

FLATSCHKOFELIA ANISICA GEN. ET SP. NOV. (FORAMINIFERIDA) FROM THE MIDDLE TRIASSIC (ANISIAN) OF NORTHERN DOLOMITES, ITALY

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Key-words: Paleontology, Foraminifers, Triassic, Anisian, Alps, Northern Dolomites, Italy.

Riassunto. Nel presente lavoro viene descritto un nuovo genere di foraminifero sessile a parete agglutinante: *Flatschkofelia* (specie-tipo: *Flatschkofelia anisica* gen et sp. nov.). Questo foraminifero è stato rinvenuto nelle breccie di talus recifale di età Triassico medio (Anisico) della Formazione del Serla superiore (Dolomiti di Valdora, Italia). *Flatschkofelia*, gen. nov., è riferito alla famiglia Placopsilinidae Rhumbler.

Abstract. The new genus of sessile and agglutinated foraminifer, *Flatschkofelia* (type-species: *Flatschkofelia anisica* gen. et sp. nov.) from the Middle Triassic (Anisian) reef talus of the Olang Dolomites (Upper Serla Formation, Dolomiti di Valdora, Italy) is introduced. *Flatschkofelia*, gen. nov., is referred to the family Placopsilinidae Rhumbler.

Introduction.

After the end-Permian mass extinction, reefs and reefal carbonate buildups did not exist during the Late Permian to Early Triassic. First occurrence of reefs has been reported from the Early-Middle Anisian (Middle and Late Pelsonian) of the Dolomites, Italy and from Southern China (see Senowbari-Daryan et al., 1993). In the Northern part of the western Tethys additional Anisian reefs are known from the Carpathians and from the Karawanken Mountains. From the southern part of the western Tethys no Anisian reefs are known.

Most of Late Anisian reef carbonates in the Olang Dolomites (Southern Alps, Italy) are represented by allochthonous talus reef blocks of one or several cubicmeter size. Autochthonous reef buildups are extremely rare. Both, the allochthonous reef blocks and autochthonous buildups occur within the Middle to Late Pelsonian Recoaro Formation. The fossil content as well as the microfacies types of these reef carbonates are described by Bechstädt & Brandner (1970), Fois & Gaetani (1984) and by Senowbari-Daryan et al. (1993) in detail.

Olangocoelia otti Bechstädt & Brandner, a problematic fossil (sponge or alga?), is the most abundant organism in the Anisian reef carbonates, followed by different types of sphinctozoid and inozoid sponges, bryozoans, solenoporacean algae, corals, encrusting epibionts (porostromate algae, cyanophycean crusts, microproblematica, worms and foraminifers) (see for detail Senowbari-Daryan et al., 1993). Foraminifers are relatively rare and mostly represented by *Meandrospira dinarica* Kochansky-Devidè & Pantic, *Pilammmina densa* Pantic, *Endoteba* sp., *Endotebanella* sp., *Endotriada* sp., *Endotriadella* sp., *Glomospira* sp., *Glomospirella* sp. Duostominae etc. Sessile foraminifers are also not abundant and represented by the questionable genus *Bullopora?* and by an agglutinated type, described here as *Flatschkofelia anisica* gen. et sp. nov.

Systematic description

Foraminiferida Eichwald, 1830

Suborder *Textulariina* Delage & Hérouard, 1896

Superfamily *Lituolacea* de Blainville, 1827

Family *Placopsilinidae* Rhumbler, 1913

Subfamily *Placopsilininae* Rhumbler, 1913

Genus *Flatschkofelia* gen. nov.

Type-species: *Flatschkofelia anisica* gen. et sp. nov.

Derivation of name. After the locality Flatschkofel, Olang Dolomites, Italy (Fig. 1), where the holotype was found.

Diagnosis. Test simple, agglutinated and solid structured, attached on the early coiled stage, free and uncoiled on the final stage. Chambers are biserially ar-

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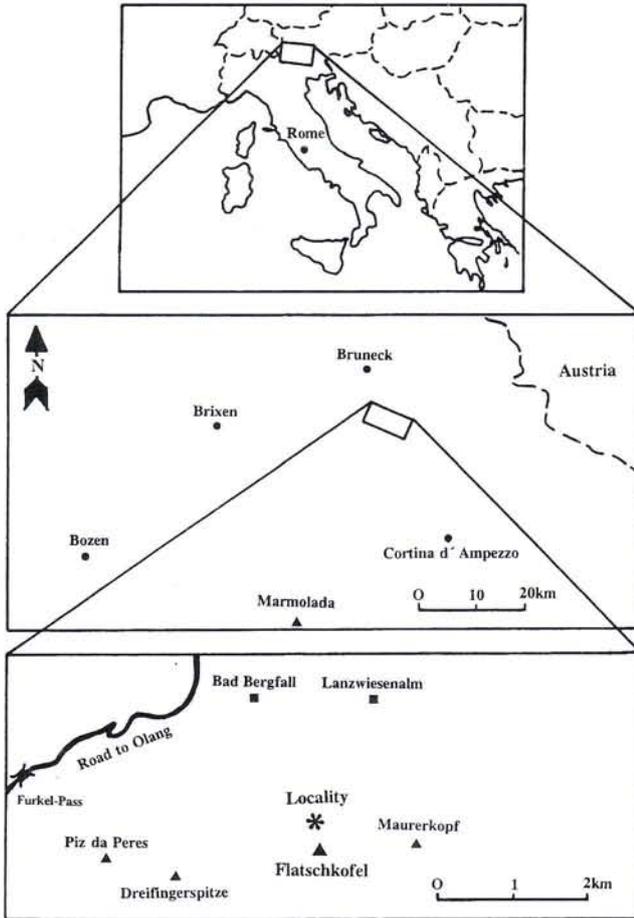


Fig. 1 - Location map of the Dolomites and Flatschkofel, where *Flatschkofelia anisica* gen. et sp. nov. was found.

ranged in the initial stage, bi- and uniserial in later stage. Aperture simple and terminal located in the first biserial stage, moving to the margin in the second uniserial stage.

Composition of the genus. At the moment monotypic, only represented by the type-species.

Stratigraphic and geographic distribution. Middle Triassic (Anisian), Northern Dolomites, Italy.

Remarks. *Flatschkofelia* gen. nov. is herein included in the family Placopsilinidae Rhumbler, 1913 defined by Loeblich & Tappan (1987, p. 80) as follows: "Test attached, early stage coiled, arcuate, or biserial, later uncoiled; wall agglutinated, solid, aperture terminal, single or multiple. L. Jurassic to Holocene"

The family includes two subfamilies: Placopsilinae Rhumbler, 1913 and Adhaerentiinae Loeblich & Tappan, 1986. *Flatschkofelia* gen. nov., is referred to Pla-

copsilinae because having a coiled early stage even if all the genera belonging to the subfamily lacks a biserial part.

The biserial arrangement of the chambers is a morphological feature of Adhaerentiinae, but the unique genus (*Adhaerentia* Plummer, 1938, type-species: *Adhaerentia midwayensis* Plummer, 1938) included in the subfamily lacks an early coiled stage.

The presence of a coiled early stage, a biserial second part and a final uniserial part, which is common both in Placopsilinae and Adhaerentiinae, together with apertural features, could justify the introduction of a new subfamily for *Flatschkofelia*, gen. nov. However, the material from the Northern Dolomites is not enough to introduce a new subfamily.

At the moment, *Flatschkofelia* is referred to Placopsilinae also because the Lower Paleocene genus *Adhaerentia* shows, in the final stage, aperture multiple with two to many separate openings and for stratigraphic reasons too.

According to Loeblich & Tappan (1987) the stratigraphic range of Placopsilinae spans from Lower Jurassic to Holocene, but we can affirm the range of the family starts from Triassic, not only on the basis of the existence of the new genus *Flatschkofelia*, but also because of previous record of the genus *Placopsilina* in Triassic sediments (Trifonova 1967, 1992; Brönnimann & Zaninetti, 1972).

Flatschkofelia anisica gen. et sp. nov.

Pl. 1, fig. 1-12

1993 Sessile agglutinated foraminifer (gen. et sp. indet.) - Senowbari-Daryan, Zühlke, Bechstäd & Flügel, p. 230, pl. 64, fig. 2, 4, 5.

Derivation of name. Because the occurrence of the species in Anisian limestones.

Holotype. Longitudinal section illustrated in Pl. 1, fig. 1 (thin section: 89/V4/18).

Paratypes. All specimens illustrated in Pl. 1, fig. 2-12 from different thin sections (see explanation of plate 1).

Type locality. Flatschkofel, Olang Dolomites, Italy (see Fig. 1).

Type level. Upper Serla Formation, Middle Triassic (Anisian, Pelsonian).

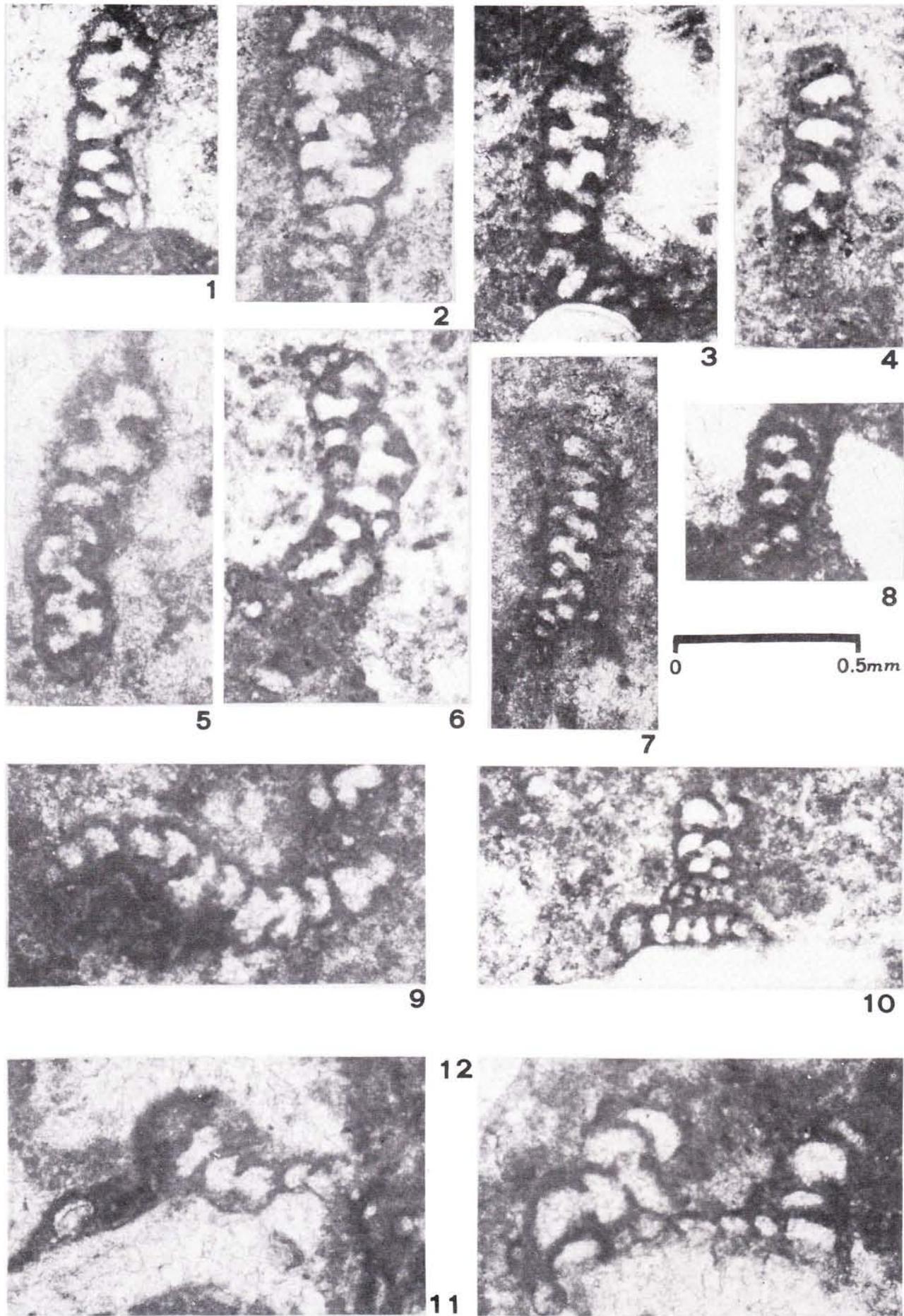
Material. Several specimens in different planes from thin sections: 89/V7/49, 89/V1/85, 89/V4/18 (holotype), 89/V1, 86/2, 89/V7/32, deposited at the Institute für Paläontologie, University of Erlangen-Nürnberg.

Diagnosis. See diagnosis of the genus.

PLATE 1

Fig. 1-12 - *Flatschkofelia anisica* gen. et sp. nov. from Flatschkofel N, Upper Serla Formation, Olang Dolomites, Italy; Middle Triassic (Anisian, Pelsonian).

Fig. 1: Holotype, thin section 89/V4/18. Fig. 2-12: Paratypes, thin sections: 2) 89/V7/32; 3, 4, 5, 6, 8, 10) 89/V4/18; 7) 89/V1; 9) 86/V1/85; 11, 12) 89/V1/85.



Description. The test is attached, at least for the initial part, then, probably, may grow free of the attachment. It is irregularly coiled in the reduced early stage, later uncoiled and rectilinear, slightly contorted above all in the final part. The coiled early stage is followed by a short stage with 2-3 series of subangular chambers biserially arranged. The final part is uniserial and the chambers (5-7 in the more developed specimens) are irregular in shape, increasing more rapidly in breadth than height.

The aperture is simple, terminally located in the biserial stage, moving to the margin in the uniserial part, at the end of a short neck in any chamber offset toward the opposite margin in respect with the previous chamber. The chamber wall is solid, agglutinated and simple in structure.

Dimensions of the test (in mm):

Length: 0.5-1.40

Maximum diameter: 0.4

Height of the chambers in the uniserial stage: 0.06-0.08

Breadth of the chambers in the uniserial stage: 0.16-0.25

Thickness of the wall: 0.05-0.06

Stratigraphic and geographic distribution. Middle Triassic (Anisian, Pelsonian), Northern Dolomites, Italy.

Association. *Flatschkofelia anisica*, gen. et sp. nov., was found within upper ramp and lagoonal facies of the prograding Upper Serla Formation. The underlying Recoaro Formation and the Upper Serla Formation contain allochthonous reef facies (reef talus blocks, reworked bioclastic respectively). For details on Anisian reef organisms of Olange Dolomites see Senowbari-Daryan et al. (1993). The species is associated with rare foraminifers mainly represented by *Endoteba* sp., *Endotebanella* sp., *Endotriada* sp. and *Endotriadella* sp. in the reef facies; *Meandrospira dinarica* Kochansky-Devidè & Pantic and *Pilammmina densa* Pantic in the lagoonal facies.

Acknowledgments.

The investigations were supported by the Deutsche Forschungsgemeinschaft (Project Be 641/17, Anis-Riffe) in the Priority Program "Global and Regional Controls on Biogenic Sedimentation".

R E F E R E N C E S

- Bechstädt T. & Brandner R. (1970) - Das Anis zwischen St. Vigil und dem Höhensteintal (Prager- und Olang Dolomiten, Südtirol). *Festband Geol. Inst., 300-Jahr-Feier, Univ. Innsbruck*, pp. 9-103.
- Brönnimann P. & Zaninetti L. (1972) - Foraminifera from the basal Upper Muschelkalk at Hyères, western Basse-Provence, Southern France. *Riv. It. Paleont. Strat.*, v. 78, n. 1, pp. 43-44, Milano.
- Fois E. & Gaetani M. (1984) - The recovery of reef-building communities and the role of cnidarians in carbonate sequences of the Middle Triassic (Anisian) in the Italian Dolomites. *Paleontographica Amer.*, v. 54, pp. 191-200, Ithaca/New York.
- Loeblich A.R. & Tappan E. (1987) - Foraminiferal Genera and their classification. Van Nostrand Reinhold Company Inc., Vol. of 970 pp., New York.
- Senowbari-Daryan B., Zühlke R., Bechstädt T. & Flügel E. (1993) - Anisian (Middle Triassic) Buildups of the Northern Dolomites (Italy): the recovery of reef communities after the Permian/Triassic Crisis. *Facies*, v. 28, pp. 181-256, Erlangen.
- Trifonova E. (1967) - Some new Triassic foraminifera in Bulgaria. *Ann. Univ. Sofia, Geol., Geogr., Fac.* 60 (1 Geol.) pp. 5-6, Sofia.
- Trifonova E. (1992) - Taxonomy of Bulgarian Triassic Foraminifera. I. Families Psammosphaeridae to Nodosinellidae. *Geol. Balc.*, v. 22, n. 1, pp. 3-50, Sofia.

Received June 20, 1996; accepted October 3, 1996