

The Mesozoic Corals. Bibliography 1758-1993.

Supplement 18 (-2012)

Compiled by Hannes Löser¹

Summary

This supplement to the bibliography (published in the Coral Research Bulletin 1, 1994) contains 24 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).

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 24 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), 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 (erschienen im Coral Research Bulletin 1, 1994) enthält 24 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) verfügbar.

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

¹ Estación Regional del Noroeste, Instituto de Geología, Universidad Nacional Autónoma de México, Hermosillo, Sonora, México; loeser@paleotax.de

Preface

Numerous hints given by colleagues and new papers edited the previous year yield 24 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).

The supplement

AGUIRRE-URRETA, M.B., LAZO, D.G., GRIFFIN, M., VENNARI, V. & PARRAS, A.

2011. Megainvertebrados del Cretácico y su importancia bioestratigráfica. – *Relatorio del XVIII Congreso Geológico Argentino*, 465-488; Neuquén. D • k • RA

A synthesis of the Cretaceous megainvertebrates is presented by stage. This is an update of the information presented in the first version of the *Geology and Natural Resources of Neuquén* published in 1978. A brief summary of the Jurassic-Cretaceous boundary is also provided due to the present uncertainties about its definition on biostratigraphic grounds. The text deals with the presence and distribution of several invertebrate groups, both in marine and continental settings. Among them mollusks such as ammonoids, nautiloids, bivalves, gastropods, as well as crinoids and echinoids, cnidarians, bryozoans, annelid polychaetes, sponges and decapod crustaceans. In the Early Cretaceous (Berriasian- Hauterivian) the fossil invertebrate fauna is mostly marine, with abundant nektonic and benthonic forms associated with the Pacific transgression. In the Barremian, the abundance and diversity decrease dramatically and only a few marine and continental species are recorded. During the Aptian-Albian the invertebrate fauna is reduced to few freshwater molluscs. The continental environments persist in the Cenomanian-Early Campanian and the invertebrates are restricted to scarce freshwater bivalves. Finally in the Late Campanian-Maastrichtian the marine sedimentites associated with the Atlantic transgression bear abundant benthonic molluscs and other invertebrates together with few nektonic elements. [original abstract]

BENZ, W.

1996. Was Korallensammler interessieren könnte. – *Fossilien*, 3: 173-181; Weinstadt (Goldschneek Verlag). D • j • D

BOVER ARNAL, T., LÖSER, H., MORENO BEDMAR, J.A., SALAS, R. & STRASSER, A.

2012. Corals on the slope (Aptian, Maestrat Basin, Spain). – *Cretaceous Research*, 37: 43-64; London. D • k • E

The term "reef" has been frequently misused when applied to fossil coral communities. Our popular but biased view of coral community structure based on the idyllic picture of recent tropical reefs has failed to recognize that, in many fossil examples, alternative states of community structure with no or limited framework may occur. The Aptian colonial scleractinians analysed in the western Maestrat Basin (eastern Spain) constitute an example of non-reef-building coral populations, which thrived in marly slope settings. These corals developed within the photic zone but below the storm wave-base. All colonies are found well-preserved in life position. They are mostly decimetres in size and mainly occur isolated giving rise to a continuous and uniform (dominated by domal and massive forms) unbound growth fabric with a low to medium degree of development (coral skeletal volume = 5-20%). Occasionally, however, colonies growing on top of each other forming small metre-sized bioherms are also present. A total of 21 species were identified. Coral diversity in each sample location varies between three and nine species. These numbers of species are comparable with those exhibited by coeval coral assemblages from other basins of the Tethys, but are comparatively low when compared with diversities exhibited by many Recent and fossil coral communities. The corals studied apparently found optimal ecological conditions for their development on the marly slopes of the western Maestrat Basin. This is primarily expressed in the unusually large dimensions (up to 2.3 m in width) of some of the coral colonies when compared to other Cretaceous occurrences, and in the persistence and resilience of the coral populations. The observed coral genera and species (suborders Archeocaeniina, Faviina, Fungiina and Microsolenina) are very common in the time interval between the Barremian and the Early Albian and most of them have been reported from several other localities in the western and central Tethyan realm. In

addition, the coral-bearing levels also contain the poorly known and exotic genera *Agrostyliastraea* and *Procladocora*. There are no significant differences at species level or in community structure between the Early and Late Aptian faunas investigated. Therefore, the coral communities as well as the environmental conditions controlling them would have been relatively stable during the time intervals when these corals flourished. An important palaeoecological implication is that comparatively low species diversities and the absence of reef frameworks do not necessarily imply unfavourable environmental conditions for coral growth. Furthermore, this study may serve as an example for the analysis of other level-bottom coral communities displaying a loose growth fabric. [original abstract]

ENGEL, TH.

1908. Geognostischer Wegweiser durch Württemberg. Anleitung zum Erkennen der Schichten und zum Sammeln der Petrefacten. 3. Aufl. – 645 pp.; Stuttgart (Schweizerbart). D • j • D

GAMEIL, M.

2005. Palaeoecological implications of Upper Cretaceous Solitary Corals, United Arab Emirates / Oman Borders. – *Revue de Paléobiologie*, 24, 2: 515-532; Genève. N • k • OM/VAR

The Upper Cretaceous (Campanian-Maastrichtian) rocks that are exposed at several localities in the United Arab Emirates and the Sultanate of Oman are rich in macro- as well as microfossils. Solitary corals are found in these outcrops, associated with colonial corals, rudists, gastropods, pelecypods and echinoids. Nineteen species of solitary corals were identified from Jabal Buhays, Al Faiyah range Mountains (United Arab Emirates), Jabal El Rawdah and Jabal Huwayyah (Sultanate of Oman). Of these nineteen species ten species are described from the Qahlah Formation (Upper Campanian) of Jabal Huwayyah and ten species are described from the Simsima Formation (Upper Campanian-Maastrichtian) of Jabal Buhays and Jabal El Rawdah where one species *Cunulites profundus* is common in the three localities. One species found in the Simsima Formation belongs to the new species *Cunulites trifurcata* described herein.

Two morphotypes are observed in the studied solitary corals. Trochoid morphotypes prevailed during the deposition of the Qahlah Formation, these lived on a hard substrate in a shallow marine protected environment. Hemispherical to dome-shaped morphotypes belonging to cunulitid corals prevailed during the deposition of the Simsima Formation. These are better adapted to a slightly higher energy environment with terrestrial supply by having large and elevated corallites which aided them to lie freely on the soft substrate as well as to free themselves from the fine sands and silts. The absence of costosepta at the basal part of cunulitid corals shows that they were immobile during life. [original abstract]

IDAKIEVA, V.

2002. Taxonomy of Lower Cretaceous corals from Lovech Urganian Group (Lower Cretaceous) in Central Fore-Balkan. – *Godishnik na Sofijskiya Universitet Kliment Okhridski, geologo-geografski fakultet, (1: geologie)*, 95, 1: 5-16; Sofia. D • k • BG

The aim of the present paper is taxonomical descriptions of the scleractinian corals from the Urganian complex (Lovech Urganian Group) in Bulgaria. The study area is situated in the vicinity of the central Fore-Balkan, central North Bulgaria. The Lovech unit is formed by an alternation of carbonate and terrigenous formations. Biostratigraphic data, based chiefly on ammonites, determine Early Barremian-Early Aptian age of the sediment succession. Object of investigations is the coral fauna from the siliciclastic intervals, coming from different stratigraphic levels and showing high taxa diversity. This paper is divided into two parts. The present part includes descriptions of 21 species, belonging to 14 genera of 10 families and 5 suborders. [original abstract]

INSALACO, E.

1996. The use of Late Jurassic coral growth bands as palaeoenvironmental indicators. – *Palaeontology*, 39: 413-431; London. D • j • CH/F/GB

KOŁODZIEJ, B., IVANOV, M. & IDAKIEVA, V.

2012. Prolific development of pachythealiines in Late Barremian, Bulgaria: coral taxonomy and sedimentary environment. – *Annales Societatis Geologorum Poloniae*, 82: 291-330; Kraków. N • k • BG

Diversified and abundant corals of the suborder Pachythealiina (order Hexanthiniaria) are described from Upper Barremian, biostromal reefs of the Emen Formation, Lovech Urganian Group, north central Bulgaria. The corals are mostly of the phaceloid growth form and represent 14 species (six new), 12 genera (three new), belonging to five families. Pachythealiines occur along, with the small, monopleurid cylindrical rudist *Mathesia darderi*. The rudists frequently are densely clustered, occur between coral branches or are in contact with them. Other corals, with the exception of the phaceloid *Calamophylliopsis* and other rudists, are rare. Non-laminated microbialite crusts provided additional, structural support for bioconstruction development. Microbialites (automicrites) can be interpreted as a product of microbial activity, or alternatively, as a result of carbonate precipitation, brought about by non-living organic substrates (organomineralization s.s.). In addition to microbialites, metazoans are encrusted by heterotrophic skeletal microorganisms, while photophilic and oligotrophic microencrusters, usually common in other coral-bearing limestones of the Emen Formation, are very rare. The section at the Rusalya Quarry (NW of Veliko Tarnovo), about 42 m thick, provides the sedimentary and environmental context for the reefal biostromes. The vertical biotic and sedimentary succession displays a general shallowing trend: from the outer carbonate platform with bioclastic limestones containing small boundstone patches (corals, but not pachythealiines, *Lithocodium aggregatum*), to the inner platform with rudist biostromes. The pachythealiine-rich biostromes, 2.5 m thick, were developed in a low-energy environment, referred to the distal part of the rudist-dominated area of the platform. The development of microbialites was facilitated by a low sedimentation rate, and possibly by increased nutrient level. Only poorly diversified and non-phaceloid pachythealiines occur in other coral-rich limestones and marls of the Urganian complex in Bulgaria. The assemblage described is the most remarkable, Early Cretaceous coral community worldwide, with regard to pachythealiines. Phaceloid pachythealiines are only more common in the Upper Jurassic rocks, being particularly diversified in the Tithonian–Lower Berriasian Štramberg Limestone (Czech Republic) and its equivalent in the Polish Outer Carpathians. However, their sedimentary context differs from that described for the corals of the Emen Formation. [original abstract]

KUNZ, B.W.L.

1964. Die Fauna der Neuhauser Schichten von Waidhofen/Ybbs, NÖ. (Dogger, Klippenzone). – *Sitzungsberichte der Österreichischen Akademie der Wissenschaften, mathematisch-naturwissenschaftliche Klasse*, (I) 5-7: 213-276; Wien. ? • j • A

LÖSER, H.

- 2012a. Revision of *Actinastrea*, the most common Cretaceous coral genus. – *Paläontologische Zeitschrift*, 86, 1: 15-22; Stuttgart. D • k • NL

The very common and species rich Scleractinian genus *Actinastrea* (family Actinastreaeidae, suborder Archeoceniina) is revised on the basis of the type material of its type species and additional material from the type locality. A lectotype is designated for the type species. It was discovered that Jurassic to Early Cretaceous corals currently assigned to *Actinastrea* do not fit into the concept of this genus. These species belong to the genus *Stelidioseris*, which is also revised on the basis of the type of the type species including designating a lectotype. These two genera are distinguished by various characteristics: septal external parts are swollen in *Actinastrea* but not in *Stelidioseris*, the costae are confluent in *Stelidioseris*, but not in *Actinastrea*, the coenosteum is granulated in *Actinastrea*, but narrow than in *Actinastrea* and only with costae in *Stelidioseris*. *Actinastrea* is restricted to the Late Cretaceous (Late Turonian – Maastrichtian) whereas *Stelidioseris* originates in the Jurassic and reaches into the Late Cretaceous, but is less common from the Turonian on. [original abstract]

LÖSER, H.

- 2012b. Campanian corals from Bayburt (Turkey). – *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen*, 264, 1: 20-29; Stuttgart. D • k • TR

Seven coral species in six genera are reported from the limit between Early and Late Campanian of North-Central Turkey. The fauna encompasses typical Late Cretaceous elements, but the ranges of three genera are changed. The last occurrence *Hemiporites* Alloiteau, 1952 could be modified from the Turonian to the Early Campanian. The first occurrence of *Montastraea* Blainville, 1830 is modified from the middle Eocene to the Early Campanian. The first occurrence of the genus *Hydnophora* Fischer de Waldheim, 1807 is the Early Cenomanian. [original abstract]

LÖSER, H.

- 2012c. The type of *Aplosmilium vidali* Angelis d'Ossat, 1905 (Scleractinia; Early Cretaceous). – *Treballs del Museu de Geologia de Barcelona*, 18: 5-7; Barcelona. D • k • E

The Early Cretaceous Scleractinian coral species *Aplosmilium vidali* Angelis d'Ossat, 1905 is revised and a lectotype is designated. The solitary coral belongs to the genus *Tiarasmilia* and is probably a senior synonym of the type species of this genus, *Tiarasmilia casteri* Wells, 1932. [original abstract]

LÖSER, H.

- 2012d. Taxonomy, distribution and diversity of the genus *Placocoenia* (Scleractinia; Late Cretaceous). – *Batalleria*, 17: 20-31; Barcelona. D • k • A/E/ET/F/NL/P/UAE

The Late Cretaceous coral genus *Placocoenia* is revised on the species level. Species of the synonymous genera *Barycora*, *Columnocoenia* and *Columnocoeniopsis* are included. Reviewing the available type material, nine species are separated which differ mainly by their calicular dimensions, septal symmetry and septal counts. The genus occurred from the Early Turonian to Late Maastrichtian, but is only known from a few areas. Species which were formerly assigned to one of these genera including *Placocoenia* but do not belong to them, are assigned to the correct genus as far as the corresponding type material was available for study. [original abstract]

LÖSER, H.

- 2012e. Revision of the family Hemiporitidae (Scleractinia, Late Cretaceous). – *Geodiversitas*, 34, 2: 399-407; Paris. D • k • E

The Late Cretaceous Scleractinian family Hemiporitidae (suborder Faviina) is revised on the basis of its type genus and respective type species. The family is characterised by having large trabeculae, compact and strong septa with poor ornamentation at their lateral faces, short and non-confluent costae, a strong lamellar columella, a septothecal wall, and an endotheca made of thick tabulae. Together with the name-giving genus *Hemiporites*, the two coral genera *Cerionefocoenia* Reig Oriol, 1995 and *Pachynefocoenia* Reig Oriol, 1989 from the Late Cretaceous of Spain are assigned to the family. All genera are revised on the basis of the types of their respective type species. Further genera formerly or currently assigned to the Hemiporitidae family are discussed. The family occurs from the Turonian to Maastrichtian. [original abstract]

LÖSER, H.

- 2012f. Intraspecific variation in the genus *Stelidioseris* (family Actinastreaeidae, suborder Archeoceniina, order Scleractinia; Jurassic-Cretaceous). – *Geologica Belgica*, 15, 4: 382-387; Brussels. D • k

The genus *Stelidioseris* (= *Actinastrea* s.l.) is one of the most common genera in the Late Jurassic and Early Cretaceous and has a high number of species. Species separation is generally based on calicular dimensions, septal symmetry, and septal number. To obtain better insight into intraspecific variation and results for species separation, systematic measurements of the corals were taken and statistically analysed. As a preliminary study, ten type specimens were selected for analysis. In thin sections a large number of calices (up to 200) were measured, including their diameter, distance and the thickness of the wall and coenosteum. For all values, the arithmetic mean, standard deviation and the coefficient of variation were calculated. In *Stelidioseris*, the calicular diameter is the character with the lowest variation. The distance of the calicular centres, the thickness of the wall, and the number of calices per a given area show a much higher variation and are therefore less suitable for distinguishing samples within a population or species of different faunas. It was found that about 70% of all values of the lumen diameter fall in the first interval (range of the arithmetic mean \pm standard deviation). Hence, the first interval is a good representation for most types of measured values in fossil corals. The results are compared to traditional methods by remeasuring published material. It is concluded that the application of systematic measuring should be extended to other species rich coral genera. [original abstract]

LÖSER, H.

- 2012g. Revision of the family Amphistraeidae from the Monti d'Ocre area (Scleractinia; Early Cretaceous). – *Rivista italiana di paleontologia e stratigrafia*, 118, 3: 461-469; Milano. N • k • I/GR

The four *Amphistraea* species from the Early Aptian of the Monti d'Ocre area described as new by Prever (1909) are revised on the basis of the type material. One species - *Amphistraea paronai* - remains in this

genus. Another - *Amphiastrea delorenzoi* - cannot be assigned to any genus. The remaining two species belong to the new genus *Hexamphiastrea*, which differs from all amphiastroid genera by its regular hexamerall septal symmetry. *Amphiastrea suprema* Morycowa & Marcopoulou-Diacantoni, 1997 from the Early Aptian of Greece is designated as the type species. The new genus is only known from the Early Aptian of Italy and Central Greece. [original abstract]

LÖSER, H.

2012h. Corals from the Maastrichtian Ocozocoautla Formation (Chiapas, Mexico) – a closer look. – *Revista mexicana de ciencias geológicas*, 29, 3: 534-550; Mexico City.

N • k • MEX

The small Maastrichtian coral fauna of Ocozocoautla (Chiapas, Mexico) is being taxonomically reviewed. In contrast to an older study, the material is examined by preparing thin sections and carrying out systematic measurements to ensure that any comparisons of the material with existing species are of statistical significance. Twelve species in ten genera from the suborders Archeoceniina, Fungiina, Meandrinina, Microsolena and Poritina are described. The genera *Multicolumnastraea* and *Favoseria* are discussed in detail. One genus and its species are described as new: *Filkornia* is a colonial coral genus with very large calices that belongs to the Late Cretaceous family *Felixaraeidae*. All species are colonial corals from a shallow marine environment and many of them are known from localities outside the study area, mostly from the Maastrichtian of Jamaica. [original abstract]

LÖSER, H.

2012i. *Podoseris* - a poorly known solitary coral from the Albian of England (Scleractinia). – *Palaeodiversity*, 5: 7-11; Stuttgart.

D • k • GB

The late Early Cretaceous coral genus *Podoseris* has been revised on the basis of the type material of its type species and topotypical material from the type locality. *Podoseris* is a small solitary cupulate to tympanoid coral, which is endemic to the Hunstanton Red Chalk in Norfolk, England. The genus is characterised by almost compact pennular septa. It is therefore assigned to the family *Synastraecidae*. *Podoseris* counts with eight species, which are considered synonymous, with the exception of the Jurassic species, which does not belong to this genus. [original abstract]

MARTINDALE, R.C., BOTTJER, D.J. & CORSETTI, F.A.

2012. Platy coral patch reefs from eastern Panthalassa (Nevada, USA): Unique reef construction in the Late Triassic. – *Palaeogeography, Palaeoclimatology, Palaeoecology*, 313-314: 41-58; Amsterdam.

C • t • USA

Upper Triassic (Lower Norian) reefal buildups near Mina, Nevada, represent some of the earliest scleractinian coral reefs from eastern Panthalassa. The small patch reefs (~ 20–40 m high and ~ 50–150 m wide, obvious metre-scale elevation above the surrounding sediments) are from the Luning Allochthon and grew on an inner to middle ramp or in a deep lagoon. The Mina patch reefs were constructed by several different coral ecomorpho- types (platy, tabular, domal/massive, and branching corals) interpreted to have had zooxanthellate symbionts, and record subtle coral zonation within the reefs. Based on modern coral ecomorphotypes, platy to tabular corals at Mina grew in the lower euphotic zone (stressed by low light conditions), and the massive or domal corals inhabited shallower water (possibly above fair weather wave base) and were stressed by wave energy. Unlike most other Late Triassic reef ecosystems where phaceloid branching corals or calcareous sponges constitute the principal bioconstructors, the platy to tabular corals were the primary builders in the Mina patch reefs. The Mina reefs are also unique because cryptic and cavernous internal environments, epibionts, cryptobionts, and thick microbial crusts are rare or absent. The combination of platy coral dominance with the lack of epibionts/cryptobionts/microbial crusts suggests that the Norian reefs from Mina, Nevada represent a unique form of scleractinian reef construction from the Late Triassic. [original abstract]

MERBELER, J.

1984. Fossilien aus dem Schratzenkalk. – *Fossilien*, 5: 234-236; Weinstadt (Goldschneck Verlag).

D • k • D

MORYCOWA, E.

2012. Corals from the Tithonian carbonate complex in the Dąbrowa Tarnowska–Szczucin area (Polish Carpathian Foreland). – *Annales Societatis Geologorum Poloniae*, 82: 1-38; Kraków.

N • j • PL

The studied corals have been collected from cores of boreholes located in the central part of the Polish Carpathian Foreland in the Dąbrowa Tarnowska–Szczucin area. The Jurassic complex in this area presents a continuous stratigraphic section from the Upper Callovian to Tithonian, locally passing to the Lower Cretaceous (Berriasian). Its thickness exceeds 1,100 m in this area. This complex is composed of marine, mainly shallow-water deposits. The corals occur within the upper part of the Upper Jurassic (Tithonian) deposits, almost entirely within the Swarzędów Limestone Formation (= coral-algal limestone formation). This occurrence marks the northern most extent of Tithonian shallow-water corals in Poland and one of the northern most in Europe. 42 coral species (among them 14 in open nomenclature) were identified in deposits of this formation. They include two new species: *Complexastrea magna* and *Complexastrea dabroviensis*. All taxa, except one, belong to the order Scleractinia. The described assemblage displays a Late Jurassic character. The broader stratigraphic span is assigned to some species, which are quoted from the Middle Jurassic and some species lasted until the Early Cretaceous, Berriasian and/or Valanginian. [original abstract]

PANDEY, D.K., FÜRSICH, F.T., GAMEIL, M. & AYOUB-HANNA, W.S.

2011. *Aspidiscus cristatus* (Lamarck) from the Cenomanian of Wadi Quseib, East Sinai, Egypt. – *Journal of the Palaeontology Society of India*, 56: 29-37.

D • k • ET

Aspidiscus cristatus (Lamarck) has been described and illustrated from three coral-bearing horizons of the Cenomanian sedimentary succession of Wadi Quseib, East Sinai, Egypt. The new specimens show well-preserved internal microarchitectures, which corroborate its assignment to family *Latomeandridae* Alloiteau, 1952. The stratigraphic range of *Aspidiscus cristatus* suggests that it can be used as index for the Middle to early Late Cenomanian. Based on the morphology of *Aspidiscus cristatus* and its consistent record, it is suggested here that the coral had a narrow facies range, being adapted to a free mode of life on soft, marly to argillaceous substrate, in low-energy environments subjected to high rates of sedimentation. [original abstract]

SHEPHERD, H.M.E., STANLEY, G.D. & AMIRHASSANKHANI, F.

2012. Norian to Rhaetian scleractinian corals in the Ferdows patch reef (Nayband Formation, East Central Iran). – *Journal of Paleontology*, 86, 5: 801-812; Lawrence, Kan.

D • t • IN

The Nayband Formation is one of the best known sedimentary units in central Iran. The type section consists of a thick succession of shale, siltstone, reef limestone and sandstone that is subdivided into five distinct members: Gelkan, Bidestan, Hoz-e-Sheikh, Howz-e-Khan and Qadir. Abundant and well-preserved framework-building scleractinian corals are included among the macrofossils of the Nayband Formation; these corals characterize the formation and are the subject of this study. The Hassan-Abad section, located in northeast Iran in Lute Block (northwest of Ferdows city), was chosen for detailed study and sampling. Analysis of sedimentary lithofacies and faunal assemblages in the Bidestan and the Howz-e-khan members indicate both biostromal and biohermal characters for the former shallow-water patch reefs and support a Norian to Rhaetian age. The useful biostratigraphic hydrozoan *Heterastridium conglobatum* was studied along with 14 taxa of scleractinian corals: *Stylophyllopsis rudis*, *Distichophyllia norica*, *Paradistichophyllum dichotomum*, *Retiophyllia frechi*, *Retiophyllia norica*, *Retiophyllia robusta*, *Chondrocoenia schafhaeutli*, *Chondrocoenia ohmanni*, *Astraeomorpha crassisepta*, *Astraeomorpha confusa*, *Astraeomorpha minor*, *Procycolites triadicus*, *Pamiroseria rectilamellosa*, and *Eocomoseris ramosa*. These fossils clarify the stratigraphy of the Nayband Formation, as well as provide new information on the patch reefs and the framework constructors of these reefs. [original abstract]

ZHANG, KAI-JUN, ZHANG, YU-XIU, TANG, XIAN-CHUN & XIA, BIN

2012. Late Mesozoic tectonic evolution and growth of the Tibetan plateau prior to the Indo-Asian collision. – *Earth-Science Reviews*, 114: 236-249; Amsterdam.

C • k • RC

The elevation of the Tibetan plateau is a revolutionary event in the Earth history, which resulted in change not only of Cenozoic regional and global climate but also of monsoon intensity. A critical aspect for the development of the Tibetan plateau that remains open to intense debate is whether the collision among the Tibetan continental blocks or the subduction of the Tethys prior to the Indo-Asian collision in the Cenozoic contribute to the plateau growth. We propose here that an Andean-type orogen could have been present in southern Tibet from the

Jurassic to Early Cretaceous, but collapsed during the Middle Cretaceous, based on a synthesis of existing structural, sedimentary, geochronological, and geochemical data. The orogeny is marked by north-verging Jurassic – Early Cretaceous thrusting in the Lhasa block, a result of flat subduction of the Yarlung-Zangpo Neo-tethys that is recorded by a narrow belt of 205–174 Ma adakitic rocks along the southernmost margin of the Lhasa block. Denudation of the orogen produced a thick (up to 15 km) sequence of Jurassic turbidites and molasse-type sediments on the northern Lhasa block. Widespread Middle Cretaceous (135–100 Ma) postorogenic, strongly peraluminous to calc-alkaline, magmatism and extensional deformation in the Lhasa block and an extensive marine transgression in Tibet indicate that the

orogen broke down due to extension resulting from lithosphere delamination and asthenosphere upwelling. Meanwhile, the north-dipping subduction of the Bangong Meso-tethys produced a wide Jurassic – Middle Cretaceous magmatic arc along the southern margin of the Qiangtang block. Findings of 132–108 Ma-aged ophiolites rich with Middle Cretaceous radiolarians in central Tibet indicate that the Bangong Meso-tethys did not close until the Late Cretaceous. Repeated flat slab subduction of the Yarlung-Zangpo Neo-tethys occurred during the Late Cretaceous (90–78 Ma) as indicated by the adakites in the southernmost Lhasa block, which, together with the ongoing Qiangtang–Lhasa collision, could have contributed to the growth of the Tibetan plateau. [original abstract]