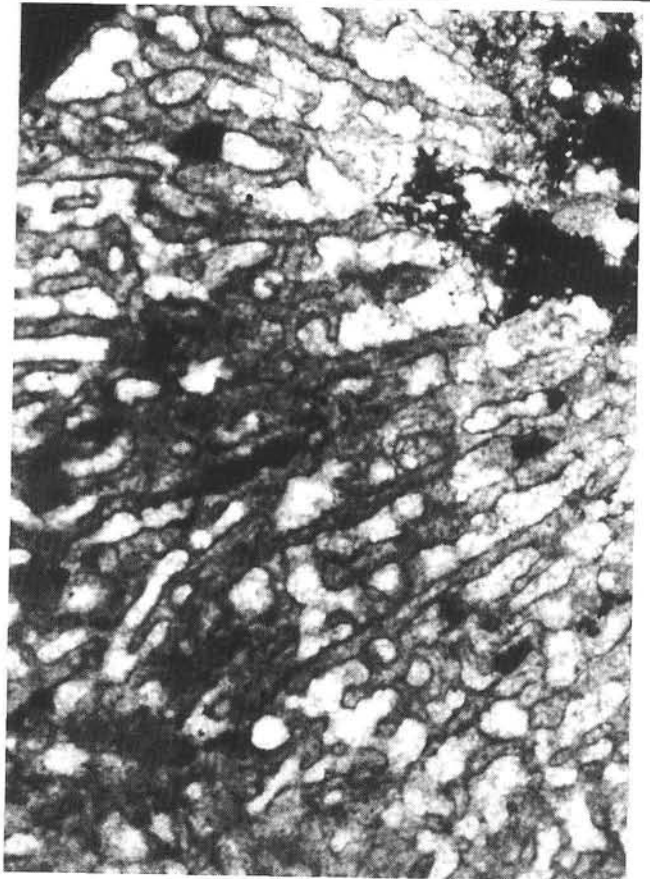
## Plate 7

- Fig. 1: *Paraplacocoenia orbignyana* (REUSS, 1854), cross section, sample WB 14-4.  
 Fig. 2: *Paraplacocoenia orbignyana* (REUSS, 1854), longitudinal section, sample WB 14-4.  
 Fig. 3: *Vallaculastraea texta* (OPPENHEIM, 1930), longitudinal section, sample WB 12-17.  
 Fig. 4: *Vallaculastraea texta* (OPPENHEIM, 1930), cross section, sample WB 12-17.  
 Fig. 5: *Fungiastraea exigua* (REUSS, 1854), longitudinal section, sample WB 1a-2.  
 Fig. 6: *Kobyia rigausensis* BEAUVAIS, 1982, longitudinal section, sample WB 12-13.

Scale bar: 3 mm.



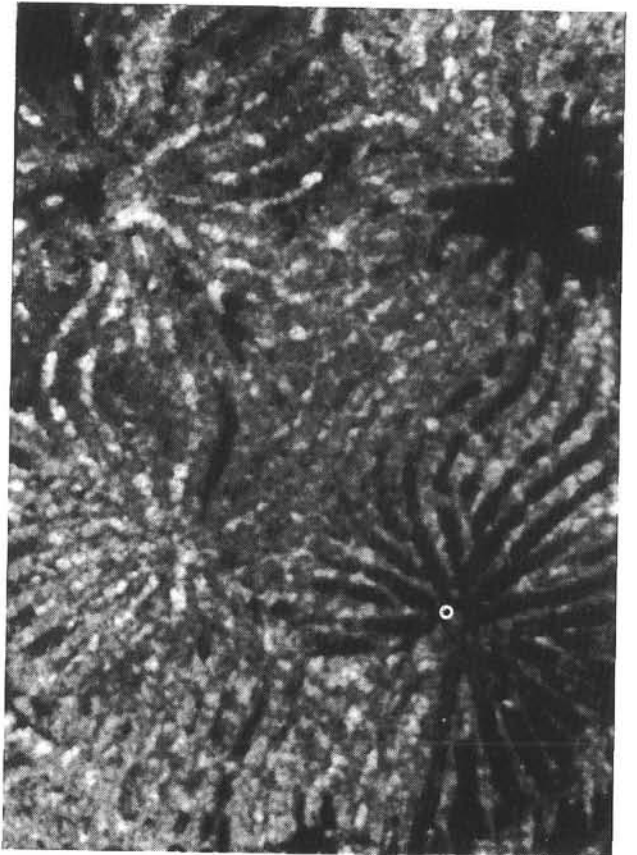
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2



3



4

ning of a fourth cycle of septa is present. Septa of the first and second cycle are nearly equal in length, reaching the center of the calice. Trabecular prolongation of their inner ends may fuse with neighbouring septa or with the columella. Younger septa are very thin, regularly alternating in length. The columella is small, lamellar or irregular parietal. The wall is parasynapticulothecal or rarely septoparathecal. The appearance of vesicular and subtabulate dissepiments is mainly restricted to the perithecal region of the corallites. Microstructure is made of medium- or thick-sized trabeculae.

**Distribution:** Aptian, Upper Santonian and Maastrichtian of north Spain (Catalonia), Lower Aptian of Austria and Germany (Allgäu Schratenkalk), Cenomanian of south Germany, Santonian of other localities of the Gosau Group (Nefgraben, Wegscheidgraben, Rontograben, Hornegg, Paß Gschütt), Santonian-Campanian of Slovenia.

**Material:** WB 12-9; WB 12-31; WB 14-3; WB 14-5.

Suborder Microsolenina MORYCOWA & RONIEWICZ, 1995  
Family Latomeandridae ALLOITEAU, 1952  
Genus *Valliculastraea* ALLOITEAU, 1957  
Type species: *Valliculastraea jauberti* ALLOITEAU, 1957

***Valliculastraea texta* (OPPENHEIM, 1930)**

Pl. 7, Figs. 3–4

- \*1930 *Meandraraea texta*: OPPENHEIM, p. 212, pl. XVI, fig. 5.  
1982 *Valliculastraea texta* (OPPENHEIM): BEAUVAIS, tome II, p. 132–133, pl. XXXIX, fig. 4.

**Dimensions:** c-c: 4–7.5 mm (in early budding stages the corallite distance may be smaller); s/mm: 6–7/2.

**Description:** The corallum is massive and thamnasterioid, with corallites that are regularly disposed or arranged in short meandroid series. Septa are confluent, subequal in thickness, bisepetal, have rare pores. Their lateral surfaces have pennulae, rare meniane and spiniform granules, varying in size and shape. Twelve to twenty septa extend to the center of the corallite. Their inner ends become porous or form trabecular prolongations that may fuse with the columella. Columella is well-developed, spongy-papillose. Endotheca is made of numerous, thin, vesicular dissepiments. Synapticulae are irregularly scattered. There is no wall between the corallites. Microstructure is not preserved.

**Distribution:** Lower Coniacian of south France (Corbière), Santonian of other localities of the Gosau Group (Edelbachgraben, Rigausbach, Seeleiten, Schattauergraben).

**Material:** WB 12-17.

Genus *Fungiastraea* ALLOITEAU, 1952  
Type species: *Astraea laganum* MICHELIN, 1841

***Fungiastraea exigua* (REUSS, 1854)**

Pl. 2, Fig. 2, Pl. 7, Fig. 5

- \*1854 *Thamnastraea exigua*: REUSS, p. 119, pl. XVIII, figs. 5–6.  
1857 *Thamnastraea exigua* REUSS: MILNE-EDWARDS & HAIME, tome II, p. 556.  
1903 *Thamnastraea exigua* REUSS: FELIX, p. 209–210, text-fig. 15.  
1911 *Thamnastraea exigua* REUSS: TRAUTH, p. 69, pl. 3, fig. 3.  
1914 *Thamnastraea exigua* REUSS: FELIX, pars 7, p. 197.  
1930 *Synastraea exigua* (REUSS): OPPENHEIM, p. 166, pl. XXXI, figs. 12–12a.  
?1937 *Synastraea exigua* (REUSS): BATALLER, p. 193–194.  
1971 *Fungiastraea* aff. *exigua* (REUSS): MORYCOWA, p. 111–112, pl. XXVIII, fig. 2  
1982 *Dimorphomeandra exigua* (REUSS): BEAUVAIS, tome II, p. 55–56, pl. XXVI, fig. 1 (older synonyms cited therein).  
1993 *Fungiastraea* cf. *exigua* (REUSS): BARON-SZABO, p. 162, pl. 5, figs. 3a–b.  
1997 *Fungiastraea exigua* (REUSS): BARON-SZABO, p. 87, pl. 16, figs. 5–6.

**Dimensions:** c-c: 2.5–5 mm; s: 22–40; s/mm: 7-9/2.

**Description:** The corallum is lamellar and thamnasterioid, with calices that are regularly distributed over the colony. Increase is due to extra- and intracalicular budding. Septa are subcompact, confluent, nearly equal in thickness, and have thick rounded or spiniform granules and numerous pennulae laterally. Anastomosis is a common feature. In general 14 to 20 septa reach the axial region of the corallite, where their inner ends may dissociate to paliform lobes. Together with the spongy-papillose columella they fill the center of the calice. Synapticulae are regularly disposed. Endotheca consists of thin vesicular dissepiments. Microstructure is made of portions of thick compound trabeculae.

**Distribution:** Lower Aptian of Romania, Aptian-Albian (Vasco-Cantabria) and ?Maastrichtian of north Spain (Catalonia), Lower Coniacian and Upper Santonian of France, Lower Coniacian (Brandenburg) and Santonian of other localities of the Gosau Group (Paß Gschütt, Zimmergraben Rußbach, Piesting, Nefgraben, Traunwandalp, Schattauergraben, Stöcklwaldgraben), Senonian of the Czech Republic.

**Material:** WB 1A-2; WB 1A-29.

Genus *Latohelia* LÖSER, 1987  
Type species: *Synhelia reptans* POCTA, 1887

***Latohelia* cf. *circularia* BARON-SZABO, 1998**

Pl. 5, Fig. 3

- \*1998 *Latohelia circularia*: BARON-SZABO, p. 150–151, pl. 9, figs. 1–4, pl. 10, fig. 2.

**Dimensions:** d (lumen): 1.5–3 mm; c-c: 5–6 mm; s: 40–48.  
**Description:** Dendroid colony with circular calices. Septa

**Plate 8**

- Fig. 1: *Astrogyra orbigny* (FROMENTEL, 1877), cross section, sample WB 12-27.  
Fig. 2: *Rhabdopsammia* sp., cross section of corallum, sample WB 12-24.  
Fig. 3: *Corbariastraea weissenbachalmensis* n. sp., cross section, holotype, WB 12-22.  
Fig. 4: *Corbariastraea weissenbachalmensis* n. sp., cross section, holotype, WB 12-22.

Scale bar: 3 mm.

are costate, subcompact, non- or subconfluent, rarely confluent, and arranged in three groups in irregular systems. Septa of the first group, being about 12 in number, reach the center of the calice. Trabecular prolongations of their inner ends may fuse with the columella. Septa of the second set slightly alternate in length and thickness. Youngest septa are of the same thickness, but distinctly shorter. Frequently, anastomosis can be observed. The lateral surfaces of septa have spiniform and rounded granules and pennulae. Paliform lobes may occur axial to primary and secondary septa. Columella is spongy-papillose. Synapticulae are mainly restricted to the vicinity of the wall, where they form a synapticulothecal wall. Endotheca consists of thin vesicular dissepiments. Microstructure is not preserved.

**Remarks:** The rather poor preservation of the Weissenbachalm specimen does not allow a definite identification.

**Distribution:** Campanian of north Spain.

**Material:** WB 1A-5.

Family Synaestraeidae ALLOITEAU, 1952

Genus *Corbariastraea* ALLOITEAU, 1952

Type species: *Corbariastraea rennensis* ALLOITEAU, 1952

***Corbariastraea weissenbachalmensis* n. sp.**

Pl. 8, Figs. 3–4

**Derivatio nominis:** referring to the Austrian locality Weissenbachalm the specimen was collected from.

**Holotype:** WB 12-22.

**Locus typicus:** Weissenbachalm, Steiermark, Austria.

**Stratum typicum:** Upper Santonian-Campanian, 'Rudist-Coral-Brachiopod Facies'.

**Diagnosis:** *Corbariastraea* with corallite centers, which are 2.5–5 mm apart, and septa numbering from 8 to 12 in 2 mm.

**Dimensions:** c-c: 2.5–5 mm, in early budding stages the calicinal distance may be smaller; s/mm: 8-12/2.

**Description:** The corallum is massive and thamnasterioid with irregularly distributed calices or corallites that are grouped in short meandroid series. Gemmation is due to intracalicular budding, rarely extracalicular-marginal. Septa are confluent, subequal in thickness, long, wavy, have rare pores, and tend to fuse frequently. Septal flanks are covered by granules varying in size and shape, rounded pennulae and rare meniane. Inner ends of septa are cuneiform or terminate in claviform thickenings. About 8 septa may extend to the center of the calice, where their trabecular prolongations can form a pseudo-columella or dissociate to paliform lobes. There is no columella. Synapticulae are abundant throughout the colony. There is no wall between the corallites. Endotheca consists of thin subtabulate dissepiments. Microstructure is poorly preserved, but in places thick monaxial and polyaxial trabeculae can be seen.

**Comparison:** The new species is distinguished from *Corbariastraea exaltata* (REUSS, 1854) and *C. junctiseptata* (OPPENHEIM, 1930) by the distinctly smaller dimension of the corallite distance (5–10 mm in *C. junctiseptata*; 7.5–9.5 mm in *C. exaltata*) and by the higher density of septa (4–5/2 mm in *C. junctiseptata*; 3–4/2 mm in *C. exaltata*).

**Material:** WB 12-22.

Genus *Kobyia* GREGORY, 1900

Type species: *Kobyia crassolamellosa* GREGORY, 1900

**Remarks:** The systematic position of *Kobyia* GREGORY has been much discussed (PANDEY & FÜRSICH, 1993). According to GREGORY, the genus *Kobyia* represents a form with features intermediate between those of the family Ethmotidae Gregory and Microsolenidae Koby. WELLS (1956) merged *Kobyia* with *Dimorphoseris* DUNCAN and grouped it within the family Synaestraeidae ALLOITEAU. The presence of divergent trabeculae suggests its placement within the family Haplaraeidae VAUGHAN & WELLS. According to BEAUVAIS (1982) and LÖSER (1992) *Kobyia* belongs to the Astraraeidae BEAUVAIS. The author follows WELLS (1956) in grouping *Kobyia* GREGORY with the family Synaestraeidae.

***Kobyia rigausensis* BEAUVAIS, 1982**

Pl. 3, Fig. 3, Pl. 7, Fig. 6

\*1982 *Kobyia rigausensis*: BEAUVAIS, tome II, p. 42–43, pl. XXVI, fig. 3.

**Dimensions:** c-c (serie): 3–5 (6) mm; c-c (between series): 6–9 mm; s/ mm: 13–18/5.

**Description:** The corallum is knobby and thamnasterioid, with corallites that are distributed over the upper surface in irregular concentric series. Collines separating the series are tholiform or flat. Septa are confluent or subconfluent, irregularly perforated, subequal in thickness, with perforated inner ends. Anastomosis is frequent. Lateral surfaces of septa are ornamented with rounded granules, vertical carinae or pennulae. Columella is spongy-papillose. Synapticulae appear throughout the entire colony. Endotheca is formed by numerous thin vesicular dissepiments. Microstructure is not preserved.

**Distribution:** Upper Santonian of another locality of the Gosau Group (Rigaus).

**Material:** WB 12-13.

Family Cunnolitidae ALLOITEAU, 1952

Genus *Cunnolites* BARRÈRE, 1746

(=*Cyclolites* LAMARCK, 1801)

Type species: *Porpites ellipticus* GUETTARD, 1774

(=*Cyclolites elliptica* LAMARCK, 1801).

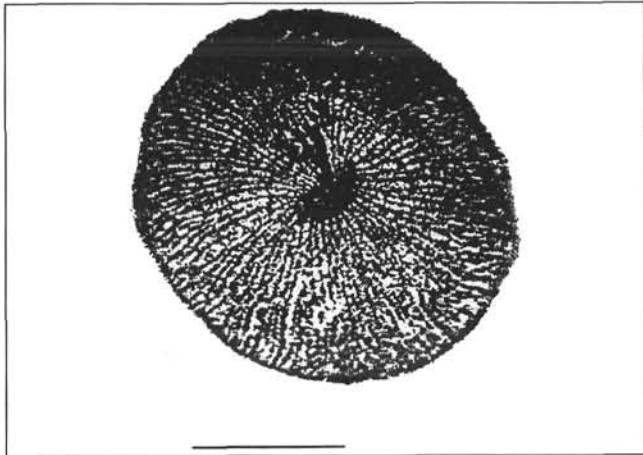
***Cunnolites* sp.**

Text-Fig. 6

**Description:** Simple corallum, free, circular or elliptical in outline. The base is flat or concave, generally covered by a thick, concentrically wrinkled epitheca, convex above, with a small central pit or elongated fossette. Septa are thin, straight or wavy, and developed in 5 to 6 generations. Those of the first three generations are subcompact; younger septa are porous. Septal flanks show a variety of ornamentations: spiniform and rounded granules, rounded or laterally flat pennulae, and rare meniane. There is no columella. The wall is synapticulothecal. Endotheca is made of thin vesicular dissepiments; synapticulae are abundant. Microstructural features are not preserved.

**Remarks:** Recent studies on specimens of *Cunnolites* from the Campanian of Spain by BARON-SZABO (1998) showed that dimensions of skeletal elements cannot be used as specific characters for this genus. Therefore, the Weissenbachalm specimens are not assigned to any species.

**Material:** WB 1A-16; WB 1A-17.



Text-Fig. 6.  
Sketch of *Cunnolites* sp. Scale bar: 5 mm, sample WB 1A-16.

#### 4. Preliminary Palaeogeographical Comparison

The coral assemblages of the Weissenbachalm show great affinities to Upper Cretaceous coral communities, especially to the Coniacian-Santonian coral faunas from other localities of the Gosau Group as well as to Turonian-Senonian occurrences of France (Table 6). The majority of the Weissenbachalm forms are known from Upper Cretaceous strata only (Table 5).

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