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# The Mesozoic Corals. Bibliography 1758-1993.

Supplement 16 ( -2010)

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## Summary

This supplement to the bibliography (published in the Coral Research Bulletin 1, 1994) contains 101 additional references to literary material on the taxonomy, palaeoecology and palaeogeography of Mesozoic corals (Triassic - Cretaceous; Scleractinia, Octocorallia). The bibliography is available in the form of a data bank with a menu-driven search program for Windows-compatible computers. Updates are available through the Internet ([www.cp-v.de](http://www.cp-v.de)).

Key words: Scleractinia, Octocorallia, corals, bibliography, Triassic, Jurassic, Cretaceous, data bank

## Résumé

Le supplément à la bibliographie (publiée dans Coral Research Bulletin 1, 1994) contient 101 autres références au sujet de la taxinomie, paléoécologie et paléogéographie des coraux mésozoïques (Trias - Crétacé; Scleractinia, Octocorallia). Par le service de mise à jour ([www.cp-v.de](http://www.cp-v.de)), la bibliographie peut être livrée sur la base des données avec un programme de recherche contrôlée par menu avec un ordinateur Windows-compatible.

Mots-clés: Scleractinia, Octocorallia, coraux, bibliographie, Trias, Jurassique, Crétacé, base des données

## Zusammenfassung

Die Ergänzung zur Bibliographie (erschieden im Coral Research Bulletin 1, 1994) enthält 101 weitere Literaturzitate zur Taxonomie und Systematik, Paläoökologie und Paläogeographie der mesozoischen Korallen (Trias-Kreide; Scleractinia, Octocorallia). Die Daten sind als Datenbank zusammen mit einem menügeführten Rechercheprogramm für Windows-kompatible Computer im Rahmen eines Änderungsdienstes im Internet ([www.cp-v.de](http://www.cp-v.de)) verfügbar.

Schlüsselworte: Scleractinia, Octocorallia, Korallen, Bibliographie, Trias, Jura, Kreide, Datenbank

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## Preface

Numerous hints given by colleagues and new papers edited the previous year yield 101 references for a supplement to the bibliography. For the form of arrangement and abbreviations please refer to the bibliography itself (Coral Research Bulletin 1, 1994).

I am indebted to all colleagues who have sent me copies of their recently published papers for their help in completing the bibliography.

## The supplement

(References of *Palaeontologia Universalis* are sorted according to issue number and not according to the indicated doubtful year of publication.)

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**CHABLAIS, J., MARTINI, R., SAMANKASSOU, E., ONOUE, T. & SANO, H.**

2010. Microfacies and depositional setting of the Upper Triassic mid-oceanic atoll-type carbonates of the Sambosan Accretionary Complex (southern Kyushu, Japan). – *Facies*, 56: 249-278; Erlangen. C • t • J

The Upper Triassic shallow-water limestones of the Sambosan Accretionary Complex are reconstructed as a remnant of a mid-oceanic atoll-type build-up upon a seamount in the Panthalassan Ocean. The Sambosan atoll-type carbonates and its pedestal were accreted along with deep-water ribbon-chert and related siliceous rocks to the eastern margin of Asia during the Late Jurassic to Early Cretaceous. Studied limestones crop out in southern Kyushu Island, southwest Japan. Although the prevailing and intense deformation during the accretionary process prevents measurement of sections in stratigraphic successions, and sedimentary structures are poorly preserved, microfacies description and foraminifers analysis allow us to speculate the depositional setting of the Sambosan limestones. Seventeen microfacies are distinguished and several foraminifers of Tethyan affinity are identified. Foraminifers indicate a Late Carnian to Rhaetian age. The Tethyan affinity of the macro- and microfaunas suggests that the Sambosan seamount was located presumably in a low- to middle-latitude zone of the southern hemisphere during the Late Triassic. [original abstract]

**CHABLAIS, J., ONOUE, T. & MARTINI, R.**

2010. Upper Triassic reef-limestone blocks of southwestern Japan: New data from a Panthalassan seamount. – *Palaeogeography, Palaeoclimatology, Palaeoecology*, 293: 206-222; Amsterdam. C • t • J

Norian–Rhaetian reef-limestone outcrops belonging to the Sambosan Accretionary Complex located near and within Inaba Cave, western Shikoku Island (Japan), are described in detail for the first time. This patch-reef complex is inferred to have formed within an atoll-type carbonate system accumulated over a mid-oceanic seamount surrounded by deep-water radiolarian cherts in the Panthalassic Ocean during the Late Triassic. Because most Upper Triassic reef studies are from the former Tethys Ocean, counterparts from the Panthalassic Ocean, such as this study, are fundamental in resolving sedimentological, palaeontological and palaeobiogeographical issues related to Late Triassic reefs. The microfacies, palaeontology and palaeoecology of the Inaba reef limestones were investigated. The

reef-boundstone facies is characterised by abundant coralline sponges that, in association with microbial crusts, constitute the main framebuilders. Some phaceloid and/or dendroid corals occur, but these groups are poorly represented, as are algae. Microproblematica and foraminifers exhibit rich associations, acting as secondary reef builders and/or reef dwellers. The surrounding setting comprises biotrital sponge–coral rudstone and well-preserved megalodont rudstone–floatstone. The sedimentary contact between reef and lagoon facies is observed for the first time within Inaba Cave. Important similarities with the coeval Upper Triassic reefs of the southern classic Peri-Tethys area and especially with the Omani seamounts are recognised, suggesting a more southern-Hemisphere origin for Upper Triassic Japanese reefs than predicted by previous reef studies. [original abstract]

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2010. The converging results of microstructural analysis and molecular phylogeny: Consequence for the overall evolutionary scheme of post-Paleozoic corals and the concept of Scleractinia. – *Palaeoworld*, 19, 3/4: 357-367; Amsterdam (Elsevier Scientific Publishing Company). D • t • A/TR

During the last three decades, a series of paleontological and biological results have brought considerable changes to the long-standing question of a possible relationship between the Paleozoic and modern corals. Microstructural descriptions of samples from the alpine outcrops (Salzkammergut and Dolomites) along with new specimens from Turkey have shown first that the classical Wells' scheme have to be re-examined. Accordingly, several investigations based on molecular phylogeny have repeatedly led to the conclusion that, at the family level, the taxonomy inherited from Vaughan and Wells cannot be maintained. From an overall evolutionary viewpoint, agreement also exists between microstructural analysis and molecular phylogeny. A recently discovered Triassic family, the Pachythecalids, exhibits highly unexpected skeletal features and microstructures in both septa and walls. Additionally, structural relationships between walls and septa demonstrate a particular mode of growth, with ontogenic priority to the theca. Comparison of the corallite microstructures suggests that most of the Triassic fauna can be derived from this unique family by an evolutionary process during which the septal system became progressively prevalent upon the wall. This monophyly of the modern corals is also well supported by molecular phylogeny. The present concept of Scleractinia has to be re-examined because it cannot include neither Pachythecalids, probably related to the Late Permian Polycelids, nor some other post-Paleozoic corals, including extant Guyniidae, with long recognized specific structural patterns. [original abstract]

**GEISTER, J.**

1977. [Collections] – *Fossil Cnidaria - International Newsletter*, 6, 2: 38-40; Washington, D.C. C • k • RL

**HEYNG, A. & GREGOR, H.J.**

2002. Die Korallenfauna aus dem weißen Jura (Malm zeta2) von Gerstetten und Umgebung. – *Documenta naturae*, Sb19: 1-58, 34 pls.; München. D • j • D

**LÖSER, H.**

- 2010a. The Barremian coral fauna of the Serre de Bleyton mountain range (Drôme, France). – *Annalen des Naturhistorischen Museums in Wien*, 112: 575-612; Wien. D • k • F

The corals of the Serre de Bleyton mountain range are determined and described. The fauna consists of very small coral remains and fragments rarely exceeding one centimetre in size. It is clearly dominated by a few solitary and small phaceloid forms, while other growth forms are very rare. The fauna comprises 26 species in 16 genera of the suborders Amphipora, Archeoceniina, Caryophyllina, Faviina, Fungiina, Microsolena, and Stylinina. With the exception of one Amphipora species, all corals have small to very small calices. The faunal composition is typical of Hauterivian to Early Albian coral faunas. Palaeobiogeographically they are related to Barremian-Aptian faunas of the Central Tethys and the western hemisphere. [original abstract]

**LÖSER, H.**

- 2010b.** Revision of the Early Cretaceous coral genus *Felixigyra* and general remarks on the faviid hydnochoroid coral genera. – *Rivista italiana di paleontologia e stratigrafia*, 116, 2: 177-188; Milano. D • k • GR//MEX

The Early Cretaceous coral genus *Felixigyra* Prever, 1909 is revised on the basis of type material from Italy. *Felixigyra* has a hydnochoroid-meandroid colony organisation with conical monticules attached to each other. The very thick monticules are arranged in a way that calicular centres become apparent. The septa are compact and rhopaloid. The genus can be related to other genera of the Eugyridae family, but differs from them by its particularly developed monticules. It also shows certain resemblance to meandroid genera of the Trochodomeandridae family. Of the six species originally assigned to *Felixigyra* only five are recognized, since the type of *Felixigyra crassa* is too poorly preserved to give a diagnosis. The remaining five species have almost no significant difference in calicular dimensions. In addition to the Italian material, one sample from the Early Cenomanian of Greece and one sample from the Early Albian of Mexico are also assigned to the genus. Material assigned to *Felixigyra* after Prever (1909) needs to be entirely reclassified to the genus *Eohydnochora*. [original abstract]

**LÖSER, H.**

- 2010c.** Revision of the Cretaceous coral genus *Tiarasmilia* Wells, 1932 (Scleractinia). – *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen*, 258, 2: 157-165; Stuttgart. D • k • AZ/E/F/GR//J/MEX/RCH/USA

The Early to early Late Cretaceous coral genus *Tiarasmilia* Wells, 1932 is revised on the basis of the type species. The solitary coral is characterised by regular septal symmetry and the abundant apophysal septa that ornament the septa pairwise. The genus is re-assigned to the family Heterocoeniidae. The genus *Budaia* Wells, 1933 is considered to be a junior synonym of *Tiarasmilia*. Four *Tiarasmilia* species are recognised, the respective type species of *Tiarasmilia* and *Budaia*, and two as yet unnamed species for which not enough specimens were available to erect new taxa. [original abstract]

**LÖSER, H., CASTRO, J.M. & NIETO, L.M.**

- 2010.** A small Albian coral fauna from the Sierra de Seguí (Alicante province, SE Spain). – *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen*, 255, 3: 315-326; Stuttgart. D • k • E

From the Early to Middle Albian of south-eastern Spain (Prebetic) a small coral fauna is reported. Five species are described. Four species belonging to the Leptophyllidae, Montlivaltidae, and Cyathophoridae families are quite common in outcrops of an Aptian to Early Cenomanian age, mainly in the central Tethys and Western Hemisphere. One species belongs to the Hemiporitidae family and represents only the second colonial coral genus known from the Meandrinina suborder in the Early Cretaceous, the first being *Phyllocoenia*. A short account is therefore given of the suborder Meandrinina, its history, taxonomic composition and diversity through the time. Due to the low quality of the material and the availability of only one sample, the material is preliminarily assigned to the genus *Lamnastrea* Reig Oriol, 1997, which is herein revised on the basis of thin sections obtained from the type of the type species. [original abstract]

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- 2008.** The ecological significance of solitary coral and bivalve epibionts on Lower Cretaceous (Valanginian–Aptian) ammonoids from the Italian Dolomites. – *Acta Geologica Polonica*, 58, 4: 425-436; Warszawa. D • k • I

Lower Cretaceous deposits of the Puezz section in the Dolomites (northern Italy) yielded a rich ammonoid fauna (28 genera, n = 424) showing unique epifaunal encrustations by the athermatypic solitary scleractinian ?*Cycloseris* Lamarck, 1801. The coral encrusted only the outer shell surfaces of the ammonoids; the inner surface remained unaffected. Such a Cretaceous community and the relationship between the two fossil groups are described for the first time. The shells of dead ammonoids sank to the sea bottom and became colonized by the coral larvae, as documented by the location of the epibionts on only one side of the shells. The coral was fixed to the ammonoid shell for its entire life. Only the 'sediment free' upper side of the ammonoid shells could be inhabited by epibionts such as corals and serpulids. The encrustation of ammonoid shells by the bivalve

*Placunopsis* represents a different situation in that both sides of the ammonoid shells were affected, pointing to encrustation of floating ammonoids. This long-term infestation in the water column contrasts with coral settlement on the sea-floor. Ammonoid specimens encrusted by *Placunopsis* never exhibit encrustation by corals. The ammonoid-coral relationship from the Dolomites is documented from the Valanginian to Aptian interval. Examples of coral epibionts on ammonoids and other fossil groups throughout the geological column are briefly reviewed.

**MORYCOWA, E. & SZULC, J.**

- 2010.** Environmental controls on growth of early scleractinian patch reefs (Middle Triassic; Silesia; Poland). – *Palaeoworld*, 19: 382-388; Amsterdam (Elsevier Scientific Publishing Company). D • t • PL

Anisian scleractinian corals are known from the Lower and Middle Muschelkalk of the Cracow-Silesian region, but in bioherms they occur only in the western part, i.e., in the Upper Silesian area, in the higher part of the Lower Muschelkalk (Karchowice Beds). Silesian reefs of Anisian (middle Pelsonian-early Illyrian) age are, so far, the oldest in situ coral reefs following the Permian/Triassic extinction. In Anisian time, Silesian corals formed a Tethys marginal reefal rim, separating offshore Tethyan open marine waters from the backreef area (Germanic Basin). The shallow-water coral-bearing facies capped sponge buildups, following a general shallowing trend in the basin. Final emersion in the early Illyrian halted coral reef growth. Anisian scleractinian corals appear to have been zooxanthellate, as suggested in Morycowa, 1988. [original abstract]

**NAGAO, T.**

- 1934.** Cretaceous Mollusca from the Miyako District, Honshū, Japan. – *Journal of the Faculty of Science, Hokkaido University, (4: Geology and Mineralogy)*, 2, 3: 177-277, pl. 23-39; Sapporo. C • k • J

**RONIEWICZ, E.**

- 2010.** Uniform habit spectrum vs. taxonomic discrepancy between two succeeding Triassic coral faunas: A proof of the intra-Norian faunal turnover. – *Palaeoworld*, 19: 410-413; Amsterdam (Elsevier Scientific Publishing Company). G • t

Triassic coral fauna from the Tethys Ocean contains, besides colonial cerioid, meandroid and thamnasterioid corals, a high percentage of solitary and pseudocolonial, phaceloid corals with exclusively epithecal walls, about one-fifth of the genera with micromorphology of septa having pennules or menianes. These features are significant indications of moderate depth environments of low energy level and reduced illumination. Despite a uniform spectrum of growth forms, microstructural criteria allow discriminating a middle Anisian-early Norian (A2-N1) fauna from the middle/late Norian-Rhaetian (N2/3-R) one. Taxonomy of the two faunas shows meaningful differences: of four families that dominated in A2-N1 fauna, Volzeiidae, Conophylliidae, and Tropiastreaeidae are absent from the N2/3-R fauna and Margarophylliidae are present in a considerably reduced volume. As a consequence of reduction of the earlier corals, particular morphologies were eliminated. In the N2/3-R fauna, five families are abundant: the solitary and phaceloid Reimaniphyllidae and Stylophyllidae, along with colonial Cuifastreaeidae, Pamiroseriidae and Astraeomorphidae, all known as rare and rudimentary elements in the earlier fauna. This change in faunal content in the Tethys during the Norian was controlled by environmental factor(s) hardly identifiable by simple observation, as this is not connected with any obvious facies or change in coral growth form. [original abstract]

**ROSSI-RONCETTI, C.**

- 1965.** Rudiste e nerinee del Cretaceo di Yasin (Pakistan nord-occidentale). [In:] DESIO, A. [Ed.]: Italian expeditions to the Karakorum (K2) and Hindu Kush, Scientific Reports. – 4, 1: 229-272, 17 pls.; Leiden (Brill). C • k • PAK

**RUDOLPH, F., BILZ, W. & PITTERMANN, D.**

- 2010.** Fossilien an Nord- und Ostsee. Finden und Bestimmen. – 288 p.; Wiebelsheim (Quelle & Meyer). D • jk • D

**SÁEZ-ABAD, R.S.**

- 2006.** La paleontología en la Sierra de Albarracín (II). Los fósiles del Mesozoico. – *Rehaldia*, 4: 57-68. D • jk • E

SCHWEIGERT, G., BALLE, T. & MIKSCH, H.

2010. Einsame Koralle. – *Fossilien*, 6: 348-353. D • j • D

The Jurassic of southern Germany is well-known for its excellently preserved corals from the Upper Kimmeridgian (Gerstetten, Nattheim). Much less known are some localities of Early and Middle Jurassic age which also yielded corals. A brief overview on these localities is provided here. In the focus of this study is the unique specimen of a hermatypic coral in the uppermost Liassic (late Toarcian, Aalensis Zone). This coral, determined as *Trigerastraea* cf. *serialis* (Milne-Edwards & Haime), was found during the construction of a motorway near the town of Aalen. The finding horizon lies at the base of the Opalinuston Formation. In this clayey formation reef-building corals are not expected at all and have never been recorded before. It is suggested that the seafloor was rather shallow at that time, theoretically favourable for hermatypic corals, but the continuous sedimentation of clay hampered the permanent settling of such corals. The area from where the coral larva swept into the Jurassic sea of Southern Germany was probably located somewhere in the Tethys. [original abstract]

STANLEY, G.D. & HELMLE, K.P.

2010. Middle Triassic coral growth bands and their implication for photosymbiosis. – *Palaios*, 25, 11/12: 754-763; Lawrence, Kan.. D • t • USA

In living zooxanthellate corals, photosymbiosis explains increased metabolism and accelerated skeletal growth, accounting for the success of these corals in shallow-water tropical reefs. Mesozoic corals of the order Scleractinia appeared in the geologic record during the Middle Triassic, but it was not until the Late Triassic that these corals became prominent reef builders – a change hypothesized to coincide with the advent of photosymbiosis. There is considerable discussion, however, concerning algal symbiosis and the timing of their co-evolution with corals. Thus, the beginning of photosymbiosis in the earliest corals of the Middle Triassic has not been established, nor whether their paleoecology was similar to that of modern corals. Many massive colonial reef-building corals lay down thick, discrete bands in their skeletons that record annual growth. We discovered and illustrate here growth bands in Middle Triassic corals from central Nevada, in particular *Cerostella variabilis*, whose skeletal structure and bands are well-preserved in Middle Triassic biostromes of central Nevada. To test the photosymbiosis hypothesis we studied colony growth forms in these fossil corals and performed a quantitative analysis of the bands, both in *C. variabilis* and in a morphologically similar living zooxanthellate reef coral, *Montastraea faveolata*. Results of these analyses revealed growth bands and colony shapes almost identical in both living and fossil corals. These findings suggest that photosymbiosis was present in Middle Triassic corals at a very early stage in their Mesozoic history. Scleractinians were also likely zooxanthellate from the onset of their Middle Triassic occurrence but for unexplained reasons were not as efficient as modern corals in building reefs. [original abstract]

STUR, D.

1863. Bericht über die geologische Übersichtsaufnahme des südwestlichen Siebenbürgen im Sommer 1860. – *Jahrbuch der Geologischen Reichs-Anstalt*, 13, 1: 33-120; Wien. C • k • RO

SURLYK, F. & SØRENSEN, A.M.

2010. An early Campanian rocky shore at Ivö Klack, southern Sweden. – *Cretaceous Research*, 31: 567-576; London. D • k • S

Well-exposed, ancient rocky shores are rare and the associated shelly faunas are normally strongly worn and fragmented due to erosion during both sea-level rise and fall. An early Campanian rocky shore with a rich fauna is preserved at Ivö Klack in the Kristianstad Basin, southern Sweden. Ivö Klack is situated on the small, hilly island of Ivö situated in lake Ivösjön with a lake level about 6 m above present-day sea level. The rocky shore was formed during a major late early Campanian transgression caused by a sea-level rise up to about 100 m above present sea level. An archipelago was formed along the northern basin margin during the transgression with numerous small islands and peninsulas. The steep palaeo-coast at Ivö Klack consists of gneiss overlain in the lower part by more than 30 m of kaolin in places containing large boulders of gneiss with a kaolinized outer

crust. The kaolin wedges out upslope and is absent above 30e35 m above lake level. The kaolin is overlain by up to 5 m of muddy quartz sand with highly angular grains, representing a residue of the kaolin formed during transgressive wave and current reworking. The steep gneiss coast was rapidly transgressed by the sea in the latest early Campanian and at least 25 m of onlapping coarse-grained skeletal sand, gravel and whole fossils were deposited on the clean gneiss surface during the *Belemnellocomax mammilatus* belemnite biozone. Large boulders of gneiss are common in the carbonates and formed distinct boulder beds at some levels but these are now quarried away. The top 6 m of the preserved carbonate succession are free of boulders. The rocky surface is fairly even on a large scale, but highly irregular in detail with numerous metre-sized hummocks and boulders formed during terrestrial weathering and kaolinization. The lowest part of the shore is developed as a bench, topped by a sub-horizontal irregular platform, 20-30 m wide, with large hummocks and rounded boulders. The platform passes upwards into a steep boulder-strewn slope. A well-developed glauconitized hardground with *Thalassinoides* burrows and several incipient hardgrounds occur in the carbonates draping the bench and lower part of the platform. They dip gently outwards and probably represent a kind of beach rock. A highly diverse benthic fauna with more than 200 shell-bearing species lived between, below and on the hummocks and boulders. It comprises bivalves, brachiopods, polychaetes, gastropods, echinoids, asteroids, bryozoans and is dominated by large oysters and includes the northernmost Late Cretaceous rudists and hermatypic corals. The remaining benthic invertebrate groups are represented by only a few species each. The non-benthic invertebrate fauna comprises four belemnite species and one rare ammonite species. The lower Campanian carbonates of the small basin have yielded an unusually diverse vertebrate fauna totalling more than 60 species, including mosasaurs, plesiosaurs, crocodiles, turtles, birds, and as many as 44 species of sharks and rays. Ivö Klack thus provides information on virtually all trophic levels in the rocky shore ecosystem and represents the most diverse rocky shore fauna known from the geological record. This paper aims at providing the framework for a series of papers on the palaeoecology of the main benthic faunal groups. [original abstract]

SZENTE, I., BARON-SZABO, R.C., HRADECKÁ, L., KVAÈEC, J. & SVOBODOVÁ, M.

2010. The Lower Gosau Subgroup of the Kohlbachgraben and “Station Billroth” North of St. Gilgen (Turonian–?Coniacian, Salzburg, Austria). – *Abhandlungen der Geologischen Bundesanstalt*, 65: 135-154; Wien. D • k • A

Grey marls of the Lower Gosau-Subgroup exposed in a left tributary of the Kohlbachgraben north of St. Gilgen have yielded foraminifers, calcareous nannofossils and palynomorphs as well as poorly preserved plant remains. The microfossils indicate a Turonian or Turonian/Coniacian boundary age. On top of the grey marls a several meters thick succession of marly limestone and marl follows, whose fossil fauna is dominated by radiolitic rudists. Grey marls sampled in two exposures situated near the long-known fossil locality „Billroth“ yielded poorly preserved microfossils as well as a moderately diverse colonial coral and rudist assemblage, indicating a Turonian age. The most important findings of palynomorphs and macrofossils are briefly described and figured. [original abstract]

WILSON, M.A., FELDMAN, H.R. & BELDING KRIVICICH, E.

2010. Bioerosion in an equatorial Middle Jurassic coral-sponge reef community (Callovian, Matmor Formation, southern Israel). – *Palaeogeography, Palaeoclimatology, Palaeoecology*, 289: 93-101; Amsterdam. C • j • IR

The Matmor Formation (Middle Jurassic, Callovian, 165–161 mya) in southern Israel contains abundant coral-sponge patch reefs and large crinoids which have been extensively bioeroded by bivalves, worms, barnacles, phoronids, and others producing eight ichnospecies. It is significant for the evolutionary history of bioerosion because this is the first equatorial Middle Jurassic boring ichnofauna to be documented. When compared to contemporaneous ichnofaunas, this assemblage is of average diversity and abundance but has only rare sponge borings and contains abundant specimens of *Oichnus paraboloides* as shallow pits on crinoid stems. The Matmor Formation surprisingly lacks carbonate hardgrounds, which are otherwise abundant in subtropical and temperate equivalents. [original abstract]