# Fossil
# Cnidaria & Porifera

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## TREASURER

VACANCY !!!

## CORRESPONDENTS

**America, Central and South** - Carl W. Stock, George D. Stanley
**Australia** - Gregory Webb
**Austria, Switzerland** - Bernhard Hubmann
**Belgium, Netherlands** - Edouard Poty
**Bulgaria, Czech Republic, Greece, Hungary, Romania, Slovenia, Turkey** - Arnost Galle
**Canada** - Graham A. Young
**Czech Republic** - Arnost Galle
**China** - XiangDong Wang, XunLian Wang
**CIS / former Soviet Union** - Irena Yu. Bugrova, Maria Hecker
**France** - Jean-Pierre Cuif, Bernard Lathuiliere
**Germany** - Michaela Bernecker, Dorte Janussen
**Greece** - Arnost Galle
**Hungary** - Arnost Galle
**Ireland** - Ian Somerville
**Italy** - Sergio Rodriguez
**Japan** - Isao Niikawa, Akihiro Kano
**Netherlands** - see Belgium
**Poland** - Boguslaw Kolodziej
**Portugal** - see Italy
**Romania** - Arnost Galle
**Scandinavia** - Mari-Ann Motus
**Slovenia** - Arnost Galle
**Spain, Portugal, Italy** - Sergio Rodriguez
**Switzerland** - see Austria
**Turkey** - Arnost Galle
**United Kingdom** - John Nudds
**USA, Central and South America** - Carl W. Stock, George D. Stanley

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**Pre-Carboniferous Rugosa** M. Coen-Aubert
**Carboniferous / Permian Corals** G. Webb
**Tabulata / Heliolitida** Kl. Oekentorp
**Mesozoic / Cenozoic Corals** H. Loeser

## IASFCP PAGE

Although not quite official, this is hosted by the University of Silesia, Poland, at **http://kse.wnoz.us.edu.pl/iascp.htm** and is more or less frequently updated by Tomasz Wrzolek (wrzolek@us.edu.pl); the page contains, besides current reports, also Statutes of IASFCP and updated list of e-addresses of IASFCP Members and Sympathizers.

## LETTER FROM THE EDITORS

Dear Friends and Colleagues,
Due to financial problems, we present the current *FC&P* issue only as on-line version… We can promise that there will be no printed volumes as long as there is no Treasurer of our Association (sort of black-mail!). There is a chance to have the current volume printed when and if the financial matters are settled.
Sincerely yours,
Ian Somerville Tomasz Wrzolek

**Cover illustration**: *Diffusolasma diffusum* (Wrzolek) from the Devonian (Uppermost Frasnian) of the Holy Cross Mountains, Poland; specimen GIUS 402J123, the same as in Wrzolek 1993 (Rugose Corals from Kowala Formation…*Acta Palaeontologica Polonica*…), fig. 13C, D; magnified x1,5.

**INSTRUCTIONS TO CORRESPONDENTS**

Help the editor(s) of *Fossil Cnidaria & Porifera* and try to adopt these few simple principles:

1) RTF format, please – try to make it as simple as possible!
2) Times New Roman, 12 points, single space;
3) **boldface** for authors, **dates** of publication and volume **numbers**;
4) *italics* for *journal titles* (do not abbreviate! DO NOT ABBREVIATE JOURNAL TITLES unless absolutely necessary - it may happen indeed that lengthy journal title will suppress all the bibliographic note);
5) no extra formatting, please! **please! please!!! pleeeeease!!!!!** PLEASE, avoid any hidden formats, special diacritical marks and all these lovely surprises...
6) the editor(s) give the final touch and make the layout decisions; your reports may be fragmented according to chapters as presented in previous *FC&P* volume (**34**) or as at **http://kse.wnoz.us.edu.pl/iascp.htm**; this may change from volume to volume, as necessity dictates, i.e. changing data volume in various fields of your (our!) research;
7) the results of editorial work are presented promptly on-line at the sites named above and then the correspondents are expected to make their corrections and return them to the editor(s) prior to printing…
8) the editor(s) indicate authorship of contributions either at headlines or after particular entry;
9) [square brackets] are used to do this in the latter case, also in case of non-original remarks and comments;
10) please have a look at the entries of the other authors and consider what can be improved in your reports… IF POSSIBLE PLEASE SUPPLY NOTES WITH KEYWORDS AND ABSTRACTS... DO NOT HESITATE TO ABBREVIATE LENGTHY SUMMARIES... YOUR COMMENTS ARE WELCOME [in square brackets!];
11) please send info on published papers, not "in preparation", "submitted", "in review", etc. - we will wait patiently... If necessary give short notes on these projects to „news and views";
12) avoid abstracts, posters, etc. (to "news & views" please!).

Thank you! [Tomasz Wrzolek]

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# THE ASSOCIATION

## REPORT FROM Xth GENERAL ASSEMBLY of IASFCP

**St Petersburg, August 16. 2007 / by Olga Kossovaya**

### A) Report for term 2003-2007

### A1) Members per country

| | | | |
|---|---|---|---|
| **Argentina 2** | **Egypt 1** | **Morocco 3** | **Switzerland 3** |
| **Australia 11** | **UA Emirates 1** | **Myanmar 2** | **Tajikistan 3** |
| **Austria 2** | **Estonia 2** | **Netherlands 2** | **Turkey 1** |
| **Belgium 4** | **France 19** | **Norway 3** | **Ukraine 1** |
| **Belarus 1** | **Germany 66** | **Poland 11** | **Uzbekistan 2** |
| **Brasil 2** | **Hungary 1** | **Portugal 1** | **United Kingdom 19** |
| **Bulgaria 1** | **India 1** | **Romania 1** | **USA 50** |
| **Canada 16** | **Italy 6** | **Russia 17** | **Venezuela 1** |
| **China 17** | **Japan 32** | **Slovenia 1** | **Vietnam 5** |
| **Czech Rep. 6** | **Ireland 1** | **Spain 14** | |
| **Denmark 1** | **Korea 2** | **Sweden 1** | |

**total 340**

### A2) Deceased Members

**Erik FLÜGEL**
Institute for Palaeontology,
University of Erlangen-Nürnberg
April 14th, 2004

**Tamara ILJINA**
Palaeontological Institute Moscow
2005

**Shiro KAWAGUCHI**
Okayama University
2005

**Björn NEUMAN**
Institute for Geology,
Palaeontology and Historical
Geology, University of Bergen /
May 17th, 2006

**William A. OLIVER**
United States Geological Survey
October 8th, 2005

**Alexander von SCHOUPPE**
Forschungsstelle für
Korallenpaläozoologie, University
of Münster / July 6th, 2004

**Pierre SEMENOFF-TIAN-CHANSKY**
Musee nationale de l´Histoire naturelle / October 17th, 2003

**Günter TIDTEN**
December 27th, 2005

**Vera SYTOVA**
St Petersburg State University
August, 2006

**Inessa ZHURAVLEVA**
Novosibirsk Academy of Science
August, 2007

**B) Results of elections for term 2007-2011**

**President: Olga Kossovaya / Russia**

**Vice Presidents**

**Nancy Budd / USA**
**Markus Aretz / Germany**
**Ewa Roniewicz / Poland**
**Gregory Webb / Australia**
**Stephen Kershaw / UK**

**Secretary: Tomasz Wrzolek / Poland**

**Council Members / Correspondents**

Australasia and others - 5 votes
1 vote (Australia) - **Gregory Webb**
2 votes (Japan) - **Isao Niikawa**, **Akihiro Kano**
2 votes (China) - **XiangDong Wang**, **Xun-Lian Wang** (PR China)

The Americas - 3 votes
1 vote (Canada) - **Graham A. Young**
2 votes (USA, Central and South America) - **Carl W. Stock**, **George D. Stanley** (USA)

Europe I - 6 votes
1 vote (Belgium, Netherlands) - **Edouard Poty** (Belgium)
2 votes (France) - **Jean-Pierre Cuif**, **Bernard Lathuiliere**
1 vote (Spain, Portugal, Italy) - **Sergio Rodriguez** (Spain)
2 votes (UK, Ireland) - **Ian Somerville** (Ireland), **John Nudds** (UK)

Europe II - 4 votes
1 vote (Austria, Switzerland) - **Bernhard Hubmann** (Austria)
2 votes (Germany) - **Michaela Bernecker**, **Dorte Janussen**
1 vote (Scandinavia) - **Mari-Ann Motus** (Estonia)

Europe III - 4 votes
1 vote (Bulgaria, Czech Republic, Greece, Hungary, Romania, Slovenia, Turkey) - **Arnost Galle** (Czech Republic)
1 vote (Poland) - **Boguslaw Kolodziej**
2 votes (CIS / former Soviet Union) - **Irena Yu. Bugrova**, **Maria Hecker**

**C) *Fossil Cnidaria & Porifera* newsletter - Editors' Report by Xiangdong Wang (PR China), Tomasz Wrzolek (Poland)**

*Fossil Cnidaria & Porifera* printed volumes for 2003-2007
**2003 32.2** edited by Kl. Oekentorp & St. Schroeder: 86 pp 350 copies
**2004 33.1** edited by XD Wang & T. Wrzolek: 106 pp, 500 copies
**2005 33.2** edited by T. Wrzolek & XD Wang: 55 pp, 400 copies
**2006 34** edited by T. Wrzolek & XD Wang: 132 pp, 400 copies

**D) IASFCP - Treasurer's Report / by Tetsuo Sugiyama (Japan)**

**2004-2005/01/01** (In Japanese Yen)
**Income**: Subscription: **152,960**
**Expenditure**:
Printing vol. 33.1: 64,574
Account dues: 5,600
Sending, Stationary, Web maintenance: 25,830
Total expenditure: **96,004**
**Balance: 56,956**

**2005/01/02-2007/08/03** (In Japanese Yen)
**Income**:
Balance: 56,956
Subscription: 48,600
Total **105,556**

**Expenditure**:
Printing vol. 33.2: 3500RMBx15.61 = 54,635
Printing vol. 34.1: 4800RMBx15.61 = 74,928
Account dues: 1,960
Total expenditure **131,523**
**Balance: -25,967**

**Income** during the symposium: **117,300**
Happy **BALANCE 91,333** (Japanese Yen)

**E) *Fossil Cnidaria & Porifera* newsletter - Editors for 2007-2011: Ian Somerville (Ireland) and Tomasz Wrzolek (Poland)**

**F) IASFCP Treasurer for 2007-2011: VACANCY !!!**

**G) Thanks / by Olga Kossovaya (Russia)**

To the organizing committee of the 10th International Symposium on Fossil Cnidaria and Porifera
To the representatives of VSEGEI
To the helpers working in or around the session rooms

**H) Next Symposium / Edouard Poty (Belgium) and Markus Aretz (Germany)**

General Assembly accepted kind invitation to Liege, Belgium.
XIth Symposium will take place at the Liege University, at the Institute of Zoology / Museum of Sciences.
List of suggested field trips includes: 1) Classical Devonian and Carboniferous of the Ardennes and Avesnois, 2) Devonian and Carboniferous reefs of Belgium, 3) Palaeozoic and Mesozoic of Boulonnais, 4) Jurassic reefs of northern France, 5) Southern Germany - corals, reefs and more... and 6) Morocco?
Organizing Committee is with: Eddy Poty (Liege), Frederic Boulvain (Liege), Marie Coen-Aubert (Brussels), Bruno Mistiaen (Lille) and Markus Aretz (Koeln).
**Organizers suggest mid- or end-August 2011 as the best date.**

**REPORT ON Xth INTERNATIONAL SYMPOSIUM "FOSSIL CNIDARIA & PORIFERA" / St Petersburg, Russia, August 5-22, 2007 / by Olga Kossovaya**

The X International Symposium Fossil Cnidaria and Porifera was held in the All-Russian Research Geological Institute (VSEGEI), St. Petersburg, Russia from August 5-22, 2007.
This tenth jubilee Symposium of the Fossil Cnidaria and Porifera Association was dedicated to the Academician of the Russian Academy of Science, Boris Sokolov, one of the "founding fathers" of the Association and the President of the First Symposium in Novosibirsk in 1971.

The Sponsors of X Fossil Cnidaria and Porifera Symposium were the Ministry of Natural Resources, Russian Academy of Science, National Geological committee of Russia, All-Russian Research Geological Institute, Russian Foundation of Basic Research, St. Petersburg State University, Institute of Geology of KOMI Scientific Center of RAS and Institute of geology of the Bashkirian Scientific Centre of the Uralian Branch of RAS. The Estonian Technical University was an associated member of the Organizing Committee.

**Honorary Organizing Committee**

Honorary President: B. S. Sokolov – Academician of RAS, Paleontological Institute RAS.
President: O. V. Petrov – Director General of All-Russian Geological Research Institute (VSEGEI).
Vice-President: T. N. Koren´ – Head of Stratigraphy and Paleontology department, VSEGEI;
Members: V. N. Puchkov – Director of Institute of Geology, Bashkirian AS,
D. Kaljo – Head of Paleontology and Stratigraphy department, Institute of Geology at Tallinn University of Technology,
I. V. Buldakov – Head of Geological Faculty of St. Petersburg State University.

**Executive Committee**

President of St. Petersburg Symposium: Olga Kossovaya, VSEGEI.
Scientific secretaries: Valentina Stolbova, Geological museum of Mining

Academy, St. Petersburg, Yuri Zaika, VSEGEI.
Members: Irina Evdokimova (VSEGEI), Tatiana Tolmacheva (VSEGEI), Yuri Savitsky (St. Petersburg State University), Anna Suarkova (VSEGEI), Elena Sokiran (VSEGEI), Vladimir Tsyganko (Institute of Geology, KOMI AS), Vladimir Lukin (Institute of geology, KOMI AS), Mari-Ann Motus (Institute of Geology at Tallinn University of Technology); Olle Hints (Institute of Geology at Tallinn University of Technology), Elena Kulagina (Institute of Geology Bashkirian AS), Irina Bugrova (St. Petersburg State University), Vladimir Arkad´ev (St. Petersburg State University), Sofia Stepan´antz (Zoological Institute RAS), Aleksandr Grybelnyi (Zoological Institute RAS), Viktor Ogar´ (Kiev University).
English Editing: Ian Somerville (University College, Dublin, Ireland).

**Report**

The subjects of Symposium embraced the different aspects of fundamental and applied palaeontology, biostratigraphy, palaeoecology, and biogeography of various coral and poriferan groups. The general problems of palaeoclimatology, ecosystem evolution and patterns of reef and build-ups distribution were highlighted.
About 120 participants from the USA, Canada, Japan, China, Korea, Norway, Germany, France, Spain, Italy, Poland, England, Ireland, Belgium, Estonia, Ukraine, Uzbekistan, Tajikistan and Russia took part in the Symposium. In total present were representatives of 24 countries.
The Opening Ceremony commenced with comments by the General Director of VSEGEI, Oleg Petrov, who cordially welcomed the participants of the Symposium to St. Petersburg. In his opening address he highlighted the background significance of the palaeontological and stratigraphical studies in the Geological Committee of Russia, that was later succeeded by the All-Russian Research Geological Institute.
During the 4 days of the meeting there were 78 oral and poster presentations, including a special thematic session dedicated to the memory of the late Bill Oliver. The working language was English. The Program and Abstracts volume had been published prior to the beginning of the meeting. A notable event during the meeting was the gathering of participants who had been present in the First symposium in Novosibirsk in 1971.

Immediately following the Symposium participants communicated their gratitude to the Director of the All-Russian Geological Institute and the organizing committee for the excellent organization of the Symposium. In their responses the participants recognised and highlighted the following features of the Symposium:

- The developments in multidisciplinary research, including the involvement of methods of isotopic geochemistry, biodiversity dynamics of the reef-building organisms, and ecosystem evolution. These, together with the continuation of traditional and evolutionary palaeontological investigations, is the reliable basis for progress in fossil Cnidaria and Porifera research, aided by the application of palaeontological results in general.
- The practical usage of research based on modern advances of interdisciplinary sciences in geology and biology leads to more accurate dating of strata, refinement of correlation and resolution ability of stratigraphical results.
- The investigation of the ancient and modern reefs and reef-building organisms is of special significance, because of the value this knowledge gives in the prospecting for oil and gas reservoirs.

During the Symposium a special working group on Scleractinia carried out their meeting and presented special resolutions, adopted then by the Symposium (see appendix below).

During the Symposium the special exhibition of books on Fossil Cnidaria and Porifera published in Russia was held in the Institute library. The numerous collections of corals and poriferans were available in CNIGR museum. The well organized curation was noted by many visitors to the Palaeontological Department Museum.

The organizing committee arranged several cultural events including trips to Catherine the Great Palace, Peterhoff and to the Hermitage. Special social events included a guided sightseeing tour of the city of St Petersburg and a symposium dinner in a folk restaurant on the outskirts of St Petersburg.

The Program of the Symposium included four geological excursions: (i) on Lower Carboniferous of Moscow Syncline, (ii) on the Palaeozoic section of the Polar Urals, (iii) on coral and reef facies of the Devonian, Carboniferous and Permian of the South Urals, and (iv) on Lower

Palaeozoic sections and corals of Estonia. About 60 participants were involved in these excursions.
During the pre-Symposium excursion to the Lower Carboniferous deposits of the north-western part of the Moscow Syncline, the key section along the Msta River was examined. Additionally, visited was the Uglovka Quarry to collect rugose corals. The trip was featured in the local newspaper of the town of Borovichi. Also, visited was the Iverian Monastery - the architectural monument of 17th Century, which is situated on one of the 20 islands of Valdai Lake.
The Kozhim Section was the object of the second pre-Symposium excursion to the Palaeozoic deposits of the Subpolar Urals. This key-section includes the stratigraphic interval from the Ordovician to Carboniferous. Travelling by landrovers and staying in field camps the participants of the excursion studied more than 30 km of sedimentary succession.
Unique geological objectives were demonstrated during the post-Symposium excursion to sections and reefs of the Palaeozoic of Bashkiria. The Famennian deposits yielding large numbers of stromatoporoids and the Devonian/Carboniferous boundary in the Sikaza River section were studied first. Visited were also Permian reef massifs representing part of the barrier reef traceable along the Urals from north to south for more than 2000 km.
The Fourth excursion (post-symposium) was carried out in the Lower Palaeozoic deposits of Estonia. It evoked a great interest. Participants had the possibility to collect corals and enjoy the magnificent views of the Baltic Sea.

**Acknowledgements**

This report represents an edited version of the presentation made by the President Dr Olga Kossovaya during the Symposium at St Petersburg. I am most indebted to her for kindly providing me with all the necessary material.
Ian Somerville / 14th January, 2008.

## Appendix

### Resolutions proposed by the Working Group on Scleractinian Coral Taxonomy (WGSCT) and adopted by the Symposium

The Working Group on Scleractinian Coral Taxonomy (WGSCT) at a meeting held on 14th August 2007 in St Petersburg, during the Xth International Symposium on Fossil Cnidaria and Porifera

**recognized**

that the influx of new molecular and microstructural data on scleractinian corals require a tight cooperation between the specialists working on modern and fossil scleractinians in order to propose a new, reliable scheme of phylogeny and a framework of classification.
In relation to this, the WGSCT

**supports**

to its fullest extent current efforts to publish a new edition of the Treatise on Invertebrate Paleontology (coordinating authors: Jaroslaw Stolarski, Stephen Cairns, Ann Budd, George Stanley) and to develop associated data-base infrastructure (Corallosphere project by Ken Johnson and coordinating authors of the Treatise on Invertebrate Paleontology).
Given the rapid advances presently taking place in scleractinian coral taxonomy, and given the fundamental role played by scleractinian corals, as primary framework builders of coral reefs, WGSCT

**recognizes**

the necessity to communicate effectively and efficiently to the coral reef scientific community at large, with special reference to geologists, ecologists, conservationists and managers, the recent and on-going advances in scleractinian coral taxonomy;

**recommends**

the inclusion of a session "New trends in taxonomy of fossil and modern scleractinian corals" in the framework and scientific program of the 11th International Coral Reef Symposium (ICRS) 2008 (Fort Lauderdale, Florida). This session should focus on the advances in the field of skeletal studies, including microstructural characteristics, morphometrics and fractal analysis, in addition to that brought about by molecular techniques. This recommendation should be passed on to the organizers of the 11th ICRS.

Participants in the meeting:
Francesca Benzoni, Michaela Bernecker, Nancy Budd, Jean-Pierre Cuif, Vyara Idakieva, Boguslaw Kolodziej, Bernard Lathuiliere, Michel Pichon (organizer), Ewa Roniewicz, George Stanley, Jaroslaw Stolarski, Agostina Vertino, Carden Wallace, Vassil Zlatarski.

## OBITUARIES / SYLVIE BARTA-CALMUS (1937 – 2007)

Sylvie Barta died on November 20, 2007 shortly after her 70th birthday. She was born in Paris and lived in diverse places within the Paris area before settling in Etampes, the historical stratotype of the Stampian. After completing her geological and mineralogical studies, in the sixties, she was a member of Alloiteau's team, and had the charge of bringing order to Paleogene corals. In 1973 she defended a thesis entitled "Revision de collections de Madreporaires provenant du Nummulitique de la France du Sud ouest, de l'Italie et de la Yougoslavie septentrionale". In this work and in some other papers, she created twenty new generic names. Sylvie was known to many of us because she was often there at the Paris Museum to help us in finding samples in collections or books in libraries, welcoming us with her kindness and simplicity. As her expertise increased in bibliographical research, she became more and more involved in historical sciences. For instance, her paper on d'Orbigny is now a widely-cited reference (Barta-Calmus, 2002). She finished her career as "ingenieur de recherche CNRS" and retired in 2002.
She endured a rather difficult life because she suffered from various diseases. I always knew her walking with a limp - from about her 50th birthday she suffered from tinnitus and of rheumatoid arthritis. She was a caring mother and she brought up her two children, Eric-Francois and Benoite. Despite all difficulties she was very active for her town and became president of several cultural associations, among them the Patrimoine et musee d'Etampes. I retain the memory of a simple, efficient, very kind and nice person.

**Barta-Calmus, S. 1973.** Revision de collections de Madreporaires provenant du Nummulitique du Sud-Est de la France, de l'Italie et de la Yougoslavie septentrionale. These Univ. Paris-VI, 694 pp.

**Barta-Calmus, S. 2002.** Une ouvre considerable, multiple, diversifiee, meconnue: les publications du naturaliste-voyageur et fondateur de la paleontologie stratigraphique, Alcide Dessalines d'Orbigny (1802-1857): *Comptes Rendus Palevol*. **1** (7): 663-680.

[Bernard Lathuiliere: with thanks to Francoise Debrenne for providing informations and the photo, to Ann Budd for improving his English and to Eric-Francois for improving the content]

## VYTAUTAS LEONO LELESHUS
## 25 March 1930 – 18 August 2007

Vytautas Leono Leleshus was born in Kaunas, Lithuania. He graduated from the State University of Vilnius in 1949. In 1955 he arrived in Tajikistan speaking neither Russian nor Tajik and started working in the Tajik Geological Board. In a very short period of time Leleshus mastered the Russian language and assimilated easily into the way of life of the native people. He started studying Tabulata and in 1961 in Leningrad he defended his Ph.D. thesis "Silurian Tabulata of Zeravshan-Gissar mountain area". In 1962 he was appointed at the Institute of Geology of Academy of Sciences of Tajikistan where he worked for the rest of his life. Leleshus defended his Doctor of Science degree thesis "Tabulata of Paleozoic of Tajikistan" in 1973 in Novosibirsk.

Dr. Leleshus published over 150 scientific papers, some of them in English. The main results of his most recent investigations are briefly presented below. Dr. Leleshus studied the Palaeozoic corals of Tien-Shan and the Pamirs. He investigated tens of thousands of specimens of Palaeozoic (Ordovician to Permian) tabulate corals, classified them into about 200 species, 80 genera and 20 families. Among these, about 30 genera and 50 species of corals were established by Leleshus as new to science. They include such interesting genera as *Rudakites*, *Daljanolites*, *Hemithecia*, *Fossoporella*, *Ducdonia*, *Innaepora* and *Avicenia*.

Leleshus presented important observations on morphology, phylogeny, palaeoecology, palaeogeography, evolution and systematics. For example, he established the alternation of epochs of flourishment and decline in the history of Tabulata. The great change of taxonomic composition of these

corals happened at the time of crises after which started new epochs of their divergence and flourishment. Dr. Leleshus tried to link these fluctuations to the rotation of the Solar System round the centre of our Galaxy, and so he supported the ideas of V. V. Drushchits and V. N. Shimansky who divided the Phanerozoic into 4, and not 3 eras, with two periods in each era. On the basis of geographic variability patterns of Tabulata V. L. Leleshus established the position of the equator in the Late Ordovician, Silurian and in the Early Devonian.

Dr. Leleshus formulated the mathematic formulas describing the tempo of evolution of Tabulata and Heliolitida, the extent of their taxonomic diversity and the degree of variability of features. His formulas were presented in the revised "Treatise of invertebrate paleontology, Pt F, Coelenterata". Moreover, he was extensively cited in this "bible of palaeontology", in recognition of his achievements.
He characterized the biostratigraphy and evolution of the organic world of the Phanerozoic of Middle Asia, with five maxima of biodiversity, easily correlatable with those of the other regions of the Earth.

Dr. Leleshus proved the presence of Llandoverian deposits in the Zeravshan-Gissar tectonic zone, formerly considered as Wenlockian-Ludlovian in age. He was the first to divide biostratigraphically the Lower Silurian deposits of Mt Daurich. Subsequently, this section was explored in details by other geologists, who collected and studied the Rugosa (A. I. Lavrusevich), Crinoidea (T. V. Shevchenko), Brachiopoda (G. N. Menakova) and Stromatoporoidea (G. S. Grinenko). As a result, this profile became the local reference section of the Lower Silurian of Zeravshan-Gissar mountain area of Central Tajikistan.

Dr. Leleshus, together with V. A. Kuznetzov proved the presence of Silurian and Devonian deposits in Southern Gissar. These deposits were considered previously as Upper Palaeozoic. He also established the presence of Lower Silurian deposits in the Northern Pamirs (Basin of Obikhingou River) together with V. V. Sergeev, A. A. Sabirov and other geologists.

Dr. Leleshus took part in numerous symposia (Novosibirsk, 1963, 1971; Tallinn, 1967; Moscow, 1969, 1973; Tbilisi, 1978; Dushanbe, 1983; Vladivostok, 1987). His materials were presented at international symposia

(Warszawa, 1979; Madrid, 1995). He took an active part in collaboration with foreign scientists. In the years 2000 and 2002 he visited the German universities of Muenster-in-Westfalen, Berlin and Muenchen, where he established scientific contacts, especially with Drs. Kl. Oekentorp, D. Weyer and St. Schroeder. He also prepared and organized an international scientific expedition to Shishkat section (Turkestan-Alai mountain area).

Dr. V. L. Leleshus made a valuable contribution to science. He was a kind, witty and very respected man. He died suddenly on 18 August 2007.

Presented below is the list of recent scientific publications of Dr. Leleshus (according to his personal data):

**Leleshus V. L. 1986.** About the growth of specialization of Tabulata at the process of their evolution. In: Rozhnov S.V. (editor): Phanerozoic reefs and corals of SSSR: 47-53, Moscow: Nauka [in Russian].

**Leleshus V. L., Sergeev V. V., Nikolenko V. M., Sabirov A. A., Talypova E. Kh. 1986.** Silurian deposits of the Basin of Obikhingou River. *Doklady Akademii nauk Tadzhikskoy SSR* **29** (12): 755-757, Dushanbe [in Russian].

**Leleshus V. L. 1988.** Geological periods are cardinal stages of evolution of organic world. *Izvestija Akademii nauk Tadzhikskoy SSR, Otdelenie phiziko-matematicheskikh, khimicheskikh i geologicheskikh nauk* **2**: 56-62, Dushanbe [in Russian].

**Leleshus V. L., Kashin A. A., Sergeev V. V., Nikolenko V. M. 1988.** Carboniferous deposits of the Basin of Obikhingou River. *Doklady Akademii nauk Tadzhikskoy SSR* **31** (5): 342-345, Dushanbe [in Russian].

**Leleshus V. L. 1989a.** Organic world of Ordovician and Silurian of Middle Asia. *Paleontologicheskiy zhurnal* **1**: 25-35, Moscow [in Russian].

**Leleshus V. L. 1989b.** Tectonic regularity of sediments accumulation in Paleozoic of Middle Asia. *Doklady Akademii nauk Tadzhikskoy SSR* **32** (4): 259-262, Dushanbe [in Russian].

**Leleshus V. L. 1989c.** Tectonic regularity of sediments accumulation. *Doklady Akademii nauk Tadzhikskoy SSR* **32** (8): 544-547, Dushanbe [in Russian].

**Leleshus V. L. 1990a.** Tectonic asymmetry of mountain systems of Middle Asia. *Izvestija Akademii nauk Tadzhikskoy SSR, Otdelenie phiziko-*

*matematicheskikh, khimicheskikh i geologicheskikh nauk* **115** (1): 82-84, Dushanbe [in Russian].

**Leleshus V. L. 1990b.** Organic world of Devonian of Middle Asia. *Paleontologicheskiy zhurnal* **2**: 26-36, Moscow [in Russian].

**Leleshus V. L. 1990c.** Flourishing and crises in evolution of corals. *Paleontologicheskiy zhurnal* **4**: 15-22, Moscow [in Russian].

**Leleshus V. L. 1991a.** Paleozoogeographic microprovinces in Silurian of Middle Asia. *Izvestija Akademii nauk SSSR, Serija geologicheskaja* **2**: 82-89, Moscow [in Russian].

**Leleshus V. L. 1991b.** Regional differentiation of Carboniferous and Permian Tabulata of Tajikistan. *Doklady Akademii nauk Tadzhikskoy SSR* **34** (2): 112-114, Dushanbe [in Russian].

**Leleshus V. L. 1991c.** *Darvasia catenata* gen. et sp. nov. is one of the examples of parallelism in evolution of Tabulata. *Doklady Akademii nauk Tadzhikskoy SSR* **34** (3): 188-190, Dushanbe [in Russian].

**Leleshus V. L. 1991d.** Correlation of polyfacial Silurian thicknesses of Middle Asia. Tezisy dokladov 38 sessii Vsesojuznogo paleontologicheskogo obshchestva: 69-70, Novosibirsk [in Russian].

**Leleshus V. L. 1991e.** Subclass Tabulata. Atlas of fossil fauna and flora of Tajikistan. Ordovician: 8-11. Silurian: 48-52. Devonian: 167-171; Pls. XI-XXVIII. In: Djalilov M. R. (main editor). Dushanbe: Donish [in Russian].

**Leleshus V. L. 1991f.** Paleogeography of Middle Asia in Devonian period. *Izvestija Akademii nauk Tadzhikskoy SSR, Otdelenie phiziko-matematicheskikh, khimicheskikh i geologicheskikh nauk* **3**: 54-59, Dushanbe [in Russian].

**Leleshus V. L. 1991g.** Ein Letzter Vertreter der Thecostegitidae (Tabulata) aus dem Mittelkarbon von Darvas (Tadzhikische SSR). *Paläontologische Zeitschrift* **65** (1/2): 71-75, Stuttgart.

**Leleshus V. L., Menakova G. N., Ospanova N. K. 1991.** Silurian system. Stratigraphic essay. Atlas of fossil fauna and flora of Tajikistan. Ordovician. Silurian. Devonian. In: Djalilov M. R. (main editor). 44-47, Dushanbe: Donish [in Russian].

**Leleshus V. L., Nikolenko V. M., Kashin A. A. 1991.** Permian deposits of the North Pamir. *Bulletin Moskovskogo Obshchestva Ispytatieley Prirody, Otdelenie geologicheskoe* **66** (4): 30-36, Moscow [in Russian].

**Leleshus V. L. 1992a.** *Sarbinia* gen. nov. (Tabulata) from Middle Carboniferous of Gissar rock. *Paleontologicheskiy zhurnal* **2**: 117-121, Moscow [in Russian].

**Leleshus V. L. 1992b.** Organic world of the Carboniferous of Middle Asia. *Izvestija Akademii nauk Respubliki Tadzhikistan, Otdelenie nauk o Zemle* **44** (3): 19-24, Dushanbe [in Russian].

**Leleshus V. L.1993a.** Organic world of the Permian of Middle Asia. *Izvestija Akademii nauk Respubliki Tadzhikistan, Otdelenie nauk o Zemle* **1/2** (1): 19-24, Dushanbe [in Russian].

**Leleshus V. L. 1993b.** *Liauria* und *Gundarina*, zwei neue Korallen-Gattungen aus dem Perm des Darvas-Gebirges in Tadzhikistan. *Senckenbergiana lethaea* **73** (1): 32-35.

**Leleshus V. L. 1993c.** Rushes and slumps in evolution. In: Theoretic problems of paleontology and natural science. Tezisy dokladov 39 sessii Paleontologicheskogo obshchestva: 50-52, St Petersburg [in Russian].

**Leleshus V. L. 1993d** [issued in 1996]. Rushes and slumps in evolution. *Doklady Akademii nauk Respubliki Tadzhikistan* **36** (8-9): 460-463, Dushanbe [in Russian].

**Leleshus V. L. 1993e** [issued in 1996]. Foothill´s flexures in Paleozoic of Middle Asia. *Doklady Akademii nauk Respubliki Tadzhikistan* **34** (10-11): 538-541, Dushanbe [in Russian].

**Leleshus V. L. 1993f [issued in 1996].** Tethys Ocean and oil-fields. *Doklady Akademii nauk Respubliki Tadzhikistan* **34** (12): 611-614, Dushanbe [in Russian].

**Leleshus V. L. 1994a.** The cycles of permanent sea accumulation of sediments in Phanerozoic of Middle Asia. *Doklady Rossiyskoy Akademii Nauk* **335** (1): 345-347, Moscow [in Russian].

**Leleshus V. L. 1994b.** The species in paleontology (Paleozoic corals as an example). *Paleontologicheskiy zhurnal* **3**: 34-44, Moscow [in Russian].

**Leleshus V. L. 1994c.** *Minatolites* gen. nov. (Tabulata) from Lower Permian of Darvaz (Tajikistan). *Paleontologicheskiy zhurnal* **4**: 127-130, Moscow [in Russian].

**Leleshus V. L. 1994d.** The study of Fossil Cnidaria and Porifera in Tajikistan. *Fossil Cnidaria and Porifera* **23** (1/1): 38-41, Münster.

**Leleshus V. L. 1994e.** The Genera of Palaeozoic Corals from Middle Asia. *Fossil Cnidaria and Porifera* **23** (1/1): 42-46, Münster.

**Leleshus V. L. 1995a.** Significance of crises for evolution of Paleozoic corals. *Zhurnal obshchey biologii Rossiyskoy Akademii Nauk* **56** (2): 200-209, Moscow [in Russian].

**Leleshus V. L. 1995b.** Additional list of Paleozoic corals from Middle Asia and bibliography. *Fossil Cnidaria and Porifera* **24** (1/A): 42-47, Münster.

**Leleshus V. L. 1995c.** The study of Fossil Cnidaria and Porifera in Tajikistan (1994). *Fossil Cnidaria and Porifera* **24** (1/A): 47-49, Münster.

**Leleshus V. L. 1995d.** Gondwana glaciations and coral distribution in Ordovician. In: Comas-Rengifo M. J., Perejon A., Rodriguez S. and Sando W. J. (Editors): Abstracts of VIIth International Symposium on Fossil Cnidaria and Porifera, Madrid, September 12-15: 46-47, Madrid.

**Leleshus V. L. 1995e.** The study of Fossil Cnidaria and Porifera in Middle Asia (1995). *Fossil Cnidaria and Porifera* **24** (2/B): 73-75, Münster.

**Leleshus V. L. 1995f.** Colonial Rugosa are precursors of crises in evolution of corals. *Paleontologichesliy zhurnal* **4**: 26-33, Moscow [in Russian].

**Leleshus V. L., Mambetov A. M. 1996.** Organic world of Cambrian of Middle Asia. *Geologija i geophizika* **37** (7): 34-38, Novosibirsk [in Russian].

**Leleshus V. L. 1997a.** Glaciations of Gondwana and coral distribution in Ordovician. *Stratigraphiya, Geologicheskaya korreljatsiya* **5** (5): 98-104, Moscow [in Russian].

**Leleshus V. L. 1997b.** Ural-Tien-Shan paleozoogeographic province of the Paleozoic. In: Salibaev G. Kh. (editor): Paleontology and stratigraphy of the Phanerozoic of Tajikistan, vyp. 1: 10-20, Dushanbe: Donish [in Russian].

**Leleshus V. L. 1997c.** Permian tabulates from Afghanistan and the Pamirs. *Coral Research Bulletin* **5**: 191-195, Dresden.

**Leleshus V. L. 1998.** The study of Fossil Cnidaria and Porifera in Tajikistan in 1996-1997. *Fossil Cnidaria and Porifera* **27** (1): 26-28, Graz.

**Leleshus V. L. 2000.** Why did lake Aral begin disappearing? *Geologijos Akiraciai* **3-4**: 39-41, Vilnius.

**Leleshus V. L. 2001a.** Diversity of sea Invertebrates in Paleozoic of Middle Asia. In: Krymgolts N. G. and Modzalevskaja T. L. (editors.): Diversity in the history of the Earth: Tezisy dokladov XLVII sessii Paleontologicheskogo obshchestva pri Rossiyskoy Akademii Nauk: 52-53, St Petersburg [in Russian].

**Leleshus V. L. 2001b.** Eight biodiversity Maxima of Invertebrates in the Phanerozoic of Middle Asia. *Geologia* **33**: 50-55, Vilnius.

**Leleshus V. L., Oekentorp Kl. 2002.** Schischkat (Mittelasien) – Eines der reichsten Fundgebiete unterdevonischen mariner Wirbelloser der Welt. *Coral Research Bulletin* **7**: 95-108; Dresden.

**Schröder St., Leleshus V. L. 2002.** First records of Givetian and Frasnian (Devonian) Rugosa from the Pamir Mountains, Tajikistan. *Alcheringa* **26**: 127-142.

**Leleshus V. L. 2003a.** Five maxima of Biodiversity in the Paleozoic of Middle Asia. *Paleontologicheskiy zhurnal* **37**, 3: 13-20, Moscow [in Russian].

**Leleshus V. L. 2003b.** Five maxima of Biodiversity in the Paleozoic of Central Asia. *Paleontological journal* **37** (3): 230-237.

**Leleshus V. L., Mark-Kurik E., Karatajute-Talimaa V. 2005.** Devonian Fishes from Tajikistan. *Ichthyolith Issues, special publication* **9**: 23-26, St Petersburg.

The present obituary note has been written by Narima K. Ospanova, who used the personal data of V. L. Leleshus and also data from the paper:

**Ospanova N. K, Sabirov A. A, Dronov V. I. et al. 2005.** The greatest investigator of Paleozoic corals of Tajikistan (commemorating the 75th birthday of LELESHUS VYTAUTAS LEONO). *Trudy Instituta geologii Akademii nauk Respubliki Tajikistan*. Nov. ser. Vyp. **4**: 205-209, Dushanbe [in Russian].

**PIERRE SEMENOFF-TIAN-CHANSKY**

**13 September 1925 – 17 October 2003**

So many years after his death, it is our sad duty to write this obituary to remember Dr. Pierre Semenoff-Tian-Chansky, who died suddenly on October 17th, 2003 during divine service in his Orthodox community "Sts Pierre et Paul" at Chatenay-Malabris, where he played an active role. Pierre Semenoff-Tian-Chansky was a long standing member of the International Association for the Study of Fossil Cnidaria and Porifera. He was among the few coral researchers from the western states who attended in 1971 the meeting in Novosibirsk, which would then become the first Symposium of our society. Pierre Semenoff-Tian-Chansky played an active role in our society as a link between western and eastern scientists and contributed significantly to the organisation of the second Symposium of our society in Paris 1975. Pierre, a descendant of the famous Russian explorer Piotr Petrovich Semenoff, conserved the Russian language of his parents, and developed a profound interest and knowledge of Russian culture. The conservation of the Russian roots is continued by his children Irene and Cyril. During the time, when the relation to the eastern countries has been not easy, Pierre Semenoff-Tian-Chansky´s linguistic background and knowledge was a very important bond to overcome the division. The introduction of Russian coral literature into the French coral community at that time was mainly the achievement of Pierre. Although Pierre Semenoff-Tian-Chansky retired from the "Laboratoire de Paleontologie du Museum National de l´Histoire Naturelle" in 1990, he continued to curate the collection of Palaeozoic corals. In his last years the inventory of the "Salle Saharienne", a large collection of material from the geologists of the "Centre de Recherches Sahariennes" [lately "CRZA Centre de Recherches sur les Zones Arides], had become a very time-consuming work for Pierre. It was the founder of that large research unit, Nicolas Menchikoff, who introduced Pierre Semenoff-Tian-Chansky to the CNRS with, as thesis subject, "The Carboniferous Corals of the Sahara", which would become the research topic for his life. After being recruited by the CNRS, Pierre became a member of the large group of coral researchers at the Museum under the auspicions of James Alloiteau. This highly successful group,

which would become known as the "French school for coral research", was later leadered by Pierre Chevalier and Francoise Debrenne. The activities and collections of the group attracted many foreign researchers to come to Paris, and many of us will remember the friendly welcome and atmosphere. Pierre did always his best, and thanks to his broad knowledge, the discussion would go far beyond the coral problem. Most of Pierre´s research activities were connected to Devonian and Carboniferous corals. The exact and detailed observation and description of the morphological characters of the single specimen has always been the basis for his work. Many publications are devoted to the taxonomy, biostratigraphy, and palaeogeography of Carboniferous corals of the Sahara. The studied material came from some historical collections, the collections of Pareyn, and Lemousquet, and also from Pierre´s field campaigns in Algeria and Morocco. His thesis, published in 1974, on the dissepimented solitary corals of Algeria, is a masterpiece. Unfortunately, Pierre could not publish the rich material of colonial and non-dissepimented rugose corals of the same region in the same way. However, first attempts have been made (1975, 1985), and his work will be continued. The work with the historic collection was a further important part of Pierre´s research. Some revisions of important types of the Milne-Edwards collection have been published, but Pierre has put much more effort into that collection. All specimens stored at Paris are perfectly labelled and most specimens contain a small paper with Pierre´s determination. Beyond the taxonomic work, Pierre Semenoff-Tian-Chansky and his colleague Jean-Gabriel Lafuste became famous for the study of the skeletal microstructures. Most of us know that the interpretation of these structures is very difficult, and it has stimulated many discussions. The work on growth-bands in collaboration with Mireille Guillaume marked a further highlight of Pierre´s research.

For many years, Pierre had been the French specialist for Carboniferous rugose corals, and the collaboration with many French geologists who sent him corals had been very fruitful and resulted in publications on various French regions. His remarkable contribution on rugose corals for the Traité de Zoologie merits his standing in the French scientific community.

We shall keep him in best memory! [M. Aretz, F. Debrenne & M. Legrand-Blain]

**Publications of Pierre Semenoff-Tian-Chansky**
in chronologic order

**Semenoff-Tian-Chansky P., Lafuste J & Durand-Delga M. 1961.** Madreporaires du Devonien du Chenoua (Algerie). *Bulletin de la Societe Geologique de France*, Paris (7) III, p. 290-319, Pl. IX.

**Lardeux H., Pillet J. & Semenoff-Tian-Chansky P. 1961.** Sur l´extension orientale du Frasnien dans le synclinal d´Ancenis. *C.R. sommaire des Seances de la Societe Geologique de France*, Paris, N 4, p. 111-112.

**Semenoff-Tian-Chansky P. & Ovtracht A. 1965.** Madreporaires du Carbonifere des Hautes-Corbieres. *Bulletin de la Societe Geologique de France*, Paris (7) VII, p. 722-732, Pl. XXIX-XXX.

**Lafuste J. & Semenoff-Tian-Chansky P. 1968.** Presence d'un systeme de canalicules dans le squelette de Calceola Lamarck. *Comptes-Rendus de l'Academie des Sciences*, Paris, 267 D, p. 1139-1141.

**Chanton-Guvenc N., Huvelin P. & Semenoff-Tian-Chansky P. 1971.** Les deux series d'age Viseen superieur du Jbel Hadid pres Khenifra (Maroc Hercynien central). *Notes du Service Geologique du Maroc*, Rabat, 31, 237: 7-10.

**Gill G. A. & Semenoff-Tian-Chansky P. 1971.** Analogie entre la structure du squelette chez les coraux *Combophyllum* (Devonien) et *Chomatoseris* (Jurassique), en relation avec leur mode de vie. *Comptes-Rendus de l'Academie des Sciences*, Paris, 273 D, p. 49-50, Pl. I.

**Semenoff-Tian-Chansky P. 1971.** Donnees nouvelles sur la microstructure de certains Tetracoralliaires. In: Mezhdunarodnyy paleontologicheskiy simpozium po korallam (Coelenterata), Tezisy Dokladov. Akad. Nauk SSSR, Sib. Otd., Inst. Geol. Geofiz.- Otd. Obshch. Biol., Kom. Izuch. Iskop. Korallov, Novosibirsk, pp. 152-153.

**Perret M. F. & Semenoff-Tian-Chansky P. 1971.** Coralliaires des calcaires carboniferes d'Ardengost (Hautes-Pyrenees). *Bulletin de la Societe d'Histoire Naturelle de Toulouse*, 107, 3-4: 565-594, Pl. XXIX-XXXIII.

**Plusquellec Y. & Semenoff-Tian-Chansky P. 1972.** Revision de Combophyllum osismorum M.E. et H., 1850 (Tetracoralliaire devonien). *Bulletin du Museum National d'Histoire Naturelle*, Paris, (3), 100, Sciences de la Terre 20: 411-462, 7 Pl.

**Semenoff-Tian-Chansky P. 1972.** Contribution a l'etude des Madreporaires simples du Carbonifere du Sahara occidental. *Newsletter Fossil Cnidaria*, 2: 7-9.

**Semenoff-Tian-Chansky P. 1974.** Recherches sur les Tetracoralliaires du Carbonifere du Sahara Occidental. C.N.R.S. Publications du Centre de Recherches sur les Zones Arides, serie Geologie, Paris, 21, *Memoires du Museum National d'Histoire Naturelle*, Paris, C, Sciences de la Terre, 30, 316 pp, 4 tabl., 76 Pl.

**Semenoff-Tian-Chansky P. 1974.** Donnees nouvelles sur la microstructure de certains Tetracoralliaires. *Trudy Instituta Geologii i Geofiziki*, Moscou, 201 (1), 132-144, 2 Pl.

**Semenoff-Tian-Chansky P. 1974.** Coraux et paleogeographie du Carbonifere du Sahara. 2 RAST (Reunion annuelle des Sciences de la Terre), Pont-a-Mousson, p. 348.

**Semenoff-Tian-Chansky P., Lemosquet Y., Pareyn C. & Weyant M. 1975.** Repartition verticale du groupe des Lithostrotionidae du Carbonifere du Bassin de Bechar (Sud-Oranais, Algerie). 3 RAST (Reunion annuelle des Sciences de la Terre) Montpellier, p. 342, 1 tabl.

**Boulin J., Bouyx E., de Lapparent A. F., Lys M. & Semenoff-Tian-Chansky P. 1975.** La transgression du Paleozoique superieur dans le versant nord de l' Hindou Kouch occidental en Afghanistan. *Comptes-Rendus de l' Academie des Sciences*, Paris, 281: 497-502.

**Fontaine, H. & Semenoff-Tian-Chansky P. 1977.** Apercu sur les coraux du Carbonifere de l´Hazarajat et des autres regions de l'Afghanistan. *C.R. sommaire des Seances de la Societe geologique de France*, Paris (1977), fasc. 4: 235-237.

**Semenoff-Tian-Chansky P. 1977.** Tetracoralliaires du Carbonifere. Tetracoralliaires du Permien. In: Pomerol Ch. & Babin Cl. Stratigraphie et Paleogeographie. Precambrien, Ere Paleozoique. Doin Edit., Paris, p.297-300, Pl. 10.8, 10.10.

**Gelard J. P., Bossiere G., Legrand Ph., Semenoff-Tian-Chansky P. & Weyant M. 1978.** Le Devonien d' Ihamziene dans la Dorsale Kabyle (massif de Chellata, Grande-Kabylie): sa stratigraphie et son complexe

volcano-sedimentaire spilitique. *Bulletin de la Societe Geologique de France*, Paris (7) 20, 3: 277-289, 2 Pl.

**Semenoff-Tian-Chansky P. & Nudds J. R. 1979.** Revision de quelques especes de Lithostrotion des Iles Britanniques decrites par Milne-Edwards et Haime (Tetracoralliaires carboniferes). *Bulletin du Museum National d'Histoire Naturelle*, Paris, (4), 1, C, 3: 245-283, 6 Pl.

**Rohart J.-C. & Semenoff-Tian-Chansky P. 1981.** Description des types de Hexagonaria davidsoni (Milne-Edwards et Haime) et de " Pseudoacervularia " profunda (Michelin), tetracoralliaires du Devonien du Boulonnais. *Bulletin du Museum National d'Histoire Naturelle*, Paris, (4), 3, C, 1: 3-29, 5 Pl.

**Semenoff-Tian-Chansky P. & Sutherland P. K. 1982.** Coral distribution near the Middle Carboniferous boundary. In: Ramsbottom W. H. C., Saunders W. B. & Owens B. (eds): Biostratigraphic data for a Mid-Carboniferous boundary. Subcommission on Carboniferous Stratigraphy, Leeds: 134-144.

**Semenoff-Tian-Chansky P. 1982.** A la memoire de Jean-Pierre Chevalier (1926-1981). *Newsletter Fossil Cnidaria*, 11: 7-14.

**Semenoff-Tian-Chansky P. 1982.** Corals from the Devonian-Carboniferous boundary at la Serre (Montagne Noire, France). *Commission on Carboniferous Stratigraphy*, 55: 271-277.

**Semenoff-Tian-Chansky P. 1985.** Corals. In: Wagner R. H., Winkler Prins C. F. & Granados L. F. (eds): The Carboniferous of the world, II, Australia, Indian subcontinent, South Africa, South America & North Africa. North Africa. IUGS Publication 20, Instituto Geologico y Minero de Espana (ed.), Madrid, p. 374-381.

**Semenoff-Tian-Chansky P. 1987.** Sous-classe des tetracoralliaires. Cnidaires. Anthozoaires (Anthozoa Ehrenberg,1834): in Grasse P.P. : Traite de Zoologie., Masson, Paris, pp 765-781.

**Vuillemin C & Semenoff-Tian-Chansky P. 1987.** Description des types de Caninia gigantea Michelin, Tetracoralliaires du Carbonifere du Massif Armoricain. *Bulletin du Museum National d'Histoire Naturelle*, Paris, (4), 1, C, 3: 257-289, 8 Pl.

**Semenoff-Tian-Chansky P. 1988.** Corals from the Devonian-Carboniferous Boundary at La Serre (Montagne Noire, France). *Courier Forschungsinstitut Senckenberg*, Frankfurt am Main, 100: 129-138.

**Legrand-Blain M., Conrad J., Coquel R., Lejal-Nicol A., Poncet J. & Semenoff-Tian-Chansky P. 1989.** Carboniferous Palaeobiogeography of North Africa. C.R. 11 Congres International de Stratigraphie et de Geologie du Carbonifere, Beijing 1987. Nanjing University Press, 4: 216-230.

**Semenoff-Tian-Chansky P. 1991.** Rythme de croissance chez les coraux fossiles et ralentissement de la rotation terrestre. 107 Congres de l'AFAS, Orleans Novembre 1989. Publication de l'Association Francaise pour l'Avancement des Sciences, Paris, 91, 2, 3: 127-163.

**Guillaume M. & Semenoff-Tian-Chansky P. 1991.** Stries semi-journalieres chez un Tetracoralliaire (Bothrophyllum proteum) du Carbonifere superieur. Implication dans la determination des rythmes de croissance. *Comptes-Rendus de l'Academie des Sciences*, Paris, 312 (2), 1401-1407, 1 Pl.

**Lafuste J. (†), Semenoff-Tian-Chansky P. & Tourneur F. 1992.** Succession microlamelles - lamelles dans le sclerenchyme parietal de Syringopora Goldfuss, 1826 (Tabulata, Carbonifere). *Bulletin du Museum d'Histoire Naturelle*, Paris, 4 ser. 14, section C, 3-4: 249-265, 2 Pl.

**Semenoff-Tian-Chansky P. & Guillaume M. 1994.** Semi-daily growth bands in Bothrophyllum (?) proteum (Rugosa, Upper Carboniferous). *Courier Forschungsinstitut Senckenberg*, Frankfurt am Main, 172: 215-222.

**Semenoff-Tian-Chansky P. & Plusquellec Y. 1994.** Presence de Aulokoninckophyllum dans le conglomerat de Caouennet, Carbonifere du Bassin de Chateaulin (Massif Armoricain, France). *Annales de la Societe Geologique du Nord*, Lille, (2), 3: 133-139.

**Semenoff-Tian-Chansky P. 1999 [imprint 1995].** Coraux. In: Barnolas A. & Chiron J. C. (Eds): Synthese geologique et geophysique des Pyrenees, Tome 1 Cycle Hercynien. Carbonifere a facies Culm (Delvolve J. J., Coord.). Edition BRGM (Orleans) & ITGE, (Madrid), p. 307, 1 tabl.

# NEWS & VIEWS

## Canada

### Laurentian University, Sudbury / Graham Young

A monograph on Late Ordovician and Early Silurian stromatoporoids of Anticosti Island, Québec, by **Heldur Nestor, Paul Copper, and Carl Stock**, has been submitted to the NRC (National Research Council of Canada) Research Press in February, 2008.

### University of Manitoba and Manitoba Museum, Winnipeg / Bob Elias and Graham Young

**Bob Elias** (University of Manitoba) and **Graham Young** (Manitoba Museum, adjunct professor at U of M) welcome inquiries and applications from students interested in graduate studies [see umanitoba.ca/geoscience/people/faculty/elias/elias.html]. M.Sc. and Ph.D. projects are available on all aspects and applications of Paleozoic corals. There are also interesting projects related to Early Paleozoic paleoecology and stratigraphy.

For her M.Sc. thesis, **Lori Stewart** is working on a newly exposed stratigraphic section in Manitoba, which reveals the uppermost Ordovician corals in this region. **Adam Melzak**'s Ph.D. dissertation on rugose corals of the Upper Ordovician to lowermost Silurian Vauréal, Ellis Bay, and Becscie formations of Anticosti Island, Quebec, is being prepared for publication.

**Boo-Young Bae** (Gwacheon National Science Museum, Korea), **Dong-Jin Lee** (Andong National University, Korea), and **Bob Elias** are continuing their paleobiologic studies of cateniform tabulates from the Ordovician of Manitoba. In collaboration with **Mari-Ann Motus** (Tallinn University of Technology, Estonia), similar work is underway on Ordovician *Eofletcheria* and Ordovician-Silurian *Catenipora* from Estonia. Ordovician coralline fossils from China are being studied by **Ning Sun** (Andong National University, Korea), together with **Dong-Jin Lee**, **Bob Elias**, and **Xiangdong Wang** (Nanjing Institute of Geology and Paleontology, China).

**Sean Robson** will soon submit a manuscript, co-authored with **Graham Young**, describing Late Ordovician conularids from several localities in

Manitoba. **Graham Young** is also continuing to carry out detailed studies of Ordovician soft-bodied cnidarian medusae.

**Ross McLean (Calgary)**

Being now officially retired I am getting back to coral work more seriously. I have a large manuscript almost complete, to be published by NRC, Ottawa, titled "Frasnian (Upper Devonian) colonial disphyllid corals from western Canada". I am also working on the Llandovery rugose coral fauna from Anticosti Island with **Paul Copper**, and Late Llandovery - Wenlock rugose corals from Lake Timiskaming, Ontario - Quebec, with **Stefan Schroeder** and **Paul Copper**. Please note change in my e-address!

**Brian Pratt (University of Saskatchewan, Saskatoon)**

Two papers published in 2008 deal with calcareous sponges. **Peterhaensel & Pratt** describe the occurrence of laminar stromatoporoids in a giant Famennian (Late Devonian) carbonate platform in western Canada. These labechiid stromatoporoids have already been described taxonomically by Colin Stearn. **Pratt & Haidl** document Late Ordovician reef-dwelling fossils that are tentatively interpreted as some type of calcisponge. **Brian Pratt** is preparing to describe these taxonomically.

**Frank Brunton, Ontario Geological Survey, Sudbury**

I left consulting and educational teaching at universities and the science centre here in Sudbury to join the Ontario Geological Survey in 2003. My last academic paper on Silurian reef faunas was in 1999. However, I am currently working on three projects tied to biostratigraphy-seds-strat work on Wenlock-Ludlow Silurian succession of all three Ontario Phanerozoic basins. My job has changed from industrial minerals focus throughout province involving basinal analysis-focused questions concerning our 3 Phanerozoic basins: lithogeochemistry / stratigraphy / biostratigraphy / sedimentology (sequence stratigraphy) studies to a bedrock resource approach of all key aquifers in each of the basins. I have carried out detailed (metre-scale) sampling of Middle Ordovician through Middle Devonian strata to assess lithogeochemistry (whole rock, trace elements, metals) for two key basins (Michigan Basin and Moose River Basin). I am

currently compiling a karst map for all of southern Ontario (10 months of fieldwork); it will come out in April 2008. I work on a wide range of topics from kimberlite emplacement and alteration studies to investigating the origins and distributions of elements (e.g., As, F, Pb, U, etc) in drinking waters – so a human health geoscience perspective.
It is a very challenging and interesting job. My personal research focus is still Silurian reefs and I am currently collaborating with a number of colleagues to refine the ages of the key Wenlock-Ludlow carbonate succession that forms the spine of the Niagara Escarpment here in southern Ontario and its equivalents in the Moose River Basin of Northern Ontario. Although I am currently Chair of the Paleontology Division of Geological Association of Canada there is no mandate for paleontology-related or focused studies at the survey, so I farm it out to academics and colleagues at GSC (i.e. conodont biostratigraphy and carbon-oxygen isotope analyses of particular successions)! I doubt I could ever attend a sponge conference or coral conference now.

Below is a list of my recent publications and reports:

**Belanger D. W., Brunton F. R., DiBiase S. M., Yungwirth G., Zandbergs A. and Funk G. H. 2006.** City of Guelph groundwater resource assessment project; ; in Summary of Field Work and Other Activities 2006, Ontario Geological Survey, Open File Report 6192, p.37-1 to 37-6.

**Birchard M. C., Rutka M. A. and Brunton F. R. 2004.** Lithofacies and geochemistry of the Lucas Formation in the subsurface of southwestern Ontario: a high-purity limestone and potential high-purity dolostone resource; Ontario Geological Survey, Open File Report 6137, 180p.

**Brunton F. R., Belanger D., DiBiase S., Yungwirth G. and Boonstra G. 2007.** Caprock carbonate stratigraphy and bedrock aquifer character of the Niagara Escarpment - City of Guelph region, southern Ontario; in Diamond Jubilee Canadian Geotechnical Conference and the 8th Joint CGS/IAH-CNC Groundwater Conference, Ottawa, Ontario, Oct. 21-24th, 2007, p.371-377.

**Brunton F. R. and Dekeyser L.-K. 2004.** Industrial mineral potential of the Guelph Formation and the Eramosa member of the Amabel Formation, southwestern Ontario; in Summary of Field Work and Other Activities, 2004, Ontario Geological Survey, Open File Report 6145, p.19-1 to 19-5.

**Brunton F. R., Dekeyser L.-K. and Coniglio M. 2005.** Regional industrial minerals and diagenetic study of the Guelph, Eramosa, and Amabel formations, southwestern Ontario; in Summary of Field Work and Other Activities, 2005, Ontario Geological Survey, Open File Report 6172, p.35-1 to 35-7.

**Brunton F.R., Dodge J. E. P. and Shirota J. 2005.** Karst in southern Ontario; in Summary of Field Work and Other Activities, 2005, Ontario Geological Survey, Open File Report 6172, p.27-1 to 27-7.

**Brunton F. R., Dodge J. E. P. and Shirota J. 2006.** Karst compilation for southern Ontario: an update; in Summary of Field Work and Other Activities 2006, Ontario Geological Survey, Open File Report 6192, p.31-1 to 31-9.

**Dekeyser L., Brunton F. R., Endres A. L., Armstrong D. K., Coniglio M. and Tetreault D. K. 2007.** Ground-penetrating radar as a resource assessment tool for Silurian-age carbonate building stone quarries on the Bruce Peninsula, southern Ontario; Ontario Geological Survey, Open File Report 6212, 54p.

**Dekeyser L., Endres A. L., Coniglio M., Armstrong D. K., Brunton F. R. and Tetreault D. 2005.** Resolution of shallow subsurface stratigraphy in Silurian dolostones, Bruce Peninsula, southern Ontario: insights from ground-penetrating radar; Geological Association of Canada, Mineralogical Association of Canada, Canadian Society of Petroleum Geologists, Canadian Society of Soil Science, Joint Annual Meeting, Halifax, Program with Abstracts, v.30, p.43.

**Dekeyser L., Endres A. L., Coniglio M., Brunton F. R., Armstrong D. K. and Tetreault D. K. 2006.** GPR profiling of shallow subsurface stratigraphy in Silurian dolostones, Bruce Peninsula, southern Ontario. 11th International Conference on Ground Penetrating Radar, June 19-22, 2006, Columbus Ohio, USA, 7p.

**Gao C., Brunton F. R., Shirota J. and van Haaften S. 2005.** Aggregate Resources Inventory Mapping in Ontario: a GIS-based approach; in Summary of Field Work and Other Activities, 2005, Ontario Geological Survey, Open File Report 6172, p.22-1 to 22-11.

**Gao C., Shirota J., Kelly R. I., Brunton F. R. and van Haaften S. 2006.** Bedrock topography and overburden thickness mapping, southern Ontario;

in Summary of Field Work and Other Activities 2006, Ontario Geological Survey, Open File Report 6192, p.34-1 to 34-10.

**Gao C., Shirota J., Kelly R. I., Brunton F. R. and van Haaften S. 2006.** Bedrock topography and overburden thickness mapping, southern Ontario; Ontario Geological Survey, Miscellaneous Release-Data 207.

**Gao C., Shirota J., Kelly R. I., Brunton F. R. and van Haaften S. 2007.** Bedrock topography and overburden thickness mapping, southern Ontario; in Diamond Jubilee Canadian Geotechnical Conference and the 8th Joint CGS/IAH-CNC Groundwater Conference, Ottawa, Ontario, Oct. 21-24th, 2007, p.378-385.

**Hurley J., Merry A. G., Brunton F. R., Wadley S. and Abbey D. 2005.** Sinkhole investigation in the Ausable Bayfield Conservation Authority watershed and surrounding area; in Summary of Field Work and Other Activities, 2005, Ontario Geological Survey, Open File Report 6172, p.31-1 to 31-8.

**Luinstra B., Brunton F. R. and Cowan W. R. 2006.** Devonian carbonate investigation in the Grey-Sauble-Saugeen area and Quaternary geology mapping of the Bruce Peninsula; in Summary of Field Work and Other Activities 2006, Ontario Geological Survey, Open File Report 6192, p.36-1 to 36-5.

**Shirota J., Brunton F. R., and Kelly R. I. 2005.** Bedrock Topography and drift-thickness maps, southern Ontario; in Summary of Field Work and Other Activities, 2005, Ontario Geological Survey, Open File Report 6172, p.28-1 to 28-6.

## News & Views from the Czech Republic / Arnost Galle

The team, headed by **A. Galle**, with **J. Hladil** (vice-head), **P. Čejchan**, **J. Filip**, **L. Koptíková** (Geological Institute AS CR), **C. Ron** and **J. Vondrák** (Astronomical Institute AS CR), **Dagmar Novotná** (Institute of the Physics of Atmosphere AS CR), and **L. Strnad** (Faculty of the Natural History, Charles University), works on grant project IAA 300130702, financed by the Grant Agency of the Czech Academy of Science: Growth rhythms as an indicator of the Earth's rotation and climate changes in the geological past.

Fossil and recent organisms with accretionary skeletons show growth rhythms recognized as a record of changing seasons, days and nights, lunar

cycles, and other changes gives a count of days per year and thus the rate of the Earth's rotation in the geological past. Measured data will be compared to astronomically computed ones and differences will be correlated with geotectonic events. The goal of the project is also to reconstruct the weather in the Palaeozoic: coral colonies were moved through storms or hurricanes, and their corallites then assumed different growth direction. As the year's growth periods are manifested as light and dark bands, we plan to compute the length of the periods between successive storms, and to determine the frequency of such events. The measurements can show the pattern of successive longer or shorter increments corresponding to favorable or less favorable conditions. Comparing of such patterns can lead to local sclerochronometry (original abstract of our project).

The project is now in its second year, we are in course of collecting data.

## News & Views from Poland / Boguslaw Kolodziej

**Jerzy Fedorowski** (Poznan). Among his recently published or submitted papers there is a monograph of Lower Permian colonial rugose corals from Western and Northwestern Pangaea (co-authored with **E.W. Bamber**, Canada and **C.H. Stevens**, USA). Currently Fedorowski studies Serpukhovian rugosans of the Upper Silesian Coal Basin, Poland (in co-operation with **I. Machlajewska**, Gliwice, Poland), and the peculiar Bashkirian *Dibunophyllum* (?) from the Donets Basin, Ukraine (in co-operation with **V. Ogar**, Ukraine). The latter investigation is a part of complex studies on Early Bashkirian Rugosa from that area. First of the series of planned papers, dealing with the genus *Rotiphyllum* is already submitted to *Acta Geologica Polonica*. A small monographic paper on Rugosa from the Early Carboniferous of the Serpukhovian Ostrava Formation, Czech Republic is in a final stage of preparation. For list of recent papers of Fedorowski see current Bibliography / Rugosa elsewhere at the present web-site.

**Boguslaw Kolodziej** (Krakow). His studies are focused on taxonomy and palaeoecology of Lower Cretaceous corals. Field studies are performed in Bulgaria (co-operation with **V. Idakieva**, **M. Ivanov** - Sofia, and **V. Zlatarski** - USA), and in Romania (with **I. Bucur** - Cluj-Napoca). Apart of new collected material, a rich coral collection of V. Zlatarski, housed in the

National Museum of Natural History in Sofia, is studied. His MSc students are preparing theses on sclerosponges from Stramberk-type limestones (Tithonian/earliest Cretaceous: **K. Podoba**), and Early Cretaceous scleractinian genus *Stylina* (**P. Piwowarczyk**).

**Elżbieta Morycowa** (Krakow). A paper on the Barremian-early Aptian scleractinian corals from the Urgonian limestones of Provence (southern France) is in preparation. The objective of this paper is to complement earlier findings by the description of representatives of the Microsolenina which were only briefly addressed in previous investigations dealing with hydnophoroid forms, i.e. the genus *Hydnophoromeandraraea* to whom three species were ascribed (Masse & Morycowa, 1994).

**Ewa Roniewicz** (Warszawa) recently is working on Triassic corals, especially on Early Norian corals from the Dachsteinplateau from the collections housed at the Geologische Bundesanstalt, Wien.

**Jarosław Stolarski** (Warszawa) continues interdisciplinary studies on biomineralization, nanocrystalline skeletal structure and phylogeny of recent and fossil scleractinians. Further studies on Late Cretaceous corals having primary calcite skeleton, based on new material.

**Tomasz Wrzolek** (Sosnowiec) has finished his work on presentation of the material of the phillipsastreid genus *Smithicyathus* at the Virtual Paleontological Museum - about 150 colonies are illustrated, and their measurements are given, as a supplement to recently published paper (Wrzolek, 2007); in the end of September Ms **Justyna Pawlus**, a student of Wrzolek, obtained her B. Sc. degree for presenting a database with ca 1000 bibliographic entries derived from selected volumes of *Fossil Cnidaria & Porifera*; her database is still in need of revision and corrections and, hopefully, it will eventually find its place at the page of IASFCP [Wrzolek]

**Mikolaj K. Zapalski** (Warszawa) has finished work on his PhD thesis on Tabulata from Devonian of the Southern Region of the Holy Cross Mts. (Poland). The thesis prepared at the Warsaw University and Université des Sciences et Technologies, Lille is now in review. His present studies concentrate on tabulate corals form Givetian-Franian from the Holy Cross Mts. in Poland and Ardennes in France, on endobionts in tabulates, and growth dynamics in alveolitids.

**9th Polish-Czech-Slovak paleontological Conference** took part 10-11 October 2008 in Warsaw. Among the numerous lectures and posters 7 were dedicated to various poriferans and cnidarians [Wrzolek]:

**Pisera A., Bitner M. A. and Halamski A. T. (eds) 2008.** 9th Paleontological Conference, Warszawa, 10-11 October 2008, Abstracts volume. Polish Academy of Sciences, Institute of Paleobiology, Warszawa, 110pp.

**Adach L.** Palaeoenvironmental reconstruction based on the morphology of the Devonian stromatoporoids at Słopiec (Holy Cross Mts, Poland). [pp 5-6]

**Bialek D., Raczynski P., Sztajner P. and Zawadzki D.** Archaeocyaths of the Kaczawa Complex, W Sudetes, Poland - preliminary data. [pp 6-7]

**Budil P., Hanzl P., Otava J. and Minjin Chuunlun.** A contribution to the study of the Lower Palaeozoic fossils of the Mongolian Altai. [pp 16-18; authors list, among others, Archaeocyatha, Tabulata and Rugosa]

**Olszewska-Nejbert D. and Swierczewska-Gladysz E.** The phosphatized sponges from the Upper Santonian deposits of Kraków and Miechów Uplands (southern Poland). [pp 66-67]

**Pisera A., Siver P. A. and Wolfe A. P.** Middle Eocene fresh-water sponges from Canada: preliminary report. [pp 70-71]

**Roniewicz E.** First Mesozoic turnover of coral fauna. [pp 79-80; Early Norian]

**Wrzolek T. and Remin Z.** Palaeontological modeling - classical recognition of genera and species in rugose corals vs. self-organizing Kohonen networks classification. [pp 103-105; phillipsastreid *Frechastraea*]

## News & Views from Spain / Sergio Rodriguez

**Elena Moreno-Eiris, Antonio Perejon** and **Silvia Menendez** are working on a research project on the Neoproterozoic and Cambrian from the Iberian Peninsula.

**Sergio Rodriguez** is working on four projects:

-- Rugose corals from the Etherington Formation (Visean-Serpukhovian) with **Wayne Bamber**

-- Carboniferous from the Adarouch region (Morocco) with **Pedro Cozar, Ismail Said, Ian Somerville, Alberto Gomez-Herguedas** and **Paula Medina-Varea**

-- Serpukhovian corals from Guadiato Valley (SW Spain), with **Alberto Gomez-Herguedas**

-- Devonian from Sierra Morena (SW Spain) with **Esperanza Fernandez, Andreas May, Jose Ignacio Valenzuela, Miguel Pardo** and **Liao JauChin**.

## News & Views from Tajikistan / Narima Ospanova

(some recent notes and papers, by N. Ospanova - in Russian, unless stated otherwise)

**Ospanova N.K. 2002**: Principle of recurrence of repetition - universality and significance. *Trudy Instituta geologii AN RT*. Nov. ser. Vyp. **1**: pp 69-86. Dushanbe: Khumo.

**Ospanova N.K. 2004a**: Neutralism as a condition that is enough for support of diversity of life. *Trudy Instituta geologii AN RT*. Nov. ser. Vyp. **3**: pp 81-91. Dushanbe: Polikomp.

**Ospanova N.K. 2004b**: Skeletonization as one of types of biomineragenesis. Dushanbe. Deposited in National Patent Information Centre (NPICentre) of Republic of Tajikistan. Nr 4 (1655). 29 pp.

**Ospanova N.K. 2005a**: On various interpretations of age of stratigraphical subdivisions of the Ordovician in Zeravshan-Gissar mountains. *Trudy Instituta geologii AN RT*. Nov. ser. Vyp. **4**: pp 44-53. Dushanbe: Polikomp.

**Ospanova N.K. 2005b**: Abiotic and biotic events on the Vendian-Cambrian boundary. In: Paleontological chronicle of regional and global events. *Tezisy dokladov LI sessii Paleontologicheskogo obshchestva pri RAN*, pp 91-92ł Sankt Petersburg.

**Ospanova N.K. 2005c**: Formation skeletal-building groups of Paleozoic corals. In: Paleontological chronicle of regional and global events. *Tezisy dokladov LI sessii Paleontologicheskogo obshchestva pri RAN*, pp 92-94ł Sankt Petersburg.

**Ospanova N.K., Sabirov A.A., Dronov V.I., Pulatova M.Z., Khakimov F.Kh., Bardasheva N.P., Bardashev I.A., Goltman E.V., Melnikova**

**G.K. 2005**. The greatest investigator of Paleozoic corals of Tajikistan (commemorating the 75th birthday of LELESHUS VITAUTAS LEONO). *Trudy Instituta geologii AN RT*. Nov. ser. Vyp. **4**: pp 205-209. Dushanbe: Polikomp.

**Ospanova N.K. 2006a**. Actuality of paleontological investigations for prognosis of evolution of biosphere. In: Contemporary paleontology: classic and untraditional. *Tezisy dokladov LII sessii Paleontologicheskogo obshchestva pri RAN*, pp 99-101, Sankt Petersburg.

**Ospanova N.K. 2006b**. Explanatory note of stratigraphical scheme of Ordovician deposits of Tajikistan. Deposited in National Patent Information Centre (NPICentre) of Republic of Tajikistan. Nr 14 (1731). 20 pp.

**Ospanova N.K. 2006c**. New Late Ordovician corals *Proporina* of Zeravshan mountains. *Izvestija Akademii nauk Respubliki Tadzhikistan* **1-2** (124): pp 76-83.

**Ospanova N.K. 2006d**. New species of *Coccoseridina* (Heliolitida) from Mincuchar strata of Zeravshan-Gissar mountains. *Doklady Akademii nauk Respubliki Tadzhikistan* **49** (7): pp 648-653.

**Ospanova N.K., Leleshus V.L. 2006**. Regional stratigraphical scheme of Silurian deposits of Tajikistan. Deposited in National Patent Information Centre (NPICentre) of Republic of Tajikistan. Nr 15 (1732). 33 pp.

**Ospanova N.K. 2007a**. Role of ecological factor in development of dissepimentarium of Rugosa. In: Paleontology, paleobiogeography and paleoecology. *Materialy LIII sessii Paleontologicheskogo obshchestva pri RAN*, pp 92-93, Sankt Petersburg.

**Ospanova N.K. 2007b**. Connection of taxa-building of Heliolitida with ecology. In: Paleontology, paleobiogeography and paleoecology. *Materialy LIII sessii Paleontologicheskogo obshchestva pri RAN*, pp 93-94, Sankt Petersburg.

**Ospanova N.K. 2007c**. Some new data about the ecology and evolution of Paleozoic corals. In: Kossovaya, O., Somerville, I. and Evdokimova, I. (eds.): X International Congress on Fossil Cnidaria and Porifera, St. Petersburg, 12-16.8.2007, Abstracts. VSEGEI, Saint Petersburg, p. 70. [in English]

**Ospanova N.K. 2007d**. About the classification system and systematic position of Heliolitida. In: Kossovaya, O., Somerville, I. and Evdokimova, I. (eds.): X International Congress on Fossil Cnidaria and Porifera, St. Petersburg, 12-16.8.2007, Abstracts. VSEGEI, Saint Petersburg, pp 70-71. [in English]

## News & Views from the USA / George Stanley Jr

**Al Fagerstrom** (Boulder, Colorado)

**Ron West** (Manhattan, Kansas), **Jean Vacelet** (Marseille, France) and **Al Fagerstrom** (Boulder, Colorado) are working on two papers dealing with biological interactions among microbial-algal-sponge-coral-bryozoan clones. Both papers will be submitted to *Facies*. The first, by Fagerstrom and West, stresses the roles of clone-clone interactions on the skeletonization, architecture, rigidity, stability and preservation potential for building reef frameworks. These interactions are both heterospecific and conspecific and lead to spatial competition, self-overgrowth and two types of clone fusion. The paper also includes a comparison of more varied bryozoan interactions and their influence on frame-building and reef size in bryozoan-dominated reefs. The second paper, by the three of us, focuses on just the biological interactions, especially fusion and fission, between clonal invertebrates, both heterospecific and conspecific.

**George Stanley** (University of Montana)

Systematic research continues on Triassic corals, particularly work with students on silicified corals from Alaska and Vancouver Island. A book "The Terrane Puzzle" edited by **Robert Blodgett** and **George Stanley Jr** was published recently. It concentrates on stratigraphy and paleontology of displaced terranes of North America and some reef carbonates are discussed. I continue pursuing interests in the early evolution of Scleractinia and their photosymbiosis as well as the effects of bleaching and ocean acidification on corals and reefs with a special focus on ancient counterparts in the Mesozoic. Research is underway with graduate students and **Ewa Roniewicz** on Triassic corals from the Tethys and western North America. We are studying a large collection of Upper Triassic corals from Nevada. Interests in the end-Triassic mass extinction have focused on the earliest reefs of the Jurassic and a project is underway on Hettangian corals

from southern France. Research continues on a systematic revision of Triassic corals from Japan and a paper on this topic is in preparation with Japanese colleagues.

**James Sorauf** (Binghamton, New York

Jim Sorauf continues studies of free-living corals from the Pleistocene of Florida. Collaborative work with **Peter Harries** of the University of South Florida on the corals and their epi- and endobionts has resulted in one publication in press and several more in process. In press is "Rotatory colonies of the corals *Siderastraea radians* and *Solenastraea* ssp. (Cnidaria, Scleractinia), from the Pleistocene Bermont formation, South Florida, U.S.A." by J.E. Sorauf and P.J. Harries. This will appear in *Palaeontology* late in 2008. Sorauf also has a paper submitted for publication in the symposium volume of the I.A.S.C.P meeting in St. Petersburg, Russia, 2007. This title is, "Colonial form, free-living corals and macroborers: Pleistocene of South Florida."

## BIBLIOGRAPHY
## Sponges & Stromatoporoids / last updated in October 2008

**Cunningham K. J., Rigby J. K., Wacker M. A. & Curran H. A. 2007.** First documentation of tidal-channel sponge biostromes (upper Pleistocene, southeastern Florida). *Geology* **35** (5), 475-478.

[keywords: sponges, biostromes, tidal channels, Pleistocene, Florida]

Sponges are not a common principal component of Cenozoic reefs and are more typically dominant in deep-water and/or cold-water localities. Here we report the discovery of extensive upper Pleistocene shallow-marine, tropical sponge biostromes from the Miami Limestone of southeastern Florida built by a new ceractinomorph demosponge. These upright, barrel- to vase-shaped sponges occur in monospeciflc aggregations constructed within the tidal channels of an oolitic tidal-bar belt similar to modern examples on the Great Bahama Bank. The biostromes appear to have a ribbon-like geometry, with densely spaced sponges populating a paleochannel along a 3.5 km extent in the most lengthy biostrome. These are very large (as high as 2m and 1.8m in diameter), particularly well-preserved calcified sponges with walls as hard as concrete. Quartz grains

are the most common particles agglutinated in the structure of the sponge walls. Where exposed, sediment fill between the sponges is commonly a highly burrowed or cross-bedded ooid-bearing grainstone and, locally, quartz sand. It is postulated that the dense, localized distribution of these particular sponges was due to a slight edge over competitors for food or energy supply and space in a stressed environment of tidal-influenced salinity and nutrient changes, strong currents, and frequently shifting submarine sand dunes. To our knowledge, this represents the first documentation of sponge biostromes composed of very large upright sponges within high-energy tidal channels between ooid shoals. The remarkably well-preserved accumulations provide an alternative example of sponge reefs for comparative paleoenvironmental studies. [original abstract; Wrzolek]

**Hladil, J., 2007**: The earliest growth stages of Amphipora. In: Hubmann, B. & Piller, W. E. (Eds.): Fossil Corals and Sponges. Proceedings of the 9th International Symposium on Fossil Cnidaria and Porifera. - *Österr. Akad. Wiss., Schriftenr. Erdwiss. Komm.* **17**: 51-65, 3 Pls., Wien.

The ontogenetic changes expressed in the earliest *Amphipora*-skeleton growth stages suggest that the observed successions can be very different from those of common stromatoporoids. The amphiporid organisms built first their bottom discs or directly the complex first chambers (diameters ~0.2 mm), and these structures were directly continued by upright growth of first single tubes. The first occurrences of gradually developing amphiporid skeleton fiber meshworks were concentrated in the zone of metamorphosis, where the first tubes decayed. The attributes of adult amphiporid stages (axial canal and sparsely perforated outer casings or walls) developed with a little delay. The *Amphipora* stems increased mainly during the first millimeters of their length (to ~1.5-2 mm), but further increase of the stems (to ~3 or 5 mm) was a very slow process. It can be suggested that amphiporids can be linked to very old ancestors, somewhere around archaeocyaths or common metazoan sources at ~0.8 Ga. [original abstract; Galle]

**Matsuoka K., Matsuda Y. & Kitabayashi E. 2006.** A fossil freshwater sponge (Porifera; Spongillidae) from the Pliocene Hitoyoshi Formation in the Hitoyoshi Basin, Kumamoto Prefecture, Japan. *Science report of the*

*Toyohashi Museum of Natural History* **16**, pp 31-37, 3 figs., 1 tab; Toyohashi.
[Key words : Hitoyoshi Formation, Kumamoto Prefecture, Pliocene, freshwater sponge, *Eunapius sinensis*]
Fossils of spongillid sponge, *Eunapius sinensis* (Anmandale) were discovered from the upper part of the Pliocene Hitoyoshi Formation of the Hitoyoshi Basin, Muamoto Prefecture, Kyushu, Japan. They constitute the second occurrence record of *Eunapis sinensis* as fossil. The Hitoyoshi Formation consists of lacustrine deposits, which contain diatoms, water plant, insects, cyprinid fishes, and molluscs besides the sponge. Gemmules of fossil sponges occur as rounded spots, which encrust the surfaces of molluscan shells and massive mudstones. The spicular components consist of megascleres and gemmoscleres, and the latter are more abundant. This mode of occurrence of fossil sponges suggests only gemmules were left after death on the surface of molluscan shells and mud. [original abstract; Oekentorp]

**May A. 2007.** Lower Devonian stromatoporoids of the Sierra Morena (Southern Spain) and their palaeogeographic affinities - *In*: Hubmann, B. & Piller, W. E. (Eds.): Fossil Corals and Sponges. Proceedings of the 9th International Symposium on Fossil Cnidaria and Porifera. Ö*sterreichische Akademie der Wissenschaften, Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17**: 139-151, 1 Tab., 2 Figs., Wien.
[key words: Stromatoporoidea, Devonian, Emsian, biogeography, Spain, reefs]
For the first time the stromatoporoid fauna from two locations in the Penón Cortado Limestone (Upper Emsian) from the Sierra Moreno (Southern Spain) has been examined in detail. The fauna contains 8 stromatoporoid species. One of them, a new species, is described as *Pseudotrupetostroma anacontentoae* n. sp. The absence of stromatoporoids with branched coenostea and the scarcity of stromatoporoids with thin-layered encrusting growth form probably served as an obstacle to reef construction. The fauna of the Sierra Morena is unrelated to that of the Eastern Americas Realm. However, it is closely related to Emsian faunas of Australia and Canada. There is no evidence to suggest that Southern Spain was a refuge for Eastern Americas stromatoporoids. [original abstract; May]

**Perejon A. & Moreno-Eiris E. 2006**. Biostratigraphy and paleobiogeography of the archaeocyaths on the southwestern margin of Gondwana. *Zeitschrift der Deutschen Gesellschaft fuer Geowissenschaften* **157** [volume in memory of Prof. Franz Lotze], pp 611-627, 5 figs.
The stratigraphic successions analysed with their characteristic archaeocyaths, trilobites, brachiopods, stromatolites, ichnofossils, and small shelly fossils, allow us to establish the paleontological assemblages in each one of the archaeocyathan zones of the Lower Cambrian in the Iberian Peninsula. We also present a correlation proposal between Morocco, Sardinia, France, and Germany.
The Lower Cambrian in the Iberian Peninsula is divided into ten archaeocyathan zones, defined by generic assemblages, with reference to trilobite, brachiopod, and stromatolite genera that are found in these successions. The established zones have precise stratigraphical positions and are correlated with the stages published by Russian authors.
Zones I, II, and III are assigned to the Lower Ovetian, and correspond to Atdabanian 1 and 2. Zones IV, V, VI, and VII of the Upper Ovetian are equivalent to Atdabanian 3 and 4, and Botomian 1 and 2. Zones VIII and IX of the Lower Marianian are equivalent to Botomian 3. Zones X of the Lower Bilbilian corresponds to Toyonian 1 and 2. [original abstract; Luette]

**Perejon A. & Moreno-Eiris E. 2007.** Ovetian cryptic archaeocyaths, lower Cambrian from Las Ermitas (Córdoba, Spain). *In* B. Hubmann and W.E. Piller (eds.), Fossil Corals and Sponges: Proceedings of the 9th International Symposium on Fossil Cnidaria and Porifera, Graz 2003. *Österreichische Akademie der Wissenschaften, Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17** pp 113-137. [Rodriguez]

**Pickett J. W. 2007.** *Astraeospongium* (Porifera: Calcarea) from the Late Devonian of northwestern China, and the late ontogeny of the genus. *Memoirs of the Association of Australasian Palaeontologists* **34**, pp 331-342. ISSN 0810-8889.
[keywords: Porifera, Calcarea, Heteractinida, *Astraeospongium*, Late Devonian, Famennian, Hexactinellida, Astylospongiidae, ontogeny]
Two species of sponges are reported from Famennian strata at the locality Aomuhu, north of Hoxtolgay, Xinjiang, northwestern China. *Astraeospongium chenae* sp. nov. differs from other species in lacking a

dermal armour of heteracts on the concave surface. Preservation and weathering details of this species suggest that the life orientation of *Astraeospongium* (convex up) is the reverse of that generally accepted. A growth analysis of *A. chenae* indicates that definition of species of the genus on the basis of spicule size is invalid. The presence of an abraded astylospongiid accompanying *A. chenae* indicates an association enduring from Late Silurian to Late Devonian times. [original abstract; Pickett]

**Rigby J. K., Bell G. L. Jr & Thompson K. 2007.** Hexactinellid and associated sponges from the Upper Reef Trail Member of the Bell Canyon Formation, Southern Guadalupe Mountains National Park, Texas. *Journal of Paleontology* **81** (6), 1241-1256.
A small faunule of silicified hexactinellid sponges and root tufts has been recovered from the upper Guadalupian Reef Trail Member of the Bell Canyon Formation, from the Patterson Hills, in the southwestern part of the Guadalupe Mountains National Park in western Texas. Some demosponges from the type section of the Reef Trail Member, near the mouth of McKittrick Canyon on the front of the Guadalupe Mountains in the park, have also been documented. Included in the faunule from the Patterson Hills localities are the new amphidiscosid hexactinellid pelicasponge *Trailospongia reischi* n. gen. and sp., the questionable pelicaspongiid *Hexirregularia nana* n. gen. and sp., and the dictyospongiid hexactinellids *Microstaura doliolum* Finks, 1960, and *Microstaurella minima* n. gen. and sp., and *Microstaurella parva* n. gen. and sp. They are associated with specimens of the lyssacinosid brachiosponges *Toomeyospongiella gigantia* Rigby and Bell, 2005, *Toomeyospongia modica* n. sp., and *Toomeyospongia* [sic! should be *Toomeyospongiella*] *minuta* n. gen. and sp., and fragments of three different types of root tufts, termed Tufts 1, 3, and 4. Two specimens of the new cylindrical demosponge *Mckittrickella pratti* n. gen. and sp. are associated with Tuft 2 in the collection from the type section of the Reef Trail Member, and a third specimen was collected from the member in the Patterson Hills. These sponges from Localities 1-7 are the youngest Permian sponges known from the region, and possibly from North America. [original abstract; Wrzolek]

**Rigby J. K., Chin K., Bloch J. D. & Tweet J. S. 2007.** A new hexactinellid sponge from the Cretaceous of Devon Island, Canadian High

Arctic. *Canadian Journal of Earth Sciences* **44**, 1235-1242.
Over 20 specimens of the new genus and species *Nunavutospongia irregularа*, an irregular stump-like to columnar, or fan- to blade-shaped, hexactinosid hexactinellid sponge, have been recovered from exposures of the Upper Cretaceous upper Kanguk Formation on Devon Island, Nunavut Territory, in the Canadian High Arctic. The species and genus are characterized by dermal surfaces with prominent radial, irregularly vertical, rib-like flanges that have a single linear series of separated oscula perforating their rounded crests. The thin, but persistent dermal layer of fused hexactine-based spicules has rays thicker than those of the similarly fused endosomal, quadrangularly arranged, hexactines of the principal skeleton. Ostia of coarse exhalant canals, and finer inhalant canals, are extensively and uniformly developed, but irregularly placed, in the dermal layer. A thin, less prominent, gastral layer of thickened spicules lines the short, internally tapered spongocoel openings. The skeleton exposed in the commonly upward-arcuate base of each sponge has a radiate structure that does not have significant ostia. The new genus is tentatively included in the Family Cribrospongiidae Roemer, 1864, within the Order Hexactinosa Schrammen, 1903. The specimens were found in unconsolidated fine-grained glauconitic sediments along with other fossils such as fish teeth, bird bones, lingulids, coprolites, and wood. The sedimentology, stratigraphic context, and co-occurrence with fossil wood suggest that these sponges inhabited the neritic zone. As such, they would have been subject to polar light regimes, because paleogeographic reconstructions indicate that Devon Island was above the Arctic Circle during the Late Cretaceous. The distribution of the specimens suggests that they were solitary sponges that used their arcuate bases to colonize sandy substrates or biotic debris. [original abstract; Wrzolek]

**Rigby J. K. & Cunningham K. J. 2007.** A new, large, Late Pleistocene demosponge from Southeastern Florida. *Journal of Paleontology* **81** (4), 788-793. [Wrzolek]

**Rigby J. K., Kessel B. J., Ritts B. D. & Friedman S. J. 2006.** A new Ordovician Chiastoclonellid Sponge from Inner Mongolia, China. *Journal of Paleontology* **80** (4), 775-779. [Wrzolek]

**Senowbari-Daryan B., Caruthers A. H. and Stanley G. D. Jr. 2008.** The first Upper Triassic silicified hypercalcified sponges from the Alexander Terrane, Gravina Island and Keku Strait, southeast Alaska. *Journal of Paleontology* **82**, 2: 344-350.
This paper describes the first silicified Upper Triassic (Early Norian) hypercalcified sponges known from the Alexander terrane, southeast Alaska. Sponges consist of five taxa from the Cornwallis Limestone of Keku Strait, southeast Alaska: *Amblysiphonella* Steinmann, *Parauvanella* Senowbari-Daryan and Di Stefano, *Nevadathalamia cylindrica* (Seilacher), *N. minima* n. sp., and *Stellispongia* (*S.* cf. *subsphaerica* Dieci, Antonacci, and Zardini). The hypercalcified sponges of the Alexander terrane as described in this paper provide paleogeographic linkage with other far-flung terranes of western North America, namely the Western Great Basin of Nevada, Stikinia of the Yukon, as well as the Antimonio terrane of northwestern Mexico. In addition, *Parauvanella* cf. *ferdowensis* is known from the Upper Triassic Nayband Formation, Iran. Finally *Stellispongia* cf. *subsphaerica* is known from the Upper Carnian Cassian Formation of the Dolomite Alps. Sponges (particularly hypercalcified inozoans, sphinctozoans, chaetetids, and sponge-like organisms) are known worldwide from many Upper Triassic reef and nonreef sites. Although Upper Triassic deposits within the Cordilleran terranes and cratonal North America do not typically contain reeflike buildups, hypercalcifying sponge-like organisms were noted as occurring as part of the intricate paleoecological structure within a biostrome along the western shoreline of Gravina Island, southeast Alaska (southern Alexander terrane). This is in contrast to Keku Strait, southeast Alaska (central Alexander terrane), where hypercalcified sponges were identified from limestone beds within nonreef deposits. [Stanley]

**Swierczewska-Gladysz E. 2006**. Late Cretaceous siliceous sponges from the Middle Vistula River Valley (Central Poland) and their palaeoecological significance. *Annales Societatis Geologorum Poloniae* **76**: 227-296.
Siliceous sponges are extremely abundant in the Upper Campanian-Maastrichtian opokas and marls of the Middle Vistula River Valley, situated in the western edge of the Lublin Basin, part of the Cretaceous German-Polish Basin. This is also the only one area in Poland where strata

bearing the Late Maastrichtian sponges are exposed. The presented paper is a taxonomic revision of sponges collected from this region. Based both on existing and newly collected material comprising ca. 1750 specimens, 51 species have been described, including 18 belonging to the Hexactinosida, 15 - to the Lychniscosida and 18 - to Demospongiae. Among them, 28 have not been so far described from Poland. One new genus *Varioporospongia*, assigned to the family Ventriculitidae Smith and two new species *Varioporospongia dariae* sp. n. and *Aphrocallistes calciformis* sp. n. have been described. Comparison of sponge fauna from the area of Podilia, Crimea, Chernihov, and Donbas regions, as well as literature data point to the occurrence of species common in the analysed area and to the basins of Eastern and Western Europe. This in turn indicates good connections between particular basins of the European epicontinental sea during the Campanian-Maastrichtian. Analysis of the taxonomic composition of the Middle Vistula assemblage suggests that the occurring sponge fauna is transitional between the faunas of Eastern and Western Europe, what may be linked with the central location of the Lublin Basin in the European epicontinental sea. The gradual upward decrease of taxonomic diversity of the Hexactinosida and Lychniscosida in the studied succession points to gradual basin shallowing, what is consistent with the global regressive trend by the end of the Cretaceous. The domination of the Hexactinellida over the lithistids in terms of diversity and abundance in the entire section allows us to estimate the maximum depth of the Late Campanian basin as 200-250 m and to constrain the minimum depth during the latest Maastrichtian as about 100 m. [original abstract; Kolodziej]

## Rugosa bibliography / last updated in June 2008

**Aretz, M. & Nudds, J., 2005.** The coral Fauna of the Holkerian/Asbian boundary stratotype section (Carboniferous) at Little Asby Scar (Cumbria, England) and implications for the boundary. *Stratigraphy* **2** (2), pp 167-190, 8 figs., 3 pls.; New York.
Five coral assemblages from the Holkerian-Asbian succession at the stratotype section at Little Asby Scar, Cumbria (England) have been studied. The stratotype section is located near the fault zone, and contact of the Potts Beck Limestone (earlier Asbian) and the Knipe Scar Limestone (later Asbian) is tectonically controlled.

The coral fauna of the Limestone bed which defines the base of the Asbian consists of a coral assemblage which does not contain any coral taxa appearing in the Asbian. The first *Dibunophyllum*, the traditional coral genus for the Asbian-Brigantian, is not known until the overlying Knipe Scar Limestone. However, other coral taxa from the Knipe Scar Limestone are typical of the later Asbian. No coral assemblage can be doubtless assigned to the earlier Asbian. The coral assemblages of the Little Asby Scar proved that the first appearance of *Siphonodendron junceum* is in the upper Asbian.
The distribution of other important biostratigraphic groups, the foraminiferans and brachiopods, support a relocation of the originally defined Holkerian-Asbian boundary. However, the bases of the biozones of the two most abundant groups, corals and foraminiferans, do not coincide; Asbian foraminiferans appear earlier than Asbian corals.
The attempt to correlate the Little Asby Scar succession to the Belgian Namur-Dinant basin and its standardized sedimentary sequences based on a simple presence-absence comparison of corals and foraminiferans does not result in a definite correlation.
It is evident that the Holkerian-Asbian boundary as originally defined is lithostratigraphic, and that the absence of any biostratigraphic support prevents the use of that level in a chronostratigraphic context. Therefore, after a consensus on the criterion for the base of the Asbian, the stratotype should be relocated to a better exposed section. [original abstract; Oekentorp; erroneously reported as Aretz 2005 in *FC&P* **34**]

**Chwieduk E. 2007.** Middle Permian rugose corals from the Kapp Starostin Formation, South Spitsbergen (Treskelen Peninsula). *Acta Geologica Polonica* **57** (3), 281-304, Warszawa.
[key words: Solitary Rugosa, Permian, Kapp Starostin Formation, Spitsbergen]
The rugose corals from the topmost part of the Kapp Starostin Formation on the Treskelen Peninsula, South Spitsbergen, are described. The collection consists of 22 specimens, representing the genera *Calophyllum*, *Allotropiochisma* and *Euryphyllum*. These solitary and non-dissepimented taxa, considered to be cold-water forms, are representatives of the *Calophyllum* Province of the Cordilleran-Arctic-Uralian Realm, and confirm a biogeographical connection between Alaska, Ural Mts., Central

European Basin, Sverdrup Basin, and Arctic Canada in the Middle Permian. In southern Spitsbergen the Kapp Starostin Formation yields apparently the latest representatives of the Rugosa in the whole Hornsund region, dated to the Guadalupian and probably to the Wordian. [original abstract; Wrzolek]

**Coen-Aubert M. and Plusquellec Y. 2007.** Nouvelles especes du genre *Phillipsastrea* d'Orbigny, 1849 (Rugosa) dans le Givetien superieur de la Rade de Brest (Massif Armoricain, France). *Bulletin de l'Institut royal des Sciences naturelles de Belgique*, *Sciences de la Terre* **77**: 63-75. [in French, English abstract]
[key words: Rugosa, Givetian, Taxonomy, Palaeogeography, Armorican Massif]
Two new species of rugose corals, namely *Phillipsastrea kergarvanensis* n. sp. and *P. morzadeci* n. sp., are described in detail and have been collected at Kergarvan in Plougastel-Daoulas lying in the Rade de Brest, at the western border of the Median Synclinorium, Armorican Massif, France. They come from the lower to the middle part of the Kergarvan Formation which belongs to the Upper Givetian, in the *Schmidtognathus hermanni-Polygnathus cristatus* conodont Zone. This discovery completes the palaeobiogeographic distribution of the genus *Phillipsastrea* d'Orbigny, 1849 that occurs in the Upper Givetian as an ubiquitous taxon, though well established at the North Gondwana and South Laurussia margins. [original English abstract; Wrzolek]

**Fedorowski J. 2008**. Early Carboniferous Chinese and Australian "*Siphonodendron*" (Anthozoa, Rugosa): ecological and geographical influence on taxonomy. *Geologos* **14**, (1): 3-17.

**Fedorowski J. (accepted)**. On *Pentamplexus* Schindewolf, 1940 (Anthozoa, Rugosa) and its possible relatives and analogs. *Palaeontology*, in press.
Three ampleximorphic taxa are revised and their most important characters are discussed in terms of possible or apparent relationships. Re-interpretation of its early ontogeny allows the assignment of *Pentamplexus* Schindewolf, 1940 to the family Polycoeliidae de Fromentel, 1861. *Stereolasma variabilis* Vojnovsky-Krieger, 1934 is established as the type species of *Vojnovskytes* gen. nov. It resembles the family Polycoeliidae in some characters and the Antiphyllidae Ilina, 1970 or the Laccophyllidae

Grabau, 1928 in others. Thus, its family status was not established. Revision of the type material of *Fasciculophyllum tripus* Schindewolf, 1952 allows its inclusion within the new genus *Silesamplus*, probably related to the family Laccophyllidae. Amplexoid morphology is further shown to be inadequate for the establishment of relationships on the family or subfamily level. Early ontogeny is most important in that respect, but biform versus normal morphology in the tabularium and free versus contratingent development of minor septa must also be considered where appropriate. [original abstract; Fedorowski]

**Fedorowski J. (accepted)**. Morphogenesis and taxonomic value of the circum-axial skeleton in Paleozoic corals (Rugosa, Cnidaria). *Lethaia*.

**Fedorowski J. (accepted)**. Revision of *Pentaphyllum* De Koninck, 1872 (Anthozoa, Rugosa). *Palaeontology*.

**Fedorowski J. (submitted)**. Remarks on rugose coral taxonomy. *Coral Research Bulletin*.

**Fedorowski J. (submitted)**. Does similarity in rugosan characters and their functions indicate taxonomic relationship? *Coral Research Bulletin*.

**Fedorowski J. (submitted)**. Early Bashkirian Rugosa (Anthozoa) from the Donets Basin, Ukraine. 1. Introductory considerations and the genus *Rotiphyllum* Hudson, 1942. *Acta Geologica Polonica*.

**Fedorowski J. & Bamber E. W. 2007**. Remarks on lithostrotionid phylogeny in western North America and western Europe. *Österreichische Akademie der Wissenschaften. Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17**: 251-273.

**Fedorowski J., Bamber E. W. & Stevens C. H. 2007.** Lower Permian Colonial Rugose Corals, Western and Northwestern Pangaea: Taxonomy and Distribution. NRC Research Press, Ottawa, Canada, 231pp.
The Pangaean landmass separated Cisuralian (Early Permian) colonial rugose coral faunas into the Tethyan Realm, characterized by the exclusive development of Kepingophyllidae Wu and Zhou, 1982, and Waagenophyllidae Wang, 1950, and the Cordilleran-Arctic-Uralian (CAU) Realm, characterized by Durhaminidae Minato and Kato, 1965, and Kleopatrinidae fam. nov. Both realms also contain Lithostrotionidae

d'Orbigny, 1852, and Petalaxidae Fomichev, 1953. Within the four families in the CAU Realm we recognize 20 genera, of which four are new (*Sandolasma*, *Cordillerastraea*, *Iskutella*, and *Shastalasma*), and 156 species, of which 14 are new (*Sandolasma elegans*, *S.*? *cooperi*, *S. stonei*, *Pararachnastraea lyallensis*, *P. wilsoni*, *Cordillerastraea complexa*, *Iskutella gunningi*, *I. stikinensis*, *Heintzella borealis*, *Protowentzelella columellata*, *Kleopatrina grinnellensis*, *Permastraea buttensis*, *Tschussovskenia dilata*, and *Lytvophyllum sustutense*). Twenty-three previously described corals are unassigned because of insufficient data. Five coral zones, associated in part with fusulinacean and conodont zones, are recognized (in ascending order): (1) *Fomichevella* Zone, base of Permian through middle Shikhanian (upper Asselian), represented by 40 species, occurs along coast of Pangaea from Urals to Bolivia and in several allochthonous terranes; (2) *Protowentzelella* Zone, uppermost Asselian through lower two-thirds of Tastubian (lower Sakmarian), represented by 82 species, marks acme of Lower Permian colonial rugose coral development, occurs along coast of Pangaea from southern Urals to Texas and in most allochthonous terranes; (3) *Pseudocystophora-Durhamina cordillerensis* Zone, upper Tastubian through Sterlitamakian (upper Sakmarian), represented by 60 species, occurs along Pangaean coast from Urals to cratonic western U.S.A., possibly to Bolivia, and in several allochthonous terranes; (4) *Permastraea* Zone, Burtzevian (lower Artinskian), represented by 35 species, occurs along Pangaean coast from Urals to Peru, not present in allochthonous terranes; (5) *Sandolasma-Cordillerastraea* Zone, Irginian (middle Artinskian) in Urals, Irginian - early Kungurian in eastern Nevada, represented by last surviving seven species in CAU Realm.

The widespread occurrence of Cisuralian colonial corals in carbonate shelf deposits along the northwestern and western margins of Pangaea indicates relatively free faunal exchange throughout the CAU Realm. Asselian and lower Sakmarian faunas from high-latitude locations show lower diversity than those occurring farther south. Also, the northernmost faunas have a shorter stratigraphic range (Asselian - early Artinskian) than the more southerly faunas of the Urals and the western U.S.A., which peristed until the mid-Artinskian and early Kungurian, respectively. After Burtzevian (early Artinskian) time, durhaminid and kleopatrinid corals were

exterminated progressively from north to south, along with associated fusulinacean and other warm-water faunal and floral groups, as the water temperature along the Pangaean margin decreased. This led to the total extinction of Cisuralian colonial corals of the CAU Realm during the Kungurian.
The time and location of first occurrences and the degree of morphological complexity within various coral lineages suggest the following possible areas of origin and phylogenetic relationships for genera of the Kleopatrinidae fam. nov., Durhaminidae, and Lithostrotionidae (Diphyphyllinae). It is probable that the Kleopatrinidae were derived from an unknown ancestor within the Lithostrotionidae during the late Serpukhovian or early Bashkirian on the shelves of western Pangaea. The Durhaminidae also appear to have originated on these shelves during the Late Carboniferous and probably descended, in the equatorial zone, from the kleopatrinid genus *Heintzella* or from a common ancestor. The only Permian diphyphyllinid genus, *Tschussovskenia*, first appeared in cratonic California during the latest Carboniferous and may have spread northward from there. Its morphology points towards *Nemistium* Smith, 1928, as a remote, Late Carboniferous ancestor, but the specific lineage is very speculative. The family Petalaxidae, which was widespread in the Late Carboniferous, was mainly restricted to western North America during the Cisuralian. Its origin and relationship to the Geyerophyllidae Minato, 1955, remain uncertain. [original abstract; Wrzolek]

**Galle A. 2007**. *Spinophyllum* Wedekind, 1922 (Anthozoa, Rugosa) in the Lower Givetian (Devonian) of Bohemian Massif. *Bulletin of Geosciences* **82**(2), 133-144. Czech Geological Survey, Prague. ISSN 1214-1119.
The rugose coral genus *Spinophyllum* Wedekind, 1922 occurs in Moravia (*S. conicum* Kettnerová, 1932 and *S. ondra* sp. nov.). Its most peculiar character is coarse septal trabeculae displaying double bend of charactophyllids. In this, it resembles *Charisphyllum* Oliver & Sorauf, 1988, synonymized with *Spinophyllum*. *Spinophyllum* sp. cf. *conicum* Kettnerová, 1932 known from Koněprusy *Acanthopyge* Limestone of Prague Basin has its slender septal trabeculae arranged in half-fan or asymmetrical fan and do not belong to *Spinophyllum*. The fine structures of rugose corals are repeating at the same taxa in various preservational environments. It seems to prove that these fine structures are at least based

on the structures which originated through the life of corals. The mentioned fine structures were considered important diagnostic feature in the present paper. [original abstract; Galle]

**He Xin-Yi, Chen Jian-Qiang, Tang Lan & Wang Wei-Wie 2006.** New material of rugose corals from the uppermost Ordovician (Hirnantian) in northern Guizhou and their geological significance. *Acta Palaeontologica Sinica* **45** (3), pp. 293-310, 3 pls.
[key words: rugose corals; Hirnantian; Late Ordovician; northern Guizhou]
The latest Ordovician (Hirnantian) rugose coral fauna from the Guanyinqiao Beds in Bije, Remhuai and Shiqian districts of northern Guizhou are studied in detail, and some genera and species are reviewed. 4 genera and 2 species of rugose corals are reported from the Guanyinquiao Beds in northern Guizhou for the first time, they are *Axiphora*, *Bodophyllum*, *Dalmanophyllum*, *Leolasma*, *Brachyelasma unicum* (Neuman), and *Grewingkia anguinea* (Scheffen). In the past, quite a number of rugosan taxa, including the genera *Borelasma*, *Kenophyllum* and *Ullernelasma*, etc. had been discovered in the Guanyinqiao Beds (He 1978, 1985). The present new material thus further enrich the content of the latest Ordovician (Hirnantian) rugosan fauna in the Upper Yangtze region and indicate the close affinities of the late Ordovician rugosan faunas in the Yangtze region to those of the Scandinavia and central Asia.
Up to now, totally 39 species of 18 genera have been found from the Guanyinqiao Beds (tab. 1). Among them, 12 species of 10 genera of rugosan are described in this paper, including *Amplexobrachyelasma* He et Chen gen. nov., *Grewingkia densicolumna* He et Chen sp. nov., *Kenophyllum fossulatum* He et Chen sp. nov. and *Leolasma qianbeiense* He et Chen sp. nov. [original abstract; Oekentorp]

**Liao W.H. et Ma X.P., 2007**. The assemblage sequences and characteristics of the Devonian Givetian and Frasnian rugose corals in near-shore facies from South China. *Acta Palaeontologica Sinica* **46**, pp. 213-224. [Coen-Aubert; Chinese with English summary]

**May A., 2007**. Reply to the critical review of Francisco Soto on the paper by A. May "*Radiastraea* (Anthozoa, Rugosa) from the Emsian and Eifelian (Devonian) of Aviados, Northern Spain". *Bulletin of Geosciences* **82**, pp. 293-296. [Coen-Aubert]

**McLean R. A. 2007**. Kyphophyllid rugose corals from the Frasnian (Upper Devonian) of Canada and their biostratigraphic significance. *Palaeontographica Canadiana* **26**, pp 1-109.
Representatives of the family Kyphophyllidae form a diverse and geographically widespread group in Frasnian (lower Upper Devonian) strata of Canada. From early to late Frasnian strata in western Canada the species *Tabulophyllum athabascense* (Whiteaves), *T. mcconnelli* (Whiteaves), *T. magnum* Fenton and Fenton, *T. mineatum* n. sp., *T. whiteavesi* n. sp., *T. asymmetricum* n. sp., and *T. vesiculosum* n. sp. are described, while a further species of *Tabulophyllum* is left in open nomenclature. *T. telfordi* n. sp. is described from the early Frasnian of eastern Canada. Other described species are from the late Frasnian of western Canada and comprise *Mictophyllum nobile* Lang and Smith, *M. nobile* large variety, *M. semidilatum* Smith and *M. betulinum* n. sp., with the new genus *Plectophyllum* being represented by *P. kindlei* (Smith), *P. whittakeri* (Smith) and *P. pilatum* n. gen. et n. sp.
Biostratigraphy of these taxa is discussed, together with that of previously described western Canadian representatives of the kyphophyllid genera *Smithiphyllum*, *Tarphyphyllum*, *Mikkwaphyllum*, *Parasmithiphyllum*, *Bouvierphyllum*, *Wapitiphyllum* and *Kakisaphyllum*. The biostratigraphic distribution of these species is related to the Montagne Noire conodont zonation previously recognized in the Frasnian of western Canada, and modified western Canadian rugose coral faunal assemblages. [original abstract; Wrzolek]

**Pedder, A.E.H., 2006**. Zoogeographic data from studies of Palaeozoic corals of the Alexander terrane, southeastern Alaska and British Columbia. *Geological Association of Canada, Special Paper* **46**, pp. 29-57. [Coen-Aubert]

**Pickett, J., 2007**. Late Silurian rugose corals from the Cellon and Rauchkofelboden Sections (Carnic Alps, Austria). *Jahrbuch der Geologischen Bundesanstalt* **47**, pp. 545-550. [Coen-Aubert; paper in English with German abstract]

**Porter, D.R., Elias, R.J., and Young, G.A. 2007.** Biometric analysis of corallite size in the colonial rugosan *Crenulites*. *In* B. Hubmann and W.E. Piller (eds.), Fossil Corals and Sponges: Proceedings of the 9th

International Symposium on Fossil Cnidaria and Porifera, Graz 2003. *Österreichische Akademie der Wissenschaften, Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17**, pp 43-50. [Young]

**Poty, E., Devuyst, F.-X. & Hance, Luc., 2006.** Upper Devonian and Mississippian foraminiferal and rugose coral zonations of Belgium and northern France: a tool for Eurasian correlations. *Geological Magazine* **143** (6), pp 829-857.
[keywords: Upper Devonian, Mississippian, Foraminifera, rugose corals, biostratigraphy]
The radiation of early Carboniferous foraminifers and rugose corals following the Devonian-Carboniferous crisis offers the best tool for high-resolution correlations in the Mississippian, together with the conodonts in the Tournaisian, notable in the Namur-Dinant Basin. However, some of the guides are facies-controlled and an integrated approach combining biostratigraphy, Sedimentology and sequence stratigraphy is critical to identify delayed entries, potential stratigraphic gaps and to avoid diachronous correlations. The main difficulty is in correlating shallow and deeper water facies at any given time. In existing zonations, the Viséan part of the scheme is always more detailed, reflecting the widespread development of shallow-water platforms in the early Viséan which created conditions more suitable for foraminifers and rugose corals over larger areas. In contrast, the Tournaisian zones, less well documented, reflect unfavourable environmental conditions in the lower ramp (Dinant Sedimentation Area) and pervasive dolomitization of the inner ramp (Condroz and Namur Sedimentation Area). Recent progress in understanding the Belgian early Carboniferous sequence stratigraphy and lithostratigraphy, and revision of the biostratigraphy of the key sections, strongly modify former biostratigraphic interpretations. Improvements mainly concern the latest Devonian, the late Tournaisian and the early Viséan. The late Devonian and the Tournaisian are equated with foraminifer zones DFZ1 to DFZ8 and MFZ1 to MFZ8 respectively. The Viséan correlates with zones MFZ9 to MFZ14. Zone MFZ15 straddles the Viséan- Namurian boundary and Zone MFZ16 is the youngest Mississippian zone. The rugose corals allow the recognition of the zones, RC0 to RC9, covering the Strunian (late Famennian) to Serpukhovian interval. Discrepancies with former zonations are discussed. The

Moliniacian Stage is emended to restore the coincidence between the base and that of the Viséan. [original abstract; Oekentorp]

**Rodriguez S. & Somerville I. D. 2007.** Comparisons of rugose corals from the Upper Viséan of SW Spain and Ireland: implications for improved resolutions in late Mississippian coral biostratigraphy. *In* B. Hubmann and W.E. Piller (eds.), Fossil Corals and Sponges: Proceedings of the 9th International Symposium on Fossil Cnidaria and Porifera, Graz 2003. *Österreichische Akademie der Wissenschaften, Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17** pp 275-305. [Rodriguez]

**Said I., Berkhli M. & Rodriguez S. 2007.** Preliminary data on the coral distribution in the Viséan from Adarouch Area, Central Messeta (Morocco). *In* B. Hubmann and W.E. Piller (eds.), Fossil Corals and Sponges: Proceedings of the 9th International Symposium on Fossil Cnidaria and Porifera, Graz 2003. *Österreichische Akademie der Wissenschaften, Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17**, pp 353-363. [Rodriguez]

**Said I. & Rodriguez S. 2007.** A new genus of coral (Rugosa), from the Adarouch Area (Brigantian, NE Central Morocco). *Coloquios de Paleontología* **57**, pp 23-35.
A new genus of rugose coral, *Tizraia*, has been recorded in the Tizra and Akerchi formations of the Adarouch area (Brigantian, Central Meseta, Morocco). The new genus is characterized by incomplete, mesa-shaped tabulae, absence of axial structure and presence of well developed lonsdaleoid dissepiments, as well as parricidal increase. It evolved from *Diphyphyllum* by the development of lonsdaleoid dissepiments. Only the type species, *Tizraia berkhlii* gen. nov. et sp. nov. is included with certainty in the new genus, but an additional species represented by one single specimen is tentatively described under this generic name. *Tizraia* has also been recorded in the Djerada Basin (Eastern Morocco) and may be present in Ireland. It has high biostratigraphic value as an Upper Brigantian (Upper Viséan) index taxon. [original abstract; Oekentorp]

**Schroeder St. 2007.** Colonial Rugosa from the Early Devonian (Pragian) of the Zeravshan Range, Tajikistan. *Alcheringa* **31**, 121-151.
The colonial rugose corals of the Shishkat fauna (Pragian, Kshtut

Formation) from the Zeravshan Mountains are compiled and redescribed according to current taxonomic standards. The fauna can be categorized as a so-called '*Carlinastraea*-Fauna', and a generally comparable generic composition is recognized on a global scale. Some Silurian relictual genera such as *Maikottia* or *Pycnostylus* are recorded. Of the 15 taxa discussed, *Australophyllum soghdianum* sp. nov. is described. All other specimens are assigned to known species or discussed in the context of open nomenclature. The Shishkat-fauna is clearly dominated by the Ptenophyllina (especially *Carlinastraea* and *Spongophyllum*), and Ptenophyllidae (*Australophyllum*, *Xystriphyllum* and in particular *Lyrielasma*). A remarkable occurrence of *Vepresiphyllum* indicates a weak faunal relation to eastern Australia. All other taxa show close affinities to coeval associations in the Urals, but especially to those from the Turkestan Range and the south Fergana Valley. The treatment of the Fasciphyllidae is supplemented by a short rediscription of the Turkestan *Fasciphyllum maikottaense* Lavrusevich, 1972 because its type material is lost. [original abstract; Schröder]

**Somerville I. D., Cozar P. & Rodriguez S. 2007.** Late Viséan rugose coral faunas from South-Eastern Ireland: composition, depositional setting and paleoecology of *Siphonodendron* biostromes. *In* B. Hubmann and W.E. Piller (eds.), Fossil Corals and Sponges: Proceedings of the 9th International Symposium on Fossil Cnidaria and Porifera, Graz 2003. *Österreichische Akademie der Wissenschaften, Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17**, pp 307-327. [Rodriguez]

**Somerville I. D. & Rodriguez S. 2007.** Rugose coral associations from the Late Viséan of Western Tethys: examples from Ireland, Britain and Spain. *In* B. Hubmann and W.E. Piller (eds.), Fossil Corals and Sponges: Proceedings of the 9th International Symposium on Fossil Cnidaria and Porifera, Graz 2003. *Österreichische Akademie der Wissenschaften, Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17**, pp 329-351. [Rodriguez]

**Sorauf J. E. 2007**. The function of dissepiments and marginaria in the Rugosa (Cnidaria, Zoantharia). *Österreichische Akademie der Wissenschaften, Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17**, pp. 11-29. [Coen-Aubert]

**Soto F. 2007**. Critical review of the article published by Andreas May (2006): "*Radiastraea* (Anthozoa, Rugosa) from the Emsian and Eifelian (Devonian) of Aviados, Northern Spain". *Bulletin of Geosciences* **82**, pp. 291-292. [Coen-Aubert]

**Soto F. & Schroeder St. 2007**. Lower Devonian rugose corals faunas from the Cantabrian Mountains (NW Spain): phases of development and response to sea-level fluctuations. *Österreichische Akademie der Wissenschaften, Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17**, pp. 199-213. [Coen-Aubert]

**Suedkamp W. H. 2007**. An atypical fauna in the Lower Devonian Hunsrück Slate of Germany. *Paläontologische Zeitschrift* **81**, pp. 181-204. [Coen-Aubert; paper in English with German abstract; contains description of the new genus *Volgerohyllum*]

**Tang Lan, He Xin-yi et Chen Jian-qiang 2007**. New information on Silurian Rugosan genus *Pilophyllia* Ge et Yu, 1974 in northeastern Guizhou. *Acta Palaeontologica Sinica* **46** (1).
[key words: rugose corals, *Pilophyllia* Ge et Yu, Silurian, northeastern Guizhou]
Rugosan genus *Pilophyllia* Ge et Yu, 1974 possesses typical amplexoid septa belonging to the Family Amplexidae. This genus is widespread in Llandovery strata in the upper Yangtze region, China. Numerous specimens of *Pilophyllia* collected from the Xiangshuyuan and Leijatun formation (Aeronian) in the Shiqian area, northeastern Guizhou are studied in the present paper. The diagnosis of this genus is emended, and its geological distribution are discussed in detail. Nine species are described and illustrated here for the first time. Among them, 6 species are new. They are: *Pilophyllum vesiculosa* Tang sp. n., *P. conica* Tang sp. nov., *P. ultima* Tang sp. nov., *P. stylaris* Tang sp. nov., *P. raritabulata* Tang sp. nov. and *P. leijatunensis* Tang sp. nov. In addition, the characteristics of the *Pilophyllia* species population from the Xiangshuyuan and Leijiatun formations in the Shiqian district are briefly discussed and compared with those of the Nngqiang Formation (Telychian), southern Shaanxi and northern Sichuan. [original abstract; Oekentorp]

**Weyer D. 2006**. *Cyathoclisia* Dingwall 1926 (Anthozoa, Rugosa) im Unterkarbon des Rheinischen Schiefergebirges. *Abhandlungen und Berichte für Naturkunde* (Museum für Naturkunde) **29**, pp 23-71. [*Cyathoclisia* Dingwall, 1926 (Anthozoa, Rugosa) in the Early Carboniferous of the Rhenish Mountains - in German, English summary].
The Late Tournaisian (Early Chadian, *Levitusia humerosa* Zone, Cromford Formation) of Ratingen (Velbert Anticline, Rhenohercynian Zone of Variscides) yields *Cyathoclisia* (*Cyathoclisia*) *modavensis* (Salée 1913). There are only two further localities of this common index coral in Germany: an olistolith of Carboniferous limestones within the Bavarian facies of Culm measures in Upper Franconia (Saxothuringian Zone of Variscides), and a borehole on the Baltic Sea island of Rügen (carbonate ramp, southern margin of Baltoscandia).
The amygdalophyllid genus widely distributed in the late Early Tournaisian (late Hastarian) and in the Late Tournaisian (Ivorian, Early Chadian) of Europe and Asia is provisionally subdivided into two subgenera: *Clisaxophyllum* Grabau in Chi 1931 (minor septa short, never contracline) and *Cyathoclisia* Dingwall 1926 (minor septa long and contracline, with biform tabulae, sometimes with diplosepta arising in maturity), but the actual obsolete taxonomy of the genus and the 27 named "species" requires much additional revisions.
The rare German materials and a comparative English sample from Clitheroe (Lancashire) give first doubts about the current, since 1981 accepted synonymy of *Cyathoclisia tabernaculum* Dingwall 1926 and *Cyathoclisia modavensis* (Salée 1913).
Emended future diagnosis of specific taxa are in strong need of studied populations and revised type specimens, especially of the extremely rich Russian *Cyathoclisia* communities; here the classical collection of Ludwig (1862) from the Ural Mountains is well preserved in the university of Göttingen. [original English summary; Weyer]

**Wrzolek T. 2007.** A revision of the Devonian rugosan phillipsastreid genus *Smithicyathus*. *Acta Palaeontologica Polonica* 52 (3): 609-632.
[key words: Rugosa, Phillipsastreidae, *Smithicyathus*, variability, Devonian, Frasnian]
The rugose coral genus *Smithicyathus* is diagnosed in this paper as massive to phaceloid phillipsastreid, with common horseshoe dissepiments and

major septa that are very short in the tabularium. Revised taxonomy of this genus is based on analysis of over 20 numerical characters measured in sections and/or extracted from the literature data. Species are distinguished either by morphometric non-overlap in at least one, key feature or by geographic-stratigraphic isolation. The earliest possible representatives of the genus are known from the Eifelian of Angara (*S.* ? *emendatus* and *S.* ? *russakovi*). In the Upper Frasnian *Smithicyathus* is represented by seven species; in western Euramerica occur *S. cinctus* and *S. mcleani* sp. nov.; south-eastern Euramerican shelf area is with *S. lacunosus*, *S.* cf. *lacunosus*, *S. smithi*, *S.* cf. *smithi*, and *S. lubliniensis*, one probable species is recorded in Angara: *S.*? *belkovskiense*. The genus did not survive the Frasnian-Famennian crisis. *Smithicyathus* lived in tropical and sub-tropical shallow-marine carbonate environments, with the possible exception of the northern mid-latitudes species from Siberia. In the Holy Cross Mountains, *S. lacunosus* and *S. smithi* show a preference for restricted-marine facies. They may make up over 90% of all rugosan colonies collected in such locations, whereas in the more open-marine settings they are rare both in numbers and in proportion to other rugosan species. [original abstract; Wrzolek]

**Zhen Y.Y. 2007**. Revision of *Microplasma parallelum* Etheridge 1899 (Cnidaria: Rugosa) from the Middle Devonian Moore Creek Limestone of New South Wales. *Proceedings of the Linnean Society of New South Wales* **128**, pp 201-208.
[key words: Devonian, *Loyolophyllum*, Moore Creek Limestone, Rugose corals]
The holotype and sole known specimen of the rugosan coral *Microplasma parallelum* Etheridge 1899 is reassessed. This phaceloid species with only sporadic occurrence of isolated dissepiments or presepiments is here selected as type species of the new subgenus *Loyolophyllum* (*Fasciloyolophyllum*), which is erected to accommodate phaceloid species otherwise resembling *Loyolophyllum* (*Loyolophyllum*). Two other species previously referred to *Fasciphyllum*, from the Devonian of China, are also ascribed to this new subgenus. Review of the concept of *Loyolophyllum* sensu stricto leads to a reappraisal of those species assigned to it. [original abstract; Wrzolek]

## Tabulata bibliography / new papers / last updated in December 2008

**Bae B.-Y., Elias R. J. and Lee D.-J. 2008.** Morphometrics of *Manipora* (Tabulata; Upper Ordovician; southern Manitoba, Canada). *Journal of Paleontology* **82**, pp 78-90.

**Bae B.-Y., Lee D.-J. and Elias R. J. in press.** Life-history strategies of *Manipora amicarum* Sinclair, 1955 (Tabulata; Upper Ordovician; southern Manitoba, Canada). *Lethaia* **41**, 4: 367-381. [Elias et Young]

**Chatterton B. D. E., Copper P., Dixon O. A. et Gibb S. 2008.** Soft polyps with spicular sclerites in Silurian favositid corals from Anticosti Island, E. Canada, and Silurian heliolitids from the Canadian arctic. *Palaeontology* **51**, 1: 173-198. [Copper]

**Elias R. J., Lee D.-J. et Woo S.-K. 2008.** Corallite increase and mural pores in *Lichenaria* (Tabulata, Ordovician). *Journal of Paleontology* **82**, 2: 377-390. [Elias et Young]

**Lee D.-J., Jun Y.-H., Bae B.-Y. and Elias R. J. 2007.** Axial increase in some early tabulate corals. *In* **B. Hubmann** and **W.E. Piller** (eds.), Fossil Corals and Sponges: Proceedings of the 9th International Symposium on Fossil Cnidaria and Porifera, Graz 2003. *Österreichische Akademie der Wissenschaften, Schriftenreihe der Erdwissenschaftlichen Kommissionen* **17**, pp 31-41. [Young]

**Motus M.-A. 1997.** Tabulate corals. *In* **Raukas A. and Teedumäe A.** (eds): Geology and mineral resources of Estonia Tallinn: 219-223.
Due to the favourable climatic and shallow-water conditions in the Estonian part of the Baltic Basin, tabulates played a significant role in the Late Ordovician and Silurian faunal assemblages. In Estonia, the earliest tabulates are known from the Late Caradoc. *Lyopora tulaensis* Sokolov, *Saffordophyllum grande* Sokolov, *Eoflecheria orvikui* Sokolov, occur in the Vasalemma reef facies of the Oandu Stage. At the beginning of the Late Ordovician, the conditions for tabulates were unfavourable, therefore the fossils are rare. Only one species, *Catenipora obliqua* (Fischer-Benzon) has been recorded from the Nabala Stage. Diversification of the Late Ordovician tabulate fauna began in the Vormsi Age with the appearance of

the first *Paleofavosites* - *P. schmidti* Sokolov and *P. borealis* Tshernyshev. The most ancient heliolitids (*Wormsipora*, *Esthonia*, *Protaraea*) are also known from the Vormsi Stage. Sarcinuliids and halysitids (*Catenipora*) became common for the first time. During the Pirgu Age diversification continued. The tetradiids (*Cryptolichenaria multiplex* Klaamann) appeared for the first time in the Baltic area. The halysitid *Eocatenipora* was widely distributed and early heliolitids were well developed. The Late Ordovician favositids were blooming in the Porkuni Age. The first records of *Porkunites*, *Mesofavosites* and *Priscosolenia* are from the same age. The beginning of the Silurian was a time of rapid diversification of *Mesofavosites* and *Paleofavosites*. In the middle of Llandovery, *Multisolenia* and *Parastriatopora* were added to *Favosites* and favositids became the dominant group of tabulates in the Silurian. The Juuru Stage is characterized by a few genera of tabulates. *Paleofavosites* and *Mesofavosites* were the most common genera at that time. *Catenipora* was common at the beginning of the age. The oldest representatives of the genera *Halysites* (*H. priscus* Klaamann) and *Favosites* (*F. antiquus* Sokolov) appeared. In the Raikküla Stage representatives of the genus *Paleofavosites* are less numerous than in the Juuru Stage whereas *Favosites* is more abundant. Such genera as *Parastriatopora*, *Multisolenia*, *Syringopora*, *Vacuopora* and *Sinopora* appeared at that time. In the Adavere Stage the assemblage of tabulates is more diverse, but less endemic than the Raikküla assemblage. The first alveolitids and coenitids occur, auloporids and halysitids (*Catenipora*) are widespread. The morphology of the tabulates in the Adavere Stage is quite different from those appearing in the Wenlock. The Jaani Age was characterized by major changes in the tabulate fauna: *Syringolites*, *Thecia* and *Mastopora* appeared first at the end of this age; *Mesofavosites* and *Catenipora* disappeared. *Paleofavosites*, *Mesofavosites*, *Favosites*, *Catenipora* and *Halysites* were poorly represented in the Jaani fauna. During the Jaagarahu Age, the diversity of tabulates rose again. That can be explained by more favourable enviromental conditions in a widespread shoal facies. The new genera *Cladopora* and *Romingerella* appeared at that time. In the Jaagarahu fauna the typical Silurian tabulate genera were almost fully represented, but at the end of the age *Multisolenia* and *Halysites* disappeared from the Estonian sequence, which preceeded their disappearance in surrounding areas. The

Rootsiküla Stage is characterized by rare *Favosites* and an abundance of *Parastriatopora commutabilis*, specific to the stage. In the Ludlow, tabulates had a low generic diversity. Of those, *Favosites* was important. A few representatives of *Thecia*, *Romingerella*, *Laceripora* and *Syringopora* have been found from the Paadla Stage. *Favosites* was more diverse than in the Rootsiküla Stage. Most tabulates disappeared at the end of the Paadla Age. The Kuressare Stage has a very poor record of tabulates and only a few species of *Favosites* and *Aulopora* have been found. No changes at the generic level took place at the Ludlow - Pridoli transition. The last few species of *Paleofavosites* occur in the Kaugatuma Stage, whereas *Favosites* is quite common. *Syringopora* and *Mesosolenia* are rare. The tabulate fauna of the Ohesaare Stage does not differ significantly from that of the Kaugatuma Stage and only a few species have been recorded. [original summary; Motus]

**Motus M.-A. 2001.** Environment-related morphological variations of early Silurian tabulate corals from Baltic area. *Tohoku University Museum Bulletin* **1**: 62-69. [Motus]

**Motus M.-A. 2004.** Tabulate corals from the Lower Silurian of Jämtland (Sweden). *GFF* **126**: 339–352. [Motus]

**Motus M.-A. 2006.** Intraspecific variation in Wenlock tabulate corals from Saaremaa (Estonia) and its taxonomic implications. *Proceedings of the Estonian Academy of Sciences, Geology* **55**, 1: 24-42.
[keywords: Wenlock, Baltoscandia, tabulates, intraspecific variation]
Different aspects of intraspecific variation in Wenlock tabulate corals are discussed. Intracorallum and intraspecific variation is demonstrated in specimens within the collection from one locality. The diagnostic characters of *Halysites senior* Klaamann and *Catenipora oriens* Klaamann and those of *Paleofavosites secundus* (Klaamann) and *Favosites jaaniensis* Sokolov overlap and therefore these species are regarded as synonyms. *Propora raricellata* Sokolov is a possible synonym of *P. tubulata* (Lonsdale), because the character differentiating these species is variable. [original abstract; Motus]

**Motus M.-A and Grytsenko V. 2007.** Morphological variation of the tabulate coral *Paleofavosites* cf. *collatatus* Klaamann 1961 from the

Silurian of the Bagovichka River localities, Podolia (Ukraine). *Estonian Journal of Earth Sciences* **56**, 3: 143-156.
[keywords: Silurian, Ludlow, Podolia, Tabulata, morphological variation]
*Paleofavosites* cf. *collatatus* Klaamann occurs abundantly in marls and bioherms of the Muksha Member of the Bagovitsa Formation (Upper Silurian, Ludlow). The morphological variation of this species identified in different localities is analysed. The biometrical data show that there is no substantial variation among specimens from different localities except that corallum shapes are taller in marls than in bioherms and corallites are slightly smaller in specimens from bioherms. The irregular growth of coralla is common to this area. [original abstract; Motus]

**Motus M.-A. and Klaamann E. 1999.** Halysitid corals of Gotland. *GFF* **121**: 81-90. [Motus]

**Motus M.-A. and Sandstroem O. 2005.** *Cystihalysites* sp. and its significance to biostratigraphy and event stratigraphy in the Ludlow (Late Silurian) of Gotland, Sweden. *GFF* 127: 269-272. [Motus]

**Plusquellec Y. 2007**. Histoire naturelle des Pleurodictyiformes (Cnidaria, Tabulata, Devonien) du Massif Armoricain et des regions Maghrebo-Europeennes principalement. *Memoirs de la Societe Geologique et Mineralogique de Bretagne* **32** (2007), pp 1-138.
[key words: Coelenterata, Cnidaria, Tabulata, Micheliniidae, Cleistoporidae, *Pleurodictyum*-like corals, Devonian, Armorican Massif, Gondwana, Laurussia, systematics, paleobiogeography]
The present memoir consists of three main chapters distributed as follows: 1- general considerations about the morphology, structure and microstructure of the *Pleurodictyum*-like corals, 2- systematic, stratigraphic and paleobiogeographic studies of the genera belonging to the Micheliniidae and the Cleistoporidae, 3- global conclusions dealing with biostratigraphy and paleobiogeography.
1 - Some data about the morphology and a glossary of morphological terms are given. The systematics of Hill's Treatise on Invertebrate Paleontology is used for families and subfamilies. Revised and supplemented generic diagnosis are given. The systematic value of the microstructure and its place in the hierarchy of characters for the families, subfamilies and genus definition is examined; an alternative systematics for the Micheliniidae is

submitted despite the difficulties of its application owing to the preservation of some genera in natural casts. A summary of the *Pleurodictyum*-like corals microstructure is supplemented by new data on the wall and on the basal plate of the so-called well known genera *Pleurodictyum* and *Granulidictyum*. Concerning the *Pleurodictyum-Hicetes* system, rare, unusual and/or new data are studied and the related specimens figured; the fact that the presence/absence of *Hicetes* is in no case a diagnostic character is clearly established. The study of the development of the corallum allows to define two kinds of prototriads: the contiguous type (usual in *Pleurodictyum*, *Ligulodictyum* and *Cleistopora*) and the open type (well known in *Petridictyum*). Two kinds of architectures of the corallum are also defined: the pleurodictyoid setting, organized around the prototriad (known in most of the *Pleurodictyum*-like corals) and the petrioid setting, organized around the protocorallite (diagnostic of *Petridictyum*).
2 - The following genera are studied: *Pleurodictyum* Goldfuss, 1829, *Petridictyum* Schindewolf, 1959, *Pterodictyum* Plusquellec, 1998, *Kerforneidictyum* Lafuste et Plusquellec, 1976, *Procteria* Davis, 1887, *P*. (*Granulidictyum*) Schindewolf, 1959, *P*. (*Pachyprocteria*) Plusquellec, 1970, *P*. (*Procteria*) Davis, 1887, *P*. (n. subgen. ?) Plusquellec in le Menn et al., 2002, *Procterodictyum* Plusquellec, 1993, *Amazonodictyum* n. gen., *Cleistopora* Nicholson, 1888, *Aporodictyum* Plusquellec, 1976, *Paracleistopora* Plusquellec, 1973, *Cleistodictyum* Plusquellec, 1973, *Ligulodictyum* Plusquellec, 1973 and *Vaughaniopsis* n. gen. A detailed diagnosis and a critical list of the species assigned to the genus are given for each of them; the corpus of the world-wide known occurrences for each genus is summarized in a table, giving its specific assignment, locality and related palaeocontinent, lithostratigraphic unit, age and bibliographic references. The stratigraphic and paleogeographic distribution of each genus is given in a set of maps. Two new genera, *Amazonodictyum*, type-species *Pleurodictyum amazonicum* Katzer, 1903, and *Vaughaniopsis*, type-species *V. lafusti* n. sp., are described. The results of works in progress, dealing with cf. *Petridictyum* n. gen. ? from the Lochkovian of Victoria (Australia) which exhibits a new structure of the protocorallite called "initial step", and with a *Ligulodictyum*-like coral from the Famennian of Devon (GB) are given.
3 - In the Devonian of the Rade de Brest (Armorican Massif, France) the

first occurrence of *Pleurodictyum*-like corals in the Lower Lochkovian (*Ligulodictyum*), their revival during the Lower Emsian (BZE ?) and then during the Upper Emsian, and their extinction in the Upper Givetian (top of *varcus* Zone ?) is emphasized. Accurate data concerning the global stratigraphy and paleobiogeography of the *Pleurodictyum*-like corals, their Silurian roots, their height diversity in the Ibarmaghian Domain, their post Givetian crisis, and their probable ways of dispersion are dealt with. The problem of the poorly known species from Siberia is emphasized. On the basis of "simultaneous" occurrences of *Ligulodictyum* in the Lower Lochkovian of both Armorican Massif and Victoria, indisputable relations between these two perigondwanian areas are clearly demonstrated but do not allow to clarify the direction of migrations. [original English abstract of the paper in French; Wrzolek]

**Vinn O. & Motus M.-A. 2008.** The earliest endosymbiotic mineralized tubeworms from the Silurian of Podolia, Ukraine. *Journal of Paleontology* **82**, 2: 409-414.
The earliest endosymbiotic tubeworms have been discovered within skeletons of the tabulate coral *Heliolites* sp. from the Silurian (Ludlow) of Podolia, Ukraine. The new tubeworm species has a maximum diameter about 1 mm, a slightly conical tube, a smooth lumen in the tube and a lamellar wall structure. The tube wall is 0.05–0.10 mm thick. The new endosymbiotic tubeworm *Coralloconchus bragensis* n. gen. and sp. shares zoological affinities with the tentaculitids (incertae sedis) and is assigned to the Family Cornulitidae (Tentaculita, Cornulitida). [original abstract; Motus]

**Young G. A., Rudkin D. M., Dobrzanski E. P., Robson S. & Nowlan G. S. 2007.** Exceptionally preserved Late Ordovician biotas from Manitoba, Canada. *Geology* **35**, pp 883-886. [Young]

**Zapalski M. K., Pinte E. & Mistiaen B. 2008.** Late Famennian ?*Chaetosalpinx* in *Yavorskia* (Tabulata): the youngest record of tabulate endobionts. *Acta Geologica Polonica* **58**, 3: 321-324.
[key words: parasitism, commensalism, Strunian, Famennian, Tabulata, *Chaetosalpinx*, Ardennes]
Tabulate corals are sometimes associated with other organisms occurring within their skeletons. These tabulate endobionts are common in Lower

Palaeozoic (Ordovician and Silurian) and Devonian strata, but until now they have not been recognized in strata younger than early Frasnian. Here we report ?*Chaetosalpinx* sp. occurring within the skeletons of the tabulate coral *Yavorskia* sp. (Favositida, Cleistoporidae) from the latest Famennian ("Strunian") in the Etroeungt area (Northern France). It can be stated that these endobionts survived the Frasnian-Famennian boundary crisis and recovered in the Late Famennian. [original summary; Wrzolek]

## Scleractinia bibliography / new papers / last updated in October 2008

**Aguilar T. & Denyer P. 2001**. Una especie nueva de *Euphyllia* (Scleractinia: Caryophylliidae) en las calizas de Barra Honda (Paleógeno), Costa Rica. *Rev. Biol. Trop.* **49**, suppl. 2: 195-201.
A new species of scleractinian coral is described: *Euphyllia donatoi*. This is the first report of this genus from Central America. The outcrop is located on the north-west of Costa Rica. It consists of large colonies (1.2 m high by 0.5 m in diameter), from a patch reef which had a dendroid habit. They are part of a very distintive facies in a micritic limestones of the Barra Honda Formation (Paleogene). The finding is important because these are the only macrofossils found in Barra Honda Formation. The growth took place under unstable ecological conditions resulting in a low diversity autocthonous community. It probably developed in very shallow water with a high sedimentation rate. [original abstract; Loeser]

**Baron-Szabo R.C., Schafhauser A., Goetz S. & Stinnesbeck W. 2006**. Scleractinian corals from the Cardenas Formation (Maastrichtian), San Luis Potosi, Mexico. *Journal of Paleontology* **80** (6), pp 1033-1046.
A detailed taxonomical description of scleractinian corals from the Maastrichtian of Mexico (Cardenas Formation) is given for the first time. The coral association comprises 16 taxa which belong to 9 families: *Dictuophyllia conferticostata* (Vaughan), *Cladocora jamaicaensis* Vaughan, *Cladocora gracilis* (d'Orbigny), *Antiguastrea cellulosa* Duncan), *Multicolumnastraea cyathiformis* (Duncan), *Placocoenia major* Felix, *Siderastrea vancouverensis* Vaughan, *Siderastrea adkinsi* (Wells), *Goniopora* sp., *Actinacis haueri* Reuss, *Actinacis parvistella* Oppenheim, *Actinhelia elegans* (Goldfuss), *Meandrophyllia oceani* (de Fromentel),

*Dermosmiliopsis orbignyi* Alloiteau, *Trochoseris aperta* Duncan, and *Cyathoseris formosa* d'Achiardi. The corals described herein were collected from mixed coral-rudist and coral-dominated assemblages in the Arroyo de la Atarjea, and one unnamed riverbed which lithologically correspond to the Arroyo de la Atarjea section, both of which belong to the upper member of the Cardenas Formation. On the genus level, 94% of the Mexican fauna corresponds to the Maastrichtian coral assemblages of Jamaica. Moreover, the Cardenas fauna shows close affinities to both Upper Cretaceous coral associations of central Europe and the Caribbean, as well as to Lower Tertiary faunas of Central America and the Caribbean. On the species level, 68.8% of the Cardenas corals are known from Lower Tertiary strata of Central America, the Caribbean, South America, Asia, European / Mediterranean region, and/or southeastern parts of the USA. [original abstract; Baron-Szabo]

**Benzoni, F., Stefani, F., Stolarski, J., Pichon, M., Mitta, G. & Galli, P. 2007**. Debating phylogenetic relationships of the scleractinian *Psammocora*: molecular and morphological evidences. *Contributions to Zoology* **76** (1): 33-52.
The phylogenetic relationships of the scleractinian genus *Psammocora* with the other genera traditionally included in the family Siderastreidae and some Fungiidae are assessed based on combined skeletal and molecular data. *P. explanulata* differs from the other examined congeneric species (*P. contigua*, *P. digitata*, *P. nierstraszi*, *P. profundacella*, *P. superficialis*, and *P. stellata*) in possessing interstomatous septa between adult corallites, costae, and in having continuous buttress-like structures joining septal faces (i.e., fulturae) which typically occur in fungiids. These characters are shared with *Coscinaraea wellsi* but not with the remainder of the examined siderastreids (the congeneric *C. columna*, and *Anomastraea irregularis*, *Horastrea indica*, *Pseudosiderastrea tayamai*, *Siderastrea savignyana*) whose septa are interconnected by typical synapticulae. Most of the examined species form septa with distinct transverse groups of centers of calcification, a biomineralization pattern typical of the Robusta clade. The observations on skeletal structures corroborate the results of the ITS2 and 5.8S molecular phylogeny. *C. wellsi* and *P. explanulata* are phylogenetically very close to each other and show closer genetic affinity with the examined Fungiidae (*Halomitra pileus*, *Herpolitha limax*, *Fungia*

*paumotensis*, and *Podabacia crustacea*) than with the other species in the genera *Psammocora* and *Coscinaraea*, or with any other siderastreid. Our results show that neither *Psammocora* nor *Coscinaraea* are monophyletic genera. The high genetic distances between the species of Siderastreidae, especially between *Pseudosiderastrea tayamai* and *Siderastrea savignyana* on one side and the other genera on the other, suggest a deep divergence in the phylogenetic structure of the family. [original abstract; Kolodziej]

**Blain H.-A. 2005**. Presence de coraux (Anthozoa, Hexacorallia) dans le Callovo-Oxfordien basal de falaise des Vaches-Noires (Calvados, France). *L'Écho des Falaises* **9**, pp 71-77, 1 pl.
For the first time the occurrence of corals is reported from the lower part of the Vache-Noir Cliffs of Late Callovian to Early Oxfordian age. The corals are represented by very early stages of supposedly solitary corals which are attached to a gastropod shell. They do not allow determination. [Loeser]

**Budd A. F. and Stolarski J. (in press).** Searching for new morphological characters in the systematics of scleractinian reef corals: Comparison of septal teeth and granules between Atlantic and Pacific Mussidae. *Acta Zoologica*.
Recent molecular analyses have challenged the traditional classification of scleractinian corals at all taxonomic levels suggesting that new morphologic characters are needed. Here we tackle this problem for the family Mussidae, which is polyphyletic. Most of its members belong to two molecular clades composed of: (1) Atlantic Mussidae and Faviidae (except *Montastraea*), (2) Pacific Mussidae (*Cynarina*, *Lobophyllia*, *Scolymia*, *Symphyllia*) and Pectiniidae. Other Pacific mussids (e.g., *Acanthastrea*) belong to additional clades. To discover new characters that would better serve as phylogenetic markers, we compare the skeletal morphology of mussid genera in different molecular-based clades. Three sets of characters are considered: (1) macromorphology (budding; colony form; size and shape of corallites; numbers of septal cycles), (2) micromorphology (shapes and distributions of septal teeth and granules), and (3) microstructure (arrangement of calcification centers and thickening deposits within costosepta). Although most traditional macromorphologic characters exhibit homoplasy, several new micromorphologic characters are effective at distinguishing clades, including the shapes and distribution of septal teeth

and granules, the area between teeth, and the development of thickening deposits. Arrangements of calcification centers and fibers differ among clades, but the fine-scale structure of thickening deposits does not. [Budd]

**Budd A. F. and C. C. Wallace (in press).** First record of the Indo-Pacific reef coral genus *Isopora* in the Caribbean region: Two new species from the Neogene of Curaçao, Netherlands Antilles. *Palaeontology*.
The coral genus *Isopora*, a sister group of the modern dominant *Acropora* until now only known from the Pliocene to Recent of the Indo-Pacific, is recorded in the Caribbean for the first time. Two new species, *Isopora ginsburgi* and *Isopora curacaoensis*, are described from the Neogene Seroe Domi Formation of Curaçao, Netherlands Antilles. Study of large collections made systematically through the sequence indicates that *Isopora* first occurred in the Caribbean during the Mio-Pliocene, at approximately the same time as the origination of many modern Caribbean reef coral dominants including *Acropora cervicornis*. It last occurred in the region during the late Pliocene as part of a pulse of extinction, in which several genera that live today in the Indo-Pacific became extinct in the Caribbean. Throughout its Caribbean duration, *Isopora* co-occurred with the two abundant modern Caribbean species of *Acropora*, *A. cervicornis* and *A. palmata*. Comparisons with Neogene collections made elsewhere in the Caribbean indicate that *Isopora* was restricted in distribution to the southern Caribbean. *Isopora* species are viviparous, while *Acropora* are oviparous, and this difference in reproductive strategy may have played a role in the extinction of *Isopora* in the Caribbean. The occurrences of *Isopora* reported in this study are the oldest records to date of *Isopora* worldwide, and are important for understanding the biogeographic separation between reef coral faunas in the Caribbean and Indo-Pacific regions. [Budd]

**Cairns S.D. 2003**. A new species of *Sphenotrochus* (Scleractinia: Turbinoliidae) from the Late Miocene (Tortonian) of Chile. *Zoologische verhandelingen* **345**, pp 79-84.
A new species of azooxanthellate Scleractinia, *Sphenotrochus denhartogi*, is described from the Late Miocene (Tortonian, Navidad Formation) of Chile. Comparisons are made to three other closely related species which, based on their distinctive costal morphology, form a species complex: *S.*

*claibornensis, S. senni*, *S. denhartogi*, and *S. auritus*. This is the first record of *Sphenotrochus* from the west coast of South America. [original abstract; Loeser]

**Carruthers A. H. and Stanley G. D. jr 2008.** Systematic analysis of Upper Triassic silicified scleractinian corals from Wrangellia and the Alexander Terrane, Alaska and British Columbia. *Journal of Paleontology* **83**, 3: 470-491.
Acid processing allowed systematic identification of 458 Upper Triassic silicified scleractinian corals (20 genera, 47 species) from the Alexander terrane (southeast Alaska) and Wrangellia (Wrangell Mountains, southern Alaska and Vancouver Island, Canada). Coral faunas, here presented, show taxonomic affinity with coeval collections from other Cordilleran terranes, specifically the Wallowa terrane (northeastern Oregon and Idaho) and Peru (South America) as well as the distant Tethys region. Genera from the Alexander terrane include: *Kompsasteria* Roniewicz, *Gablonzeria* Cuif, *Cuifia* Melnikova, *Paracuifia* Melnikova, *Distichophyllia* Cuif, *Retiophyllia* Cuif, *Kuhnastraea* Cuif, *Margarosmilia* Volz, *Distichomeandra* Cuif, *Astraeomorpha* Reuss, *Pamiroseris* Melnikova, *Crassistella* Roniewicz, *Stylophyllum* Frech, and *Meandrostylis* Frech. Genera from Wrangellia include: *Gablonzeria* Cuif, *Distichophyllia* Cuif, *Retiophyllia* Cuif, *Kuhnastraea* Cuif, *Margarosmilia* Volz, *Distichomeandra* Cuif, *Astraeomorpha* Reuss, *Parastraeomorpha* Roniewicz, *Chondrocoenia* Roniewicz, *Pamiroseris* Melnikova, *Crassistella* Roniewicz, *Ampakabastraea*? Alloiteau, *Recticostastraea* Stanley and Whalen, *Meandrostylis* Frech, *Anthostylis* Roniewicz, and the new genus *Campesteria* n. gen. New species include: *Gablonzeria grandiosa* n. sp., *Paracuifia smithi* n. sp., *Paracuifia jennieae* n. sp., *P. anomala* n. sp., *Retiophyllia dendriformis* n. sp., *R. obtusa* n. sp., and *Campesteria prolixia* n. sp. [Stanley]

**Chaix C., Cahuzac B. and Cluzaud A. 1999** (b). Les Scléractiniaires du SerravaIlien de Pessac (Nord-Aquitaine, France); approche paléoécologique. *Geobios* **32**, 1, pp 33-62.
An abundant fauna of Scleractinian corals has been studied from a Mid Miocene (Serravallian) new outcrop in the North Aquitaine Basin (SW France). It consists of more than fifteen taxa, with a noticeable

diversification in the genera *Flabellum* and *Balanophyllia*; 10 of these taxa are new in the Miocene of the Aquitaine Basin. This is probably the richest assemblage of the French Serravallian. The name *Flabellum montanaroae* nov. nom. is set. Biogeographically, the studied locality bears witness to Northern, Atlantic and Mediterranean influences. The ahermatypic content of the fauna agrees with the observed general trends to a gradual disappearance of reefal species and to a cooling in neritic waters during the Mid Miocene along the Northeastern Atlantic frontage. In terms of paleoecology, the corals-rich deposit contains an abundant malacofauna, which indicates an infralittoral, euhaline, and fairly calm environment, with a marly-sandy substrate; this biofacies looks like the muddy facies of the modern assemblage SFBC ("Sables Fins Bien Calibres"). [original abstract; Loeser]

**Deng Zhan-qiu 2006.** Middle Triassic Corals from W. Guangxi and S. Guizhou. *Acta Palaeontologica Sinica* **45**, 1: 42-51, 3 pls. [Loeser]

**Filkorn H.F. 2006**. Mesozoic corals of Mexico. *In*: **Vega-Vera F.J., Nyborg T.G., Perrilliat M.C. et al.** (Eds.), Studies on Mexican Paleontology. Topics in geobiology pp 47-59, 1 tab.
The majority of the Mesozoic scleractinian corals reported from Mexico, 117 species or about 80 percent, are from Cretaceous strata. Comparatively little is known of the earlier Mesozoic corals. The Jurassic corals, a total of 17 species, have been described from five localities in Mexico, all in Upper Jurassic rocks. The 10 Triassic coral species described from Mexico are from the Upper Triassic Antimonio Formation of northwestern Sonora. The majority of the Jurassic and Triassic coral species reported from Mexico have been described previously from occurrences in Europe. [original abstract; Loeser]

**Fukami H., Chen C. A., Budd A. F., Collins A., Wallace C., Chuang Y.-Y., Chen C., Dai C.-F., Iwao K., Sheppard C., Knowlton N. (in press).** Mitochondrial and nuclear genes suggest that stony corals are monophyletic but most families of stony corals are not (Order Scleractinia, Class Anthozoa, Phylum Cnidaria). *PLoS One*.
Modern hard corals (Class Hexacorallia; Order Scleractinia) are widely studied because of their fundamental role in reef building and their superb fossil record extending back to the Triassic. Nevertheless, interpretations of

their evolutionary relationships have been in flux for over a decade. Recent analyses undermine the legitimacy of traditional suborders, families and genera, and suggest that a non-skeletal sister clade (Order Corallimorpharia) might be imbedded within the stony corals. However, these studies either sampled a relatively limited array of taxa or assembled trees from heterogeneous data sets. Here we provide a more comprehensive analysis of Scleractinia (127 species, 75 genera, 17 families) and various outgroups, based on two mitochondrial genes (cytochrome oxidase I, cytochrome b), with analyses of nuclear genes (ß-tubulin, ribosomal DNA) of a subset of taxa to test unexpected relationships. Eleven of 16 families were found to be polyphyletic. Strikingly, over one third of all families as conventionally defined contain representatives from the highly divergent "robust" and "complex" clades. However, the recent suggestion that corallimorpharians are true corals that have lost their skeletons was not upheld. Relationships were supported not only by mitochondrial and nuclear genes, but also often by morphological characters which had been ignored or never noted previously. The concordance of molecular characters and more carefully examined morphological characters suggests a future of greater taxonomic stability, as well as the potential to trace the evolutionary history of this ecologically important group using fossils. [Budd]

**Hanske H. & Loeser H. 2006.** Annotated Bibliography on Extant Corals (1758-2002). *Coral Research Bulletin* **8**, 35 pp. + CD-ROM.
This bibliography contains 9,132 references to literature on all aspects of extant corals (Anthozoa: Scleractinia, Helioporidae, Tubiporidae; Hydrozoa: Milleporidae). All entries have been very carefully checked and supplemented with information on the subject matter, and the origin of the material reviewed. The accompanying CD ROM contains the bibliography in the form of a database as well as a menu-driven search program for Windows-compatible computers. [original abstract; Loeser; for more data see "Fossils & databases" section of this volume]

**Johnson K. G. and Kirby M. X. 2006**. The Emperador limestone rediscovered: Early Miocene corals from the Culebra Formation, Panama. *Journal of Paleontology* **80**, 2, pp 283-293.
Caribbean reefs underwent significant biotic change during the Late

Oligocene and Early Miocene. This was a critical time in the evolution of the modern Caribbean fauna characterized by increasing endemism resulting from regional extinction of lineages that survive in the modern Indo-Pacific. An understanding of the dynamics and potential causes of the Oligocene/Miocene transition, however, is hampered by the relative lack of well-preserved Oligocene to early Miocene coral faunas in the Caribbean. Here we examine new exposures in the Culebra Formation of Panama that contain a well-preserved coral fauna of Early Miocene age. Taxonomic, stratigraphic, and paleoecologic study of the Culebra Formation exposed along the Gaillard Cut of the Panama Canal allows us to infer the paleoenvironments and reef coral communities from the Panama Canal Basin during this critical interval. The Culebra Formation consists of a deepening upward sequence with shallow-lagoon sediments at the base, overlain by fringing reef facies in the middle of the section, and open-shelf to bathyal facies at the top of the section. We recovered 31 species of reef corals from a combination of new and old collections. Comparison of our collections with other Late Oligocene to Middle Miocene reef coral assemblages confirms that there was a major faunal turnover after deposition of the Upper Oligocene Antigua Formation. This turnover consisted of a large number of extinctions followed by an increased rate of first occurrences so that regional diversity did not change appreciably. Improved stratigraphic resolution at this and other Caribbean localities is required to understand fully the dynamics of change during the Oligocene/ Miocene transition. [original abstract; Loeser]

**Johnson K. G. 2007**. Reef-coral diversity in the Late Oligocene Antigua Formation and temporal variation of local diversity on Caribbean Cenozoic Reefs. *In*: Hubmann, B., Piller, W.E. (Eds.), Fossil corals and sponges. *Schriftenreihe der Erdwissenschaftlichen Kommissionen der Österreichischen Akademie der Wissenschaften* **17**: 471-491. [Loeser]

**Klaus J. S., Budd A. F., Heikoop J. M. and Fouke B. W. 2007.** Environmental controls on corallite morphology in the reef coral *Montastraea annularis*. *Bulletin of Marine Science* **80**: 233-260. [Budd]

**Loeser H. 2006** (b). Taxonomy, stratigraphic distribution and palaeobiogeography of the Early Cretaceous coral genus *Holocystis*. *Revista mexicana de ciencias geologicas* **23**, 3, pp 288-301.

The Early Cretaceous Scleractinian coral genus *Holocystis* Lonsdale, 1849 - first reported for southern England and for a long time believed to be restricted to this region - is easy to recognise but it is also rare. Abundant material from the Late Barremian to Early Albian found in Sonora (Mexico) as well as the available type material and additional material from Europe and East Africa allowed a systematic revision. Five species are distinguished. One of them - *Holocystis nomikosi* - is described as a new species. Three species previously described for other genera were assigned to the genus *Holocystis* and two species formerly assigned to *Holocystis* were found to belong to other genera. Two genera (*Tetracoenia* and *Nowakocoenia*) are considered junior synonyms of *Holocystis*. The stratigraphic extent of the genus was limited to the range from the Barremian to the Early Albian. *Holocystis* is not a common coral genus but occurred in a large geographic area comprising the central Tethys, the Caribbean, and even the eastern to south-eastern Tethys. It is restricted to sediments with a certain terrigenous input. [original abstract; Loeser]

**Loeser H. 2006** (c). Barremian corals from San Antonio Texcala, Puebla, Mexico - a review of the type material of Felix 1891. *Boletin del Instituto Geologico de Mexico* **114**, pp 1-68 (CD-ROM).
The Barremian coral fauna from San Antonio Texcala described by the German palaeontologist Johannes Felix is revised. The material is completely recrystallized; therefore, it was not possible to study the internal structures. Studies were exclusively confined to the coral surface. The original type locality of the material was not located in the field. Corals found in the outcrops at the presumed type locality area differ in their preservation and taxonomic composition. The nearby localities of the San Juan Raya Formation yielded corals different from those of San Antonio Texcala. The only material available for a revision is therefore the collection material at the Leipzig University (Germany). Forty-two species are assigned to 26 genera, six species more than described by Felix. Most species belong to the suborders Stylinina, Faviina, and Microsolenina, the most common genera are *Cryptocoenia* and *Polyphylloseris*. The suborders Archeocaeniina, Amphiastraeina, and Rhipidogyrina, which are usually common in the Early Cretaceous, are conspicuous by their complete absence from the fauna of San Antonio Texcala. Stratigraphically, the fauna shows affinities with faunas between the very Late Jurassic and the

Campanian, though the closest correlation is with early Aptian associations. Palaeobiogeographic relationships are slight and exist mainly with Barremian-Aptian faunas of the central Tethys, the Caribbean, and even Asian and Boreal provinces. [original abstract; Loeser]

**Loeser H. 2007.** (a) Morphology, taxonomy and distribution of the Cretaceous coral genus *Preverastraea* (Late Barremian-Cenomanian; Scleractinia). *Rivista italiana di paleontologia e stratigrafia* **113**, 1: 3-19. The Cretaceous coral genus *Preverastraea* is being revised, mainly on the basis of sample material. This cerioid, occasionally astreoid or phaceloid, genus is characterised by round or polygonal calices, compact septa in a regular hexameral symmetry and lonsdaleoid septa. The wall is of the same structure as the septa. The genera *Bogdanovicoenia*, *Paraacanthogyra*, and *Saxuligyra* are considered synonyms of *Preverastraea*. Related genera are *Aulastraeopora* and *Apoplacophyllia*, which only differ by their solitary or dendroid growth forms. There are altogether 13 species of *Preverastraea*. The genus, which occurred worldwide, is restricted to the period from the Late Barremian to the Late Cenomanian, being most common in the Aptian to Early Albian. Eighty-three samples are either known from the literature or have been to hand. This makes *Preverastraea* a rather rare genus. [original abstract; Loeser]

**Loeser H. 2007.** (b) Case 3386: *Pseudocoenia* d'Orbigny, 1850 (Coelenterata, Scleractinia): proposed conservation of usage by the designation of a lectotype for the type species. *Bulletin of Zoological Nomenclature* 64, 2: 79-82.

**Loeser H. 2008**. Morphology, taxonomy and distribution of the Cretaceous coral genus *Aulastraeopora* (Late Barremian-Early Cenomanian; Scleractinia). *Rivista italiana di paleontologia e stratigrafia* **114**, 1: 19-27. The Cretaceous coral genus *Aulastraeopora* is being revised, mainly on the basis of sampled material. This genus of solitary growth form is characterised by medium-sized to large specimens, compact septa in a regular hexameral or tetrameral symmetry and lonsdaleoid septa. Related genera are *Preverastraea* and *Apoplacophyllia*, which only differ by their cerioid-astreoid and phaceloid growth forms. There are four species of *Aulastraeopora*. The genus, which occurred world-wide, is restricted to the period from the Late Barremian to the Late Cenomanian, being most

common in the Aptian to Early Albian. Forty-one samples are either known from the literature or have been to hand. This makes *Aulastraeopora* a rare genus. [original abstract; Loeser]

**Loeser H. & Minor K. 2007.** Palaeobiogeographic aspects of Late Barremian to Late Albian coral faunas from Northern Mexico (Sonora) and the southern USA (Arizona, Texas). *Neues Jahrbuch fuer Geologie und Palaeontologie, Abhandlungen* **245**, 2: 193-218.
The taxonomy of Early Cretaceous shallow marine coral faunas from the Bisbee Basin (northwestern Mexico and Arizona, southwestern USA) and the Comanche Platform (Texas, USA) are compared to each other and to coral associations of the same age around the world. The analysis here employs a large, comprehensive computer database on Mesozoic corals. The database is used to develop a uniform palaeogeographic framework for the comparisons (300 palaeo-provinces are distinguished worldwide for the Cretaceous), and a distance matrix cluster analysis of shared presence is performed on the data to correlate coral faunas both within and outside of the study area. The study is based entirely on coral material recently collected in the field and studied in museum collections. Of the 754 coral samples examined, a total of 160 species is identified from 54 sample locations. This large total number is in contrast to the low to moderate number of species found in each locality, with a maximum number of 28 species from one locality in northwestern Mexico. This demonstrates that coral distribution was controlled by regional (even local) factors. Outside of the sample area, the coral faunas show a strong correlation to central Tethyan faunas, with strongest affinities to that of the Iberian Peninsula, and also to eastern Tethys and western Pacific faunas. This argues against the commonly held concept of a distinct New World coral faunal realm, and is explained by a west-to-east orientation of warm oceanic connections and the close proximity of the land masses during the Early Cretaceous. [original abstract; Loeser]

**Loeser H. & Saldana-Villodre J. C. 2008.** Colonial corals from the Early Aptian siliciclastic Montlivaltia Marls of Jumilla (Murcia, Spain). *Revista Espanola de Paleontologia* **23**, 1: 1-6.
Three species of colonial scleractinian corals are reported from Early Aptian sandy marls of the so-called Montlivaltia marls from a section

exposed on the SE flank of the Sierra de Sopalmo, south of Jumilla in Murcia, Spain. While solitary corals of the genus *Montlivaltia* are extremely common in the marls, colonial corals are rare. The three colonial coral species presented here (*Cryptocoenia* sp. n. aff. *C. pygmaea*, *Holocystis elegans*, and *Columnocoenia aragonensis*) are all common Early Cretaceous species. They range in age from the late Barremian to early Albian with the exception of *Columnocoenia aragonensis*, which ranges from the Valanginian to Cenomanian. Their geographical distribution is large and all species were found in the central Tethys as well as in the Caribbean province. All species were previously found in siliciclastic environments and while *Holocystis elegans* occurs primarily in such facies, the other two species occur in pure carbonates as well. [original abstract; Loeser]

**Masse J.-P., Morycowa E. & Fenerci-Masse M. (submitted)**. Valanginian-Hauterivian scleractinian coral communities from the Marseille region (SE France). *Cretaceous Research*.

**Misik M. & Morycowa E. 2004.** Upper Jurassic and Lower Cretaceous scleractinian corals from the exotic pebbles - Pieniny Klippen Belt, Slovakian West Carpathians. *Slovak Geological Magazine* **10** (4): 313-321, 5 figs., 2 tab. [Loeser]

**Morycowa E. & Decrouez D. 2006.** Early Aptian scleratctinian corals from the Upper Schrattenkalk of Hergiswil (Lucerne region, Helvetic Zone of central Switzerland. *Revue de Paleobiologie* **25**, 791-838, Geneve. [key words: Scleractinia, Upper Schrattenkalk, Cretaceous, Aptian, Helvetic Zone, Swiss Alps, taxonomy, palaeogeography]
The paper deals with scleractinian corals from the Upper Schrattenkalk (Early Aptian) in the area of Hergiswil near Lucerne in the Helvetic Zone of the Swiss Alps. The coral assemblage is dominated by small lamellar and massive colonies, in places grouped in small lenses, mainly from suborder Microsolenina and Astraeoina. From 38 taxa, 28 species have been described (including 2 new species) and ten at the generic level, only. The identified coral taxa are characteristic of Urgonian facies of the European and near East Tethyan realm. [original abstract; Oekentorp]

**Morycowa E., Labaj M. & Szulc J. 2006**. Calicular variation in *Eckastraea prisca* (Scleractinia) from the Middle Triassic (Anisian) of the Silesian region (SW Poland). *Neues Jahrbuch fuer Geologie und Palaeontologie, Monatshafte* **12**: 705-720.
The paper focuses on the growth form and highly variable characters of calicular morphology of the coralla of the Anisian scleractinian species *Eckastraea prisca* (Weissermel, 1925) from the Lower Muschelkalk in the Silesian region (SW Poland). The shape of the colonies and the variability of the distal corallite structure are explained in terms of the changing environmental factors and by phenotypic plasticity of corals. [original abstract; Kolodziej, Loeser]

**Morycowa E. & Masse J.-P. 2007**. *Actinaraeopsis ventosiana*, a new sleractinian species from the Lower Cretaceous of Provence (SE France). *Annales Societatis Geologorum Poloniae* **77**: 141-145.
*Actinaraeopsis ventosiana* is a new scleractinian coral species from the Lower Cretaceous shallow-water limestones of the Mont Ventoux (Provence, SE France). To date only two Late Jurassic species of this genus have been known, i.e. *Actinaraeopsis araneola* Roniewicz and *A. exilis* Roniewicz. The new species shows some similarity to the Jurassic species *A. araneola*, but differs in microstructure details and morphometric parameters. [original abstract; Kolodziej]

**Morycowa E. & Misik M. 2005.** Upper Jurassic shallow-water scleractinian corals from the Pieniny Klippen Belt (western Carpathians, Slovakia). *Geologica Carpathica* 56 (5): 415-432, 8 figs., 1 tab. [Loeser]

**Morycowa E. & Szulc J. 2006.** New family Eckastraeidae, Scleractinia (Middle Triassic, Peri-Tethys, Central Europe). *Neues Jahrbuch fuer Geologie und Palaeontologie, Monatshefte* **12**: 721-733.
The genus *Eckastraea* Morycowa, 1988 from the Middle Triassic of Cracow-Upper Silesian region has been created on the basis of the holotype of *Isastraea prisca* Weissermel, 1925. The systemical position of this genus was however, undetermined. The recent findings of better preserved specimens enabled to place the genus into the new family Eckastraeidae. This new family is closest to the family Margarophylliidae Cuif, 1977 belonging to the superfamily Volzeioidaea suborder Caryophylliina. [original abstract; Kolodziej]

**Morycowa E. & Szulc J. 2006**. Remarks on Middle Triassic (Anisian) scleractinian corals from the Cracow-Silesian region, Poland (Northern Peri-Tethyan realm). In: Hubmann, B. & Piller, W.E (Eds.): Proceedings of the 9th International Symposium on Fossil Cnidaria and Porifera. *Österreichische Akademie der Wissenchaften. Schriftenreihe der Erdwissenschaftlichen Kommissionen 17*: 421-433.
This paper deals with the mode of occurrence, growth forms, skeletal preservation and the life conditions of some of the oldest, stratigraphically well-documented Anisian (Pelsonian-early Illyrian) scleractinian corals, occurring in situ, in shallow-water carbonate rocks in the Lower and Middle Muschelkalk of the Cracow-Silesian region, Southern Poland (northern Peri-Tethys, Central Europe). Among 18 species (from 14 genera; some of generic names require emendation), one of the important Anisian coral species is *Pamiroseris silesiaca* (Beyrich) (=former *Thamnastraea silesiaca* Beyrich), frequently occurring and widely distributed in the Peri-Tethyan (Germany, Poland) and found in the Tethyan provinces (Alps and S. China). The paper also presents skeletal growth bands of *P. silesiaca* and its septal microarchitecture, important because of high morphological homeomorphy of thamnasterioid corals e.g. *Pamiroseris, Thamnasteria*. [original abstract; Kolodziej]

**Morycowa E. & Szulc J. (submitted)**. Environmental controls on the growth forms of the one of the first scleractinian buildups (Middle Triassic, Silesian region, Poland). *Proceedings of the X International Congress on Fossil Cnidaria and Porifera*, August 12-16, 2007, St Petersburg, Russia. [Kolodziej]

**Pandey D. K. & Fuersich Fr. 2006.** Jurassic corals from the Shemshak Formation of the Alborz Montains, Iran. *Zitteliana* **A46**, pp 41-74, 3 figs, 20 tabs., 7 pls.; Muenchen.
[key words: Scleractinia, Jurassic, taxonomy; Shemshak Formatuion; Alborz Mountains]
Nineteen taxa of scleractinian corals are described and figures from the Toarcian-Lower Bajocian part of the Shemshak Formation of the Alborz Mountains. Dominant taxa are *Isastrea, Microsolena, Trigerastraea, Periseris*, and *Collignoastraea*. Most of these corals occur near the top of the formation (lower Bajocian), close to the top of a large-scale shallowing

cycle. Scattered specimens are found in transgressive lags of small-scaled parasequences in the Toarcian part of the succession. Corals are very rare in the Shemshak Formation with the exception of Rian, NE of Semnan, where strongly reduced sedimentation rate facilitated the establishment of coral meadows an a patch reef in mixed carbonate-siliciclastic setting on the crest of a tilted fault block. [original abstract; Oekentorp]

**Pandey D. K., Fuersich F. T., Baron-Szabo R. C. & Wilmsen M. 2007**. Lower Cretaceous corals from the Koppeh Dagh, NE-Iran. *Zitteliana* **A47**: 3-52.
A new section through parts of the Middle Aptian to Early Albian Sanganeh Formation at the southwestern margin of the Koppeh Dagh, NE-Iran, displays a succession of silty to fine-sandy marl between which limestone boulders and debris layers are intercalated at several levels. These boulders are olistoliths, derived from the edge of a nearby carbonate platform, long since eroded. Most of the olistoliths are reef limestones built of corals and calcareous sponges. At two levels, the reef fauna weathered out from the boulders and could be collected. Fourtyseven taxa of Scleractinia have been described and figured, which considerably extend our knowledge of the biodiversity of Cretaceous corals from the area. The corals show an interesting mixture of taxa known since the Middle Jurassic and those known only from the Cretaceous. [original abstract; Loeser]

**Pandolfi J. M. & Budd A. F. (in press).** Morphology and ecological zonation of Caribbean reef corals: the *Montastraea "annularis"* species complex. *Marine Ecology Progress Series*.
Estimates of species diversity on coral reefs are extremely high, yet hidden biological diversity makes even these underestimates. The morphological complexity in the Caribbean reef coral *Montastraea "annularis"* was originally interpreted as a single species because colony growth form was highly correlated with depth distribution from the coral reefs surrounding Carrie Bow Cay in Belize. This "species" has since been re-interpreted from other Caribbean reefs as representing at least 3 separate species based on morphometric, genetic, reproductive, and ecological differences. We revisited the shallow water coral reefs in the Carrie Bow Cay region to test whether the three species could be recognized, and if so, what their ecological distribution might be. We have found that the three recently

described species of the *Montastraea "annularis"* species complex can be readily identified using both colony forms observed in the field and morphometric analyses of the corallite wall, and that their abundance distributions vary significantly along depth gradients. Morphometric comparison with both colonies from Panamá and results from transplantation experiments in Jamaica show consistent patterns in the morphological characters that differentiate species and growth forms and are useful in understanding the geographic, environmental, and genetic components of variability within the species complex. All three species have a broad depth distribution, but each species dominates in a preferred depth zone, suggesting a high degree of niche differentiation. Our results confirm the existence of hidden biological diversity in Caribbean reef corals and caution future estimates of biological diversity on coral reefs. [Budd]

**Roniewicz E. (submitted)**. Uniform habit spectrum vs. taxonomic discrepancy between two succeeding Triassic coral faunas: a proof of the Intra-Norian fauna turnover. *Proceedings of the X International Congress on Fossil Cnidaria and Porifera*, August 12-16, 2007, St Petersburg, Russia. [Kolodziej]

**Roniewicz E**. Scleractinian corals from the Kimmeridgian-Valanginian carbonate platform from Bulgaria. (prepared for *Annales Societatis Geologorum Poloniae*). [Kolodziej]

**Roniewicz E., Mandl G.W., Ebli O. & Lobitzer H. 2007**. Early Norian scleractinian corals and microfacies data of the Dachstein limestone of Feisterscharte, Southern Dachstein Plateau (Northern Calcareous Alps, Austria). *Jahrbuch der Geologischen Bundesanstalt* **147** (3-4), pp 577-594. This is the first report concerning an Early Norian coral fauna from the Northern Calcareous Alps. The coral-bearing limestones outcrop in the vicinity of the Feisterscharte, in the southern Dachsteinplateau. In this Alpine region, aside from the Dachsteinplateau, Early Norian corals have been recorded only from the Gosaukamm range, which is also a part of the Dachstein massif. The exposures at Feisterscharte show one on the most taxonomically diversified Early Norian coral assemblages known so far. In the assemblage, Carnian genera are prevailing in number, and Early Norian index species, *Pachysolenia cylindrica* Cuif and *Pachydendron*

*microthallos* Cuif are frequent. The Early Norian age is proved by conodonts. Some remarks on microfacies and foraminifera content of the reef and associated limestones are given. The rocks represent the initial growth stage of the Norian to Rhaetian Dachstein carbonate platform. [original abstract; Roniewicz]

**Roniewicz E. & Melnikova G. K. 2007**. The Middle Triassic scleractinia-like coral *Furcophyllia* from the Pamir Mountains. *Acta Palaeontologica Polonica* **52** (2): 401-406.
*Furcophyllia* is an unusual coral with septa regularly splitting into branching sets called septal brooms. This pattern of septal apparatus is so alien to scleractinians, that, despite a trabecular microstructure of septa resembling that of the Scleractinia, the genus was originally ascribed to a rare group of corals informally referred to as sleractiniamorphs, previously known from the Ordovician and Permian. Genus *Furcophyllia* emerged together with corals of several groups, after the post-Permian crisis diversification of skeletonized anthozoans, some of them markedly differing in their skeletal features from typical Scleractinia. So far, the genus was represented by middle Carnian *Furcophyllia septafindens* from the Dolomites, in the Southern Alps. Here, we report *Furcophyllia shaitanica* sp. nov. from limestone boulders found in the volcano-clastic deposits of the upper Ladinian Shajtan suite of the South Eastern Pamirs. A new species of *Furcophyllia* signifies that the genus was a faunal element widely distributed in the Tethys. [original abstract; Kolodziej]

**Sanders D. & Baron-Szabo R. 2008.** Palaeoecology of solitary corals in soft-substrate habitats: the example of *Cunnolites* (upper Santonian, Eastern Alps). *Lethaia* **41**, 1: 1-14;. on-line (2007) 10.1111/j.1502-3931.2007.00039.x
The upper Santonian Hofergraben Member (Eastern Alps) provides an example of a soft-substrate habitat suited mainly for solitary corals (*Cunnolites*), for colonial forms of solitary coral-like shape (*Placosmilia, Diploctenium*), and for colonial corals of high sediment resistance (e.g. *Actinacis*, *Pachygyra*). The Hofergraben Member consists mainly of silty-sandy marls of wave-dominated, low-energy shore zone to shallow neritic environments. Substrates of soft to firm mud supported level-bottoms of non-rudist bivalves, gastropods, solitary corals, colonial corals, rudists,

echinoids, and benthic foraminifera. Boring and/or encrustation of fossils overall are scarce. In the marls, *Cunnolites* is common to abundant. Both a cupolate shape and a lightweight construction of the skeleton aided the coral to keep afloat soft substrata. *Cunnolites* taphocoenoses are strongly dominated by small specimens (about 1-3 cm in diameter). *Cunnolites* was immobile and mostly died early in life upon, either, smothering during high-energy events, rapid sedimentation associated with river plumes, or by toppling and burial induced by burrowing. Comparatively few large survivor specimens may show overgrowth margins interpreted as records of partial mortality from episodic sedimentation or tilting on unstable substrate. Scattered pits and scalloped surfaces on large *Cunnolites* may have been produced, in some cases at least, by predators (durophagous fish?). Post-mortem, large *Cunnolites* provided benthic islands to corals, epifaunal bivalves and bryozoans. In a single documented case of probable in vivo contact of *Cunnolites* with the colonial coral *Actinastraea*, the latter prevailed. [Baron-Szabo]

**Stanley G. D. jr (in press).** Ocean acidification and scleractinian corals. *Yearbook of Science and Technology*, McGraw-Hill.
Living corals classified as order Scleractinia, are tiny solitary and colonial marine animals with delicate soft polyps. By secreting skeletons of calcium carbonate (CaCO3) as aragonite from seawater, they build fantastic undersea high-rise structures called coral reefs. Reefs protect our coastlines from storms, create a tourist industry and provide food for the world population. Global warming and the rise in the greenhouse gases place increasing stress on coral reefs. Ocean acidification resulting from the rising CO2, is a world problem of great concern. Biologists are testing effects of acidification with experiments on corals and reefs while paleontologists explore their fossil record and responses to extinction and recovery. The "naked coral" hypothesis may be a key explanation for some enigmatic aspects of scleractinian evolution as well as an adaptive response to ancient CO2 and ocean acidification. [Stanley]

**Stanley G. D. jr & Van de Schootbrugge B. (in press).** Evolution of the coral-algal symbiosis. *In* Coral Bleaching: Patterns, Processes, Causes and Consequences, **M. J. H. van Oppen and J. M. Lough** (eds), Springer.
The evolution of symbiosis between modern corals and dinoflagellates

known as zooxanthellae, had major consequences for the subsequent success of Cenozoic and Holocene corals on reefs because it opened new pathways of metabolism and calcification. Photosymbiosis with dinoflagellate partners has allowed corals to occupy nutrient-deficient environments. Accelerated rates of calcification connected with the symbiosis have in great part, allowed scleractinian corals to dominate in well-lit shallow-water settings and build reefs. Examination of these phenomena by study of the fossil and stratigraphic record allows insights into the problem. Since coral-bleaching involves a possible breakdown of algal symbionts, research into the geologic history of corals and their symbionts may provide better understanding of the current coral-bleaching phenomenon. [Stanley]

**Stemann, Th.A., Gunter, G.C., Mitchell, S.F., 2007**. Reef coral diversity in the Late Maastrichtian of Jamaica. In: Hubmann, B., Piller, W.E. (Eds.), Fossil corals and sponges. *Schriftenreihe der Erdwissenschaftlichen Kommissionen der Österreichischen Akademie der Wissenschaften* **17**: 455-469. [Loeser]

**Stolarski J. & Taviani M. 2001**. Oligocene Scleractinian Corals from CRP-3 Drillhole, McMurdo Sound (Victoria Land Basin, Antarctica). *Terra Antartica* **8**, 3: 1-4.
The solitary scleractinian coral *Flabellum rariseptatum* Roniewicz & Morycowa, 1985 has been identified in CRP-3 drill core within mudstone lithologies in Unit LSU 3.1. The coral-bearing macrobenthic assemblages include infaunal and epifaunal suspension feeders suggesting a deep muddy shelf environment, characterized by moderate hydrodynamism and turbidity and enrichment in organic matter. *Flabellum rariseptatum* belongs to the Recent *Flabellum thouarsii* group and has a known stratigraphic range extending from the early Oligocene to the early Miocene of Antarctica. This is the first known occurrence of *Flabellum rariseptatum* from the Antarctic mainland. [original abstract; Loeser]

**Tomas S., Loeser H. & Salas Roig R. 2008.** Low-light and nutrient-rich coral assemblages in an Upper Aptian carbonate platform of the southern Maestrat Basin (Iberian Chain, eastern Spain). *Cretaceous Research* **29**: 509-534.
A Lower Cretaceous (Aptian) succession of carbonate rocks in the southern

Maestrat Basin (Iberian Chain, Spain) was analysed in terms of sedimentological and palaeontological criteria. The shallow marine sequence was deposited upon a homoclinal carbonate ramp. Five main facies types were distinguished: (A) peloidal and bioclastic grainstones and rudstones of the inner ramp shoals; (B) orbitolinid wackestones-packstones of the distal outer ramp; (C) peloid and Ostrea wackestones-packstones of the middle outer ramp; (D) coral-algal sheetstones of the proximal outer ramp; and (E) coral-algal platestones-domestones of the middle ramp. Coral-bearing facies types (D) and (E) showed similar major environmental factors: low energy hydrodynamism, low light intensity and apparently nutrient-rich water. Slight differences in these conditions are reflected in the different growth forms and coral assemblages. Coral-algal sheetstones are characterized by sheet-like and lamellar forms with a low coral diversity not clearly dominated by any taxon. Coral-algal platestones-domestones develop platy, tabular and irregular massive forms with a slightly higher coral diversity characterized by a Microsolenina-Faviina association. The coral fauna is revised taxonomically and yielded a total of 22 species in 18 genera (21 Scleractinia species, one Octocorallia species). Genera of the suborders Microsolenina and Faviina predominate, those of the suborders Stylinina, Fungiina, Rhipidogyrina and the order Coenothecalia are subordinate. [original abstract; Loeser]

**Wilmsen M., Niebuhr B., Wood C. J. and Zawischa D. 2007.** Fauna and palaeoecology of the Middle Cenomanian *Praeactinocamax primus* Event at the type locality, Wunstorf quarry, northern Germany. *Cretaceous Research* **28**: 428-460.

A systematic account of the fauna from the early Middle Cenomanian *Praeactinocamax primus* Event, a 50-60-cm-thick marl bed, at the type locality, Wunstorf quarry, to the west of Hannover (northern Germany), is given. Numerous invertebrate taxa (over 50 in total) have been collected, including two species of belemnites, ten ammonites, at least 12 bivalves, a single scaphopod, five gastropods, at least eight brachiopods, two solitary corals, a single hydrozoan, four echinoids, and ten polychaetes. The benthic community of the *primus* Event clearly represents a soft-bottom fauna, with hard-bottom elements limited to secondary hard substrates. Most of the macrobenthic elements constitute suspension feeders; shallow-infaunal deposit feeders, grazers and microcarnivores occur as well, while deeper

infaunal elements are largely missing. The nekton is represented by fish remains, belemnites, and planispiral and heteromorph ammonites with inferred nektobenthic modes of life. Both biofacies (absence of photic elements) and sedimentological evidence (fine-grained fabric, preservation of delicate faunal elements) suggest that deposition of the primus Event at the type locality occurred in a low-energy setting below the (eu-)photic zone and storm wave base in water depths of ca. 50e100 m. The cyclic and correlative nature of the precession-forced marl-limestone couplets of the interval containing the *primus* Event and the absence of sedimentological evidence for significant redeposition rules out "snapshot preservation" by obrution. Nor is the faunal richness of the *primus* Event related to time-averaging, because the bed accumulated with sedimentation rates of ca. 50 m/myr. The abundance of suspension- and deposit-feeding biota, however, indicates enhanced fluxes of organic carbon to the seafloor, probably related to high surfacewater productivity. The formation of the *primus* Event was also linked to transgressive depositional conditions after a pronounced sea-level lowstand across the Lower/Middle Cenomanian boundary. It should be noted that correlation of sections across northwest Europe clearly shows that the initial transgressive onlap onto the basin margins following the lowstand started considerably earlier than the *primus* Event, at the junction of marl-limestone couplets B40/B41 in the Anglo-Paris Basin cyclostratigraphic scheme. The *primus* Event (marl bed of couplet C1) thus represents a second transgressive pulse of a high-frequency (100 kyr short eccentricity) cycle within the transgressive systems tract (TST) of a third order depositional sequence. "Pulse faunas" of northerly affinity (such as the Boreal belemnite *P. primus*) and published oxygen stable isotope records suggest a cool-water incursion during the "*primus* transgression". These special oceanographic conditions (sea-level rise, incursion of cool waters, high primary productivity, ample food supplies, limited physical disturbance) resulted in a diverse benthic (and nektobenthic) faunal community in the *primus* Event. [original abstract; the paper contains a description of the fauna including the corals; Loeser]

## Other corals / bibliography

**Opresko D. M. 2006**. Revision of the Antipatharia (Cnidaria: Anthozoa). Part V. Establishment of a new family, Stylopathidae. *Zool. Med. Leiden* **80**-4 (11), 10.xi.2006: pp 109-138, figs 1-14.
A new family of antipatharian corals, Stylopathidae (Cnidaria: Anthozoa: Antipatharia), is established for *Arachnopathes columnaris* Duchassaing 1870, and related species. The family is characterized by small polyps, 1.5 mm or less in transverse diameter; small, conical, smooth spines, often distally directed (especially at the tips of the branchlets and/or pinnules); and by the tendency for the pinnules and branchlets to occur in subopposite pairs or to be arranged in verticils of three or four (rarely five) pinnules. In many species adjacent pinnules or branchlets fuse together or anastomose, resulting in the formation of cylindrical, reticulated worm runs along the stem or branches. Genera are established on the basis of morphological features of the corallum. *Stylopathes* gen. nov., includes the type species, *Arachnopathes columnaris* Duchassaing, and is characterized by a monopodial or very sparsely branched corallum. *Triadopathes* gen. nov. contains only the type species *Parantipathes triadocrada* Opresko, and has multiple, vertically directed, stem-like primary branches, arising primarily from the lower parts of the corallum. *Tylopathes* Brook contains the type species *T. crispa* Brook, and is characterized by a flabellate corallum with short, mostly bilateral branchlets. [Baron-Szabo].

## Reefs bibliography / last updated in December 2008

**Alvaro J. J., Aretz M., Boulvain F., Munnecke A., Vachard D. & Vennin E. 2007.** Fabric transitions from shell accumulations to reefs: an introduction with Palaeozoic examples. *From*: Alvaro J. J., Aretz M., Boulvain F., Munnecke A., Vachard D. & Vennin E. (Eds) 2007. Palaeozoic Reefs and Bioaccumulations: Climatic and Evolutionary Controls. *Geological Society, London, Special Publications* **275**, 1-16. The Geological Society of London.
One unresolved conceptual problem in some Palaeozoic sedimentary strata is the boundary between the concepts of 'shell concentration' and 'reef'. In fact, numerous bioclastic strata are transitional coquina-reef deposits, because either distinct frame-building skeletons are not commonly

preserved in growth position, or skeletal remains are episodically encrusted by 'stabilizer' (reef-like) organisms, such as calcareous and problematic algae, encrusting microbes, bryozoans, foraminifers and sponges. The term 'parabiostrome', coined by Kershaw, can be used to describe some stratiform bioclastic deposits formed through the growth and destruction, by fair-weather wave and storm wave action, of meadows and carpets bearing frame-building (archaeocyaths, bryozoans, corals, stromatoporoids, etc.) and/or epibenthic, non-frame-building (e.g. pelmatozoan echinoderms, spiculate sponges and many brachiopods) organisms.
This paper documents six Palaeozoic examples of stabilized coquinas leading to (pseudo)reef frameworks. Some of them formed by storm processes (generating reef soles, aborted reefs or being part of mounds) on ramps and shelves and were consolidated by either encrusting organisms or early diagenesic processes, whereas others, bioclastic-dominated shoals in barrier shelves, were episodically stabilized by encrusting organisms, indicating distinct episodes in which shoals ceased their lateral migration. [original abstract; Wrzolek]

**Aretz M. & Chevalier E. 2007.** After the collapse of stromatoporid-coral reefs - the Famennian and Dinantian reefs of Belgium: much more than Waulsortian mounds. *From*: Alvaro J. J., Aretz M., Boulvain F., Munnecke A., Vachard D. & Vennin E. (Eds) 2007. Palaeozoic Reefs and Bioaccumulations: Climatic and Evolutionary Controls. *Geological Society, London, Special Publications* **275**, 163-188. The Geological Society of London.
Reef development in the Famennian and Carboniferous successions of Belgium is more common than previously thought, and 10 broad time intervals of reef development can be differentiated. Reef formation is due to a variety of reef fabrics. Microbial communities are important for most reef frameworks, and often crucial for formation and stabilization of frameworks. Larger skeletal frameworks are rare. However, the interaction of skeletal bioconstructors and microbial communities is common, and results in successful reef building. However, microbial communities are still the backbone of these reefs.
The majority of reefs are small, and a significant number formed in environments of restricted marine facies. Large reefs developed only in the late Tournaisian and late Visean. Their initiation and formation was

controlled by the geometry of the shelf.
Three hierarchical levels, discussed below under the headings palaeobiology, local environment, and regional and global environment, controlled reef formation. Important limiting factors were relative water depth, sea-level oscillations, climate, shelf geometry and the needs of the individual bioconstructor.
In general, Belgian reef diversity reflects the global picture, but significant differences can be recognized in the different time slices. In particular, the abundance of middle Visean reefs is a unique feature. The onset of the Variscian orogeny terminated all reef development in Belgium, and reefs younger than late Viséan are unknown. [original abstract; Wrzolek]

**Aretz M. & Webb G. E. 2006.** Western European and eastern Australian Mississippian shallow-water reefs: a comparison. *In*: Wong, Th. E. (Ed.): *Proceedings of the XVth International Congress on Carboniferous and Permian Stratigraphy*. Utrecht, the Netherlands, 10-16 August 2003. Royal Netherlands Academy of Arts and Sciences.
[key words: Eastern Australia, Western Europe, Mississippian, Pangea, Shallow-water reefs]
Shallow-water reefs were a common element in the Mississippian successions of Western Europe and eastern Australia. They formed in different palaeotectonic settings, the stable southern shelf of Laurussia, near the collision zone of Armorica and Gondwana, and in the fore-arc setting of eastern Australia. Reef development in these areas responded to local and regional tectono-sedimentary patterns, and, therefore, the timing was different in the two regions. Shallow-water reefs occurred throughout almost the entire Mississippian. Australian reefs already developed at the Devonian / Carboniferous boundary, whereas European shallow-water reefs did not appear until the early Visean. The lack of Tournaisian reefs in Europe is only partly well constrained (unfavourable facies). Reef development ended in Australia somewhat earlier than in Europe. The youngest reefs formed on the southern shelf of Armorica. Reef termination scenarios in all regions included combinations of sediment influx, uplift, volcanism, and/or plate movements. Although individual reef development differed, three major reef-forming fabrics can be identified in both regions. Microbial communities were the most important reef fabrics and entire reefs consisted only of microbial framework. The second framework type

consisted of microbial communities, corals, lithistid sponges, and bryozoans of relatively high diversity, but varying abundances. Coral-dominated facies, the third major fabric type, only became volumetrically important in Visean and Serpukhovian reefs, but, regardless, microbial fabrics were generally essential for reef formation. A large number of reefs consisted of a delicate balance of different reef builders, but a unique Pangean reef community is not evident. The formation of Pangea influenced reef formation in two ways. Firstly, the southward movement of the Australian plate made reef formation impossible, and plate collision and tectonic uplift terminated reef development in Europe. Second, glacio-eustatic sea-level changes, a result of global climate change and associated glaciation in Gondwana, greatly affected reefs in inner shelf positions. [original abstract; Wrzolek]

**Bernecker M. & Weidlich O. 2006.** Paleocene bryozoan and coral mounds of Fakse, Denmark: Habitat preferences of isidid octocorals. *Courier Forschungsinstitut Senckenberg* **257**: 7-20.
The Danish-Polish Trough - a northwest to southeast striking basin - is bordered by the Fennoscandian Shield in the north and the Ringköbing-Fyn High in the south. During the Late Cretaceous and Early Tertiary carbonate sedimentation prevailed. Locally small bryozoan mounds were formed during the Upper Maastrichtian. The bulk of bryozoan bioherms originated during the Danian B to C. Coral communities and coral mounds are confined to the Danian C. About five coral limestone localities occur within the Danish-Polish Trough; Fakse is the most important one.
Paleontological and sedimentological data of the coral limestones point to the interpretation of the coral reefs as "cold- and deep-water coral bioherms". Important criteria are the (1) absence of algae, (2) low-diverse azooxanthellate coral community, (3) dominance of dendroid growth forms in the corals, (4) surrounding pelagic facies adjacent to the coral mounds, (5) occurrence of pelagic organisms (globigerinid foraminifera, coccoliths) within the micrite of the mound facies and intermound facies, (6) breakdown of framebuilders predominantly by bioerosion instead of mechanical destruction, (7) mound- or bank-like structure of the buildups, (8) occurrence at a high paleolatitude.
Three major facies types can be distinguished: (1) bryozoan limestones, (2) transitional facies, and (3) coral limestones which include five subfacies

types defined by the predominating coral taxa. Most coral mounds are composed of facies types 2 and 3.
Diagenesis is characterized by the formation of early marine-phreatic fibrous and bladed cements and by late diagenetic meteoric-phreatic dog-tooth cements and the replacement of calcite cements by quartz.
The mounds have an asymmetrical shape caused by unidirectional currents from the south. The maximum length is 200 m, the height 30 m and the width 80 m. The distribution of colonial corals within the mounds indicates a zonation pattern.
Framebuilders are represented only by azooxanthellate organisms: colonial scleractinian corals, stylasterine hydrozoans and octocorals. Scleractinian corals have dendroid and arborescent growth forms, whereas hydrozoans and octocorals form fan-like colonies. Strong bioerosion of the framebuilding organisms was responsible for the breakdown of the skeletons; the bioclasts formed the substrate for other framebuilders. The soft bottom between the framebuilders was burrowed by bivalves and crustaceans.
The comparison with coral mounds occurring in the eastern Atlantic at similar latitudes and in a position comparable with that of the Paleocene Danish-Polish Trough suggests a paleodepth between 100 and 300 m. [original summary; Loeser]

**Bernecker M. 2007**. Facies architecture of an isolated carbonate platform in the Hawasina Basin: The Late Triassic Jebel Kawr of Oman. *Palaeogeography, Palaeoclimatology, Palaeoecology* **252**, 1/2: 270-280.
In the oceanic realm of the southern Tethys, carbonate production of isolated platforms ceased after the end-Permian mass extinction and did not recover until the Late Triassic. The Misfah Formation (MF) at Jebel Kawr in the Oman Mountains is interpreted as a relic of such an isolated Late Triassic platform of the Hawasina Ocean, a part of the Neo-Tethys. Correlation of three sections at Jebel Kawr points to a sequence attached Arabian platform. The shallow-water carbonates of Jebel Kawr comprise a platform rim reef facies and bedded inner-platform facies characterized by stacked high-frequency cycles with subtidal to intertidal carbonate sequences. The depositional profile of this Late Triassic isolated platform evolved during Carnian and Norian time from a low-relief phase with volcaniclastic interruptions, followed by a carbonate bank stage with a

shallow subtidal to peritidal interior and marginal oolite shoals. In the Norian vertical accumulation caused an increase of the platform height and developed a relief along the margins that progressively increased through the aggrading reef stage. [original abstract; Loeser]

**Calner M., Sandstroem O. & Motus M.-A. 2000.** Significance of a Halysitid-Heliolitid Mud-facies Autobiostrome from the Middle Silurian of Gotland, Sweden. *Palaios* **15**: 511-523. [Motus]

**Chevalier E. & Aretz M. 2005.** A Microbe-Bryozoan Reef from the Middle Visean of the Namur Syncline (Engighoul Quarry). *Geologica Belgica* (2005) **8** (1/2): 109-119.
[keywords: microbes, bryozoans, brachiopods, reef, middle Visean, Lives Formation, Namur syncline]
A microbe-bryozoan patch-reef was temporarily exposed in the Lives Formation (middle Visean) at the Engihoul Quarry, southern limb of the Namur syncline. It developed within the Corphalie Member during the transition from bioclastic to stromatolitic facies.
Reef formation is the result of a complex meshwork of calcified microbes, which formed complex layers which resemble "Osagia"-biocenose and individual columnar aggregates, fenestellid bryozoans, and early cements. Reef growth began on a hard- substrate provided by brachiopods and microbial crusts. Brachiopods (*Composita* sp.) are locally abundant in the reef facies, and contributed substantial firm ground for encrustation. Reef growth was controlled mainly by the abundance of fenestellid bryozoans. Their presence indicates reef formation during normal marine conditions. The reef developed in a high-energy area of the inner shelf. Reef growth probably stopped with the establishment of a peloidal mudstone facies, eventually indicating hypersaline conditions.
The Engihoul reef is similar to Bomel reefs (also in the Lives Formation). All are the same age and developed in the transitional phase of the Corphalie Member, but minor differences in the individual reef fauna occur. The transitional phase of the Corphalie Member is an important horizon for reef formation with clear independence from other reef forming episodes within the Belgian Dinantian succession. [original abstract; Wrzolek]

**Copper P. & Scotese C. 2003.** Megareefs in Mid-Devonian supergreenhouse climates. *Geological Society America Special Paper* **370** [Chan M. A. et Archer A. W. (eds.): Extreme depositional environments: mega end members in geologic time]: 209-230. [invited contribution; Copper]

**Helm C. & Schuelke I. 2006.** Patch reef development in the florigemma-Bank Member (Oxfordian) from the Deister Mts (NW Germany): a type example for Late Jurassic coral thrombolite thickets. *Facies* **52**, 3: 441-467. Small reefal bioconstructions that developed in lagoonal settings are widespread in a few horizons of the Late Jurassic (Oxfordian) succession of the Korallenoolith Formation, exposed southwest of Hannover, Northwest Germany. Especially the florigemma-Bank Member, "sandwiched" between oolite shoal deposits, exposes a high variety of build-ups, ranging from coral thrombolite patch reefs, to biostromes and to coral meadows. The reefs show a distribution with gradual facies variations along an outcrop belt that extends about 30 km from the Wesergebirge in the NW to the Osterwald Mts in the SE.
The patch reefs from the Deister Mts locality at the "Speckhals" are developed as coral-chaetetid-solenoporid-microbialite reefs and represent a reef type that was hitherto unknown so far north of its Tethyan counterparts. They are mainly built up by coral thickets that are preserved in situ up to 1.5m in height and a few metres in diameter. They contain up to 20 coral species of different morphotypes but are chiefly composed of phaceloid *Stylosmilia corallina* and *Goniocora socialis* subordinately. The tightly branched *Stylosmilia* colonies are stabilized by their anastomosing growth. The coral branches are coated with microbial crusts and micro-encrusters reinforcing the coral framework. Encrusters and other biota within the thicket show a typical community replacement sequence: *Lithocodium aggregatum*, *Koskinobullina socialis* and *Iberopora bodeuri* are pioneer organisms, whereas the occurrence of non-rigid sponges represents the terminal growth stage. The latter are preserved in situ and seem to be characteristic so far poorly known constituents of the Late Jurassic cryptobiont reef dweller community. The distance and overall arrangement of branches seems to be the crucial factor for the manifestation of a (cryptic) habitat promoting such community replacement sequences. Widely spaced branches often lack any encrusting and/or other reef

dwelling organisms, whereas tightly branched corals, as is *St. corallina*, stimulate such biota. Hence, such reefs are well suited for research on coelobites and community sequences of encrusting and cavity dwelling organisms. [original abstract; Loeser]

**De Mol B., Kozachenko M., Wheeler A., Alvares H., Henriet J.-P. & Olu-le Roy K. 2007.** Therese Mound: a case study of coral bank development in the Belgica Mound province, Porcupine Seabight. *International Journal of Earth Sciences (Geologische Rundschau)* **96**, pp 1093-1127.
[key words: Therese Mound; Belgica mound province; coral banks; Porcupine seabight; *Lophelia pertusa*; Cold-water corals; Carbonate mounds]
High-resolution seismic profiles, swath bathymetry, side-scan sonar data and video imageries are analysed in this detailed study of five carbonate mounds from the Belgica mound province with special emphasis on the well surveyed Therese Mound. The selected mounds are located in the deepest part of the Belgica mound province at water depths of 950 m. Seismic data illustrate that the underlying geology is characterised by drift sedimentation in a general northerly flowing current regime. Sigmoidal sediment bodies create local slope breaks on the most recent local erosional surface, which act as the mound base. No preferential mound substratum is observed, neither is there any indication for deep geological controls on coral bank development. Seismic evidence suggests that the start-up of the coral bank development was shortly after a major erosional event of Late Oligocene-Quarternary age. The coral bank geometry has been clearly affected by the local topography of this erosional base and the prevailing current regime. The summits of the coral banks are relatively flat and the flanks are steepest on their upper slopes. Deposition of the encased drift sequence has been influenced by the coral bank topography. Sediment waves are formed besides the coral banks and are the most pronounced bedforms. These seabed structures are probably induced by bottom current up to 1m/s. Large sediment waves are colonised by living corals and might represent the initial phase of coral bank development. The biological facies distribution of the coral banks illustrate a living coral cap on the summit and upper slope and decline of living coral populations toward the lower flanks. The data suggest that the development of the coral banks in this area

is clearly an interaction between biological growth processes and drift deposition both influenced by the local topography and current regime. [original abstract; Oekentorp]

**Dorschel B., Hebbeln D., Rueggeberg A. & Dullo C. 2007.** Carbonate budget of a cold-water coral carbonate mound: Propeller Mound, Pocupine Seabight. *International Journal of Earth Sciences (Geologische Rundschau)* **96**, pp 73-83.
High resolutions studies from the Propeller Mound, a cold-water coral carbonate mound in the NE Atlantic, show that this mound consists of > 50% carbonate justifying the name 'carbonate mound'. Through the last ~ 3000,000 years approximately one third of the carbonate has been contributed by cold-water corals, namely *Lophelia pertusa* and *Madrepora oculata*. This coral bound contribution to the carbonate budget of Propeller Mound is probably accompanied by an unknown portion of sediments buffered from suspension by the corals. However, extended hiatuses in Propeller Mound sequences only allow the calculation of a net carbonate accumulation. Thus, net carbonate accumulation for the last 175 kyr accounts for only less than 0,3 g/cm2/kyr, which is even less than for the off-mound sediments. These data imply that Propeller Mound faces burial by hemipelagic sediments as has happened to numerous buried carbonate mounds found slightly to the north of the investigated area. [original abstract; Oekentorp]

**Edinger E. N., Burr G. S., Pandolfi J. M. & Ortiz J. C. 2006.** Age accuracy and resolution of Quarternary corals used as proxies for sea level. *Earth and Planetary Science Letters* **253** pp 37-49.
[key words: sea level; coral reef; time averaging; radiocarbon; Querternary; Papua New Guinea, radiometric dating; accuracy; resolution]
The accuracy of global eustatic sea level curves measured from raised Quaternary reefs, using radiometric ages of corals at known height, may be limited by time-averaging, which effects the variation in coral age at given height. Time-averaging was assessed in uplifted Holocene reef sequences from the Huon Peninsula, Papua New Guinea, using radiocarbon dating of coral skeletons in both horizontal transects and vertical sequences. Calibrated 2δ age ranges varied from 800 to 1060 years along horizontal transects, but weighted mean ages calculated from 15-18 dates per horizon

were accurate to a resolution within 154-214 yr. Approximately 40% of the variability in age estimate resulted from internal variability inherent to 14C estimates, and 60% was due to time-averaging. The accuracy of age estimates of sea level change in studies using single dated corals as proxies for sea level is probably within 1000 yr of actual age, but can be resolved to over 250yr if supported by dates from analysis of a statistical population of corals at each stratigraphic interval. The range of time-averaging among reef corals was much less than for shelly benthos. Ecological time-averaging dominated over sedimentological time averaging for reef corals, opposite to patterns reported from shelly benthos in siliciclastic environments. [original abstract; Oekentorp]

**Geister J., Lathuiliere B. & Yudin S. 2007**. Late Jurassic coral reefs and their paleo-relief at Sudak (South coast of Crimea peninsula, Ukraine). *Xth international Congress on Fossil Cnidaria and Porifera*, Abstracts volume, p 38; St Petersburg 12-16 August 2007. [Lathuiliere; pdf file can be supplied by the latter on request]

**Isozaki Y. 2006.** Guadalupian (Middle Permian) giant bivalve Alatoconchidae from a mid-Panthalassan paleo-atoll complex in Kyushu, Japan; a unique community associated with Tethyan fusulines and corals. *Proceedings of the Japanese Academy of Sciences*. Series B: *Physical and Biological Sciences* **82**, Issue 1, pp 25-32 [Schroeder]

**Lathuiliere B., Carpentier C., Huault V. & Martin-Garin B. (2006)** Biological zonation of Oxfordian reefs. *Volumina Jurassica* **4**, p. 120 [Lathuiliere; pdf file can be supplied by the latter on request]

**Martin-Garin B., Lathuiliere B., Geister J., El Hassan Chellai & Huault V. 2007.** Geology, facies model and coral associations of the Late Jurassic reef complex at Cape Ghir (Atlantic High Atlas, Morocco). *Comptes Rendues de Geosciences* **339** (2007).
A quantitative study of the Upper Jurassic coral associations of Cape Ghir (Atlantic High Atlas, Morocco) revealed highly diverse coral assemblages characterizing three reef environments, each of them dominated by one of the following genera: *Dimorpharaea*, *Microsolena*, and *Stylina*. A fourth assemblage is characterized by nerinean gastropods and stromatoporoids. Combined GPS surveys, 3D representation, and facies distribution studies

permitted to understand the geometry of this coral reef within a particular tectonic setting. The reef became installed on top of a tilted block of Jurassic age subsequently folded into an east-west-trending anticline near the village of Tighert, exhibiting a 5 to 10° northward dip of its northern flank near the lighthouse of Cape Ghir. We suggest that the different fossil assemblages encountered in the field belong to one and the same fossil reef tract (within a unique facies model). The previously reported hypothesis of two successive reef horizons representing different biochrons is abandoned. [original abstract; Lathuiliere; pdf file can be supplied by the latter on request]

**Olivier N., Lathuiliere B., & Thiry-Bastien P. 2006.** Growth models of Bajocian coral-microbialite reefs of Chargey-les-Port (eastern France): palaeoenvironmental interpretations. *Facies* **52**, pp 113-127.
Very large amount of microbialites, up to 70% of the reef volume takes part in the edification of Lower Bajocian coral reefs in the Chargey-les-Port quarry (Haute-Saône, France). Such high amounts of microbialites were unknown within bioconstructions of Middle Jurassic age. Along the 16 m-thick section, seven successive biohermal or biostromal units developed on a shallow platform. Bioconstructions display a first coral growth phase with either constratal or superstratal growth fabrics. Coral fauna is relatively poorly diversified and is dominated by massive forms (*Isastrea*, *Thamnasteria*, and *Periseris*) or branched phaceloid (*Cladophyllia*) and ramose (*Dendraraea*) colonies. Corals can be heavily encrusted by microbialites of diverse forms and fabrics (leiolitic, thrombolitic, and stromatolitic). According to the coral growth fabrics, microbialite crusts developed on top of or at the underside of coral colonies, forming a coral-microbialite elementary unit. Microbialites show a multiphase development: (i) directly at the coral surface, a first and mmscale microbialite layer locally developed; (ii) a second, cm-scale microbialite layer (up to 8 cm thick) covered the entire coral reef framework and assumed the main building role; and (iii) a third, mm- to cm-scale, laminated microbialite layer may also be observed onlapping previous reef structures, before having been progressively buried under sediments. Contemporaneously to the coral growth phase, the first microbialite layer developed on dead portions of coral colonies. The transition between coral growth and microbialite development (i.e., second layer of microbialites) is

interpreted as a result of a coral reef crisis, probably reflecting more nutrient-rich conditions. The passage to a stromatolitic (third) layer suggests a control of the accumulation rate. Composition and architecture of coralmicrobialite reef units of Chargey-les-Port highlight the relations between high-frequency fluctuating environmental factors (mainly accumulation rate and trophic conditions) and reef development. [original abstract; Lathuiliere; pdf file can be supplied by the latter on request]

**Peterhaensel A. & Pratt B. R. 2008.** The Famennian (Upper Devonian) Palliser platform of western Canada - architecture and depositional dynamics of a post-extinction giant. *Geological Association of Canada, Special Paper* **48** [Pratt B. R. et Holmden C. (eds): The Dynamics of Epeiric Seas]: 247–281. [Pratt]

**Poty E. & Chevalier E. 2007**. Late Frasnian phillipsastreid biostromes in Belgium. *Geological Society of London, Special Publications* **275**, pp 143-161. [Coen-Aubert]

**Pratt B. R. & Haidl F. M. 2008.** Microbial patch reefs in Upper Ordovician Red River strata, Williston Basin, Saskatchewan: signal of heating in a deteriorating epeiric sea. *Geological Association of Canada, Special Paper* **48** [Pratt B. R. et Holmden C. (eds): The Dynamics of Epeiric Seas]: 303–340. [Pratt]

**Remia A. & Taviani M. 2005**. Shallow-buried Pleistocene Madrepora-dominated coral mounds on a muddy continental slope, Tuscan Archipelago, NE Tyrrhenian Sea. *Facies* **50**: 419-425.
Subfossil azoxanthellate deep-sea coral mounds occur at 355-410m on the continental slope of the NE Tyrrhenian Sea between Gorgona and Capraia islands, Tuscan Archipelago. The shallow-relief patch reefs are at present buried by a thin muddy drape. Their age is latest Pleistocene. The colonial scleractinian *Madrepora oculata* is the major frame builder, in association with the solitary coral *Desmophyllum dianthus* and the colonial coral *Lophelia pertusa*. These NE Tyrrhenian Madrepora-dominated coral mounds represent one of the few known Mediterranean examples of deep-coral colonization of a muddy, low-gradient continental slope. [original abstract; Loeser]

**Soja C. M. 2005.** Silurian stromatolite reefs as indicators of environmental change along the Uralian seaway. *Abstracts with Programs - Geological Society of America* **37**, Issue 4, p. 76. [Schroeder]

**Stanley G. D. jr & Onoue Tetsuji 2006**. Sedimentology, corals, reef development and paleogeography of an ancient tropical oceanic seamount: Sambosan Accretionary Complex of Kyushu, Japan. *17th International Sedimentological Congress*, Fukuoka, Japan; Abstracts vol. **B**, p. 315. [Baron-Szabo]

**Stanley G. D. jr 2006**. Photosymbiosis and the evolution of modern coral reefs. *Science* **312**, pp 857-858. [Baron-Szabo]

**Wheeler A.J., Beyer A., Freiwald A., de Haas H., Huvenne V.A.I., Kozachenko M., Olu-Le Roy K. & Opderbecke J. 2006.** Moprhology and environment of cold water corals carbonate mounds on the NW European margin. *International Journal of Earth Sciences (Geologische Rundschau)* **96**, pp 37-56.
[key words: Carbonate mound; Cold-water coral; Moprhology; Environmemtal setting; Seabed mapping]
Cold-water coral carbonate mounds, owing their presence mainly to the framework building coral *Lophelia pertusa* and the activity of associated organisms, are common along the European margin with their spatial distribution allowing them to be divided into a number of mound provinces. Variation in mound attributes are explored via a series of case studies on mound provinces that have been the most intensively investigated: Belgica, Hovland, Pelagia, Logachev and Norwegian Mounds. Morphological variation between mound provinces is discussed under the premise that mound moprhology is an expression of the environmental conditions under which mounds are initiated and grow. Cold-water coral carbonate mounds can be divided into those exhibiting "inherited" morphologies (where mound moprhology reflects the moprhology of the colonised features) and "developed" moprhology mainly reflecting dominant hydrodynamic controls). Finer-scale, surface morphological features mainly reflecting biological growth forms are also discussed. [Original abstract; Oekentorp]

**Zonnenveld J.-P., Henderson C.M., Stanley G.D. Jr., Orchard M.J. & Gingras M.K. 2006**. Oldest scleractinian coral reefs on the North

American craton: Upper Triassic (Carnian), northeastern British Columbia, Canada. *Palaeogeography, palaeoclimatology, Palaeoecology* **243**, pp 421-450.

Bioclastic accumulations composed of crinoids, brachiopods, molluscs, spongiomorphs and scleractinian corals occur within Upper Triassic strata of the lower Baldonnel Formation at Pardonet Hill in northeastern British Columbia, Canada. These small buildups (~100 to 500 m3) have planar bases and broadly convex tops. These mounds are interpreted as small patch reefs composed of packstone, bioclastic floatstone / rudstone and carbonate breccia intercalated with mixed siliciclastic carbonate sediments deposited in a shallow subtidal setting (i.e. above fairweather wave base). Amalgamated hummocky cross-stratified to current ripple-laminated, quartz-dominated sandstone beds and numerous sharp-based, normally graded bioclastic (commonly encrinitic) packstone / grainstone-quartz-sandstone couplets characterize inter-reef lithologies. Conodont biostratigraphy indicates that the Pardonet Hill patch reefs occur within strata dated as earliest Upper Carnian (lower nodosus zone). The Pardonet Hill patch reefs originated and developed during an interval of regional sea level lowstand. Strata within which these patch reefs occur represent the westernmost migration of the Triassic shoreline in western Canada. Disappearance of coral reefs in the study area may have been affected by rapid marine transgression and failure of reef faunas to recolonize the new shore zone further to the east. The Pardonet Hill locality occurred on the western margin of the North American craton during the Triassic. Prior to their discovery reef-like structures dominated by corals in the western Panthalassa were limited to allochthonous terranes (now part of the Cordillera). The Pardonet Hill patch reefs occur at approximately 30° Triassic paleolatitude. In modern settings, this is at the extreme latitudinal margin of subtropical zooxanthellate reef development. The presence of benthic faunas characteristic of low-paleolatitude settings on the northwestern coast of Pangea has significant implications in paleotectonic and paleoenvironmental reconstructions. [Baron-Szabo]

**Bosellini F. R. & Perrin C. 2008**. Estimating Mediterranean Oligocene-Miocene sea-surface temperatures: An approach based on coral taxonomic richness. *Palaeogeography, Palaeoclimatology, Palaeoecology* **258**, 1/2: 71-88.

During the Oligocene and Miocene, shallow-water carbonates of the Mediterranean region were rich in scleractinian corals thriving within various depositional settings, including different reef types. Their diversity patterns, although related to a complex interplay between a suite of environmental factors and palaeobiogeography, are considered to be strongly controlled by climate variability and changes in sea-surface water temperature. By using the quantitative relationship between present-day coral taxonomic richness and prevailing sea-water temperature, underlined by the so-called 'energy hypothesis", we test zooxanthellate-coral generic richness values from a selection of 102 Oligocene–Miocene localities of the Mediterranean region as a proxy for relative palaeotemperatures.

For each Oligocene–Miocene stage, generic richness values per z-coral site are firstly examined, together with variations of the Mediterranean z-coral generic pool. For better testing the method and assessing its potential application, patterns of generic richness and inferred palaeotemperatures are then compared with global palaeoclimatic curves based on marine oxygen stable isotopes data or other climate proxies, such as palaeoclimatic records from European continental floras and from fossil coral linear extension rate.

Results clearly show that fluctuations of coral richness-derived palaeotemperatures correspond relatively well with global changes of sea-water temperature especially for the entire Oligocene, the Chattian-Aquitanian boundary and the Late Miocene. The well known Mid-Miocene Climatic Optimum, however, is not recorded, suggesting that regional factors, acting together with important palaeogeographical changes, exerted a strong control on the generic richness of Mediterranean z-coral communities.

A remarkable decline of taxonomic richness is recorded after the Burdigalian, together with a gradual decrease of palaeotemperatures in the region. From the Middle Miocene onwards to the Messinian, however, an

increase in the temperature range of z-coral localities is clearly visible, indicating that z-coral communities were able to thrive and adapt to a wider temperature range, as the Mediterranean was gradually migrating northwards, outside the tropical belt.
The "energy hypothesis", if used at global or regional scale, can be considered a promising and reliable method for estimating Cenozoic palaeotemperatures, from coral or other suitable fossil assemblages of shallow-water carbonates. [original abstract; Loeser]

**Bromley R. G., Kedzierski M., Kolodziej B. & Uchman A. (submitted)**. Large chambered sponge borings on a Late Cretaceous abrasion platform at Cracow, Poland. *Cretaceous Research*. [Kolodziej]

**Carpentier C., Lathuiliere B., Ferry S. & Sausse J. 2007.** Sequence stratigraphy and tectono sedimentary history of the Lower and Middle Oxfordian of eastern Paris Basin (Northeastern France). *Sedimentary Geology* **197**: 235 - 266.
In the present study, the difficulty which lies in the identification of sea-level fall discontinuities in deep depositional environments led the authors to use the transgressive surfaces (i.e. the most noticeable surfaces in the present case) to determine depositional cycles. Four (3rd order?) Lower and Middle Oxfordian cycles were identified (S1, S2, S3, and S4) in the Eastern Paris Basin. These four cycles can be organised into two lower frequency cycles (So I and So II) which comprise the S1, S2 and the S3, S4 cycles respectively. During the time intervals of the S1, S2, and S3 cycles, sedimentation occurred along a southward dipping carbonate-siliciclastic ramp, prograding from the northern Ardennes area. The S4 cycle shows the development of a reefal distally steepened ramp which subsequently evolved into a flat-topped platform as a result of the compensation infill of the available accommodation space by the carbonate production during a climatic warming, in this case reef growth. Isopach and facies maps suggest synsedimentary activities of hercynian faults coevals with the floodings of the So I and So II cycles. One of these events generated a diachronism of the maximum flooding (Plicatilis Zone) during the So II cycle between the northwestern and southeastern parts of the studied area. The depositional patterns found in the Eastern Paris Basin and the Swiss Jura show great similarities for the Early-Middle Oxfordian. Both regions were probably

connected and recorded the same tectonosedimentary evolution. In contrast a tectonic control certainly generated differences between the sequence-stratigraphic framework of the Eastern Paris Basin and the eustatic chart. [original abstarct; Lathuiliere; pdf file can be supplied by the latter on request]

**Carpentier C., Martin-Garin B., Lathuiliere B. & Ferry S. 2006.** Correlation of reefal Oxfordian episodes and climatic implications in the eastern Paris Basin (France). *Terra Nova* **18**, 3, pp 191-201.
Oxfordian reefal episodes of Lorraine and Burgundy have a long time been considered as contemporaneous. Biostratigraphic data and sequential evolutions peculiar to each region indicate their structural autonomy during Oxfordian times. A north-south oriented well-logging transect shows that, during the Middle Oxfordian, a shallow reefal platform developed in Lorraine while thin deeper deposits occurred in Burgundy. In spite of their different ages, reefal episodes of Middle Oxfordian in Lorraine and Upper Oxfordian in Burgundy exhibit a broadly similar vertical evolution of coral communities. During the Late Oxfordian, the contemporaneous occurrence of a diversified assemblage in the Burgundy region, a colder coral assemblage characterized by eurytopic genera and the decrease in seawater isotopic temperatures in Lorraine can be explained by a shift in trophic conditions, a climatic change related to structural rearrangements in this strategic place and a modification of oceanic circulations between the arctic and the Tethyan regions. [original abstract; Lathuiliere; pdf file can be supplied by the latter on request]

**Fabre C. & Lathuiliere B. 2007.** Relationships between growth-bands and paleoenvironmental proxies Sr/Ca and Mg/Ca in hypercalcified sponge: A micro-laser induced breakdown spectroscopy approach. *Spectrochimica Acta* part **B 62** (2007), pp 1537-1545.
Long classified as coral hydrozoans, Chaetetids are now considered as a group of very shallow marine hypercalcified sponges. As corals do, they grow by adding calcium carbonate under their pellicular living body in such a rhythmic and regular way that we suspect that sclerochronology is possible, based on the hypothetical annual growth bands of their skeleton. Regarding to its accurate lateral resolution of 5 μm by laser shot, micro-LIBS study was chosen to check its potential for such application. The

LIBS apparatus is composed of a microscope coupled with a 266 nm Nd-YAG laser, delivering a 4 mJ-power per shot, and an ICCD camera. The acquisition of the spectra is made via the SE 200 spectrograph, on the large 190 nm to 1100 nm wavelength range. The entire longitudinal thin section of the specimen was analysed from the bottom to the top of the *Ptychochaetetes* section in a multi-elementary cartography for Ca-Mg-Sr elements. Sodium and Barium were also detected in trace amounts. The Mg/Ca concentrations are mainly between 400 and 600 mmol/mol considering an average value for each profile. This study shows that during the *Ptychochaetetes* growth, an obvious time-dependent heterogeneity in the chemical Mg/Ca and Sr/Ca composition can be observed. These variations demonstrate the possible use of this method for sclerochronological studies. [original abstract; Lathuiliere; PDF available on request from the latter]

**Grottoli A. G. & Eakin C. M. 2007.** A Review of modern coral $\delta^{18}O$ and $\delta^{14}C$ proxy records. *Earth Science Reviews* **81**, pp 67-91.
[key words: coral; isotope; $^{18}O$; $^{14}C$; sea surface temperature; paleoceanography]
This paper is a review of published modern coral $\delta^{18}O$ and $\delta^{14}C$ isotopic records that are at least 30 and 20 years long, respectively. The data are presented to show basin-scale trends in both of these proxy records on decadal-to-centennial timescales. The goal was to qualitatively integrate the general inter-annual-to-centennial timescale variability revealed in these data, as well as the statistical and modeling output results that have been produced using these coral records. While many review papers typically include a representative subset of the data available, this review aims to include as much of the available data as possible. In general, coral $\delta^{18}O$ records show a long-term warming and/or freshening throughout the tropical oceans, and agree with the NOAA Extended Reconstruction Sea Surface Temperature 2 (ERSST) on decadal timescales. In the Western Pacific it is most likely a freshening of the seawater $\delta^{18}O$ that dominates the signal. El Nino Southern Oscillation (ENSO) variability dominates most $\delta^{18}O$ records either by varying local seawater temperature or salinity, depending on the regional, oceanography/climatology. Outside of the Pacific, ENSO affects seawater $\delta^{14}C$ has been greatest inn gyre-water fed sites, followed in descending order by western boundary current areas,

equatorial upwelling regions, and eastern tropical Pacific upwelling sites. These surface water $\delta^{14}C$ values indicate the proportion of surface water and/or the residence time of water at the surface at given location, and can be used to model water mass mixing rates. Such models have only begun to be run and show that the amount of eastern Pacific water entering the central South Pacific increases during El Ninos and that the Indonesian throughflow is supplied year-round by the North Pacific. Comparing ocean circulation models with coral $\delta^{14}C$-modelled circulation enables researchers to explore the mechanisms that drive seawater $\delta^{14}C$ variability and fine-tune their models. In addition, our comparison between the rate of coral $\delta^{14}C$ increase between 1960 and 1970 and total anthropogenic $CO_2$ uptake rates show general agreement, demonstrating the value of coral records in understanding past carbon fluxes. Overall, coral $\delta^{18}O$ and $\delta^{14}C$ proxy records represent natural archives of seawater conditions and are critical for studying the natural variability in local and regional patterns within, and tleconnection pattersnbetween, the tropics, extra-tropics, tmeparete, and Polar Regions on intra-annual-to-centennial timescales. [original abstract; Oekentorp]

**Hubert B. L.M., Zapalski M.K., Nicollin J.-P., Mistiaen B. & Brice D. 2007.** Selected benthic faunas from the Devonian of the Ardennes: an estimation of palaeobiodiversity. *Acta Geologica Polonica* **57** (2), 187-204. [key words: Devonian, Ardennes, Biodiversity, Stromatoporoids, Chaetetids, Hydroids, Tabulate corals, Brachiopods]
A survey of the principal benthic faunas from the Devonian of the Ardennes is presented. The alpha-diversity is very high (707 species, including 138 species of stromatoporoids, 113 species of tabulates, hydroids and chaetetids, and 456 species of brachiopods). Analysis of their distribution through time indicates two brachiopod diversity peaks (Emsian/Eifelian and Frasnian), a single stromatoporoid diversity peak (Givetian), and no clear peak of tabulate corals (with the highest diversification during the Eifelian-Frasnian). The highest diversity of bioconstructors in the Givetian correlates with a decrease in brachiopod diversity. Changes in the vertical distribution of the faunas are correlated with the facies development: the development of carbonates correlates with the abundance of stromatoporoids and tabulates, while brachiopods were most abundant before and after the peak of carbonate development.

Bioconstructors are absent (or nearly absent) in siliciclastic facies. [original abstract; Wrzolek]

**Iba Y. & Sano Shin-Ichi 2007**. Mid-Cretaceous step-wise demise of the carbonate platform biota in the Northwest Pacific and establishment of the North Pacific biotic province. *Palaeogeography, Palaeoclimatology, Palaeoecology* **245**, 3/4: 462-482.
The global spatiotemporal distribution of the Cretaceous carbonate platform biota, which is characterized by "tropical" Mesogean (= Cretaceous Tethys) taxa, is an important aspect of Earth's paleobiogeography. All available records of this biota in the Northwest Pacific (Japan and Sakhalin Island) are summarized in order to elucidate its stratigraphic distribution patterns and faunal changes, with special attention given to the biota of the Late Aptian-Early Albian.
This carbonate platform biota flourished from the Berriasian to Early Albian interval in the Northwest Pacific, indicating that the Northwest Pacific clearly belonged to the Tethyan biotic realm at that time. A step-wise demise of the carbonate platform biota transpired in the latest Aptian to middle Albian interval. Mesogean key taxa (rudists and dasycladacean algae), some Mesogean indicators (hermatypic corals and stromatoporoids) and nerineacean gastropods disappeared at the Late Aptian to Early Albian transition. Following this event, other Mesogean indicators (orbitolinid foraminifers and calcareous red algae) and coated grains disappeared at the Early to middle Albian transition. There is no record of carbonate platform biota in the Northwest Pacific during the long interval between the Middle Albian and Paleocene. The step-wise demise of the carbonate platform biota in the latest Aptian-middle Albian interval strongly implies a "vicariance event", which separated the North Pacific from the Tethyan biotic realm and established the North Pacific biotic province. [original abstract; Loeser]

**Ivanova D., Koleva-Rekalova E., Kołodziej B. & Roniewicz E.** Oxfordian to Valanginian palaeoenvironmental evolution on the Western Moesian Carbonate Platform: A case study from SW Bulgaria. (prepared for *Annales Societatis Geologorum Poloniae*). [Kolodziej]

**Lathuiliere B., Carpentier C., Huault V. & Martin-Garin B. 2006.** Les assemblages coralliens du Jurassique supérieur du site de Bure. *7eme*

*Colloque du GdR FORPRO*. La Grande Motte 2-4 mai 2006, p.188, poster. [Lathuiliere; pdf file can be supplied by the latter on request]

**Lathuiliere B., Geister J., Tkhorzhevsky E. S., Yudin S. & Martin-Garin B. 2007.** Oxfordian coral communities of the Donets basin (Ukraine) and their paleoclimatic significance. *Xth international Congress on Fossil Cnidaria and Porifera*, Abstracts volume: pp 56-57; St Petersburg 12-16 august 2007. [Lathuiliere; pdf file can be supplied by the latter on request]

**May A. 2007.** Reply to the comments of Yves Plusquellec and Esperanza Fernandez-Martinez on the paper by A. May "Micheliniidae and Cleistoporidae (Anthozoa, Tabulata) from the Devonian of Spain". *Bulletin of Geosciences* **82** (1), pp 90-94; Prague. [Oekentorp]

**Martin-Garin B., Lathuiliere B., Verrecchia E. P. & Geister J. 2007.** Use of fractal dimensions to quantify coral shape. *Coral Reefs* (2007) **26**: 541-550.
A morphometrical method to quantify and characterize coral corallites using Richardson Plots and Kaye's notion of fractal dimensions is presented. A Jurassic coral species (*Aplosmilia spinosa*) and five Recent coral species were compared using the Box-Counting Method. This method enables the characterization of their morphologies at calicular and septal levels by their fractal dimensions (structural and textural). Moreover, it is possible to determine differences between species of *Montastraea* and to tackle the high phenotypic plasticity of *Montastraea annularis*. The use of fractal dimensions versus conventional methods (e.g., measurements of linear dimensions with a calliper, landmarks, Fourier analyses) to explore a rugged boundary object is discussed. It appears that fractal methods have the potential to considerably simplify the morphometrical and statistical approaches, and be a valuable addition to methods based on Euclidean geometry. [original abstract; Lathuiliere; pdf file available from the latter on request]

**Mertz-Kraus R., Brachert T. C. & Reuter M. 2007**. *Tarbellastraea* (Scleractinia): A new stable isotope archive for Late Miocene paleoenvironments in the Mediterranean. *Palaeogeography, Palaeoclimatology, Palaeoecology* **257**, 3, pp 294-307.
Geochemical proxy records of sea surface temperature (SST) or sea surface

salinity (SSS) variability on intra- and interannual time-scales in corals from geological periods older than Pleistocene are extremely rare due to pervasive diagenetic alteration of coralline aragonite. Very recently, however, stable isotope data ($\delta^{18}O$, $\delta^{13}C$) from specimens of *Porites* of Late Miocene age (10 Ma) have been shown to preserve original environmental signatures. In this paper we describe new finds of the zooxanthellate corals *Porites* and *Tarbellastraea* in exceptional aragonite preservation from the island of Crete in sediments of Tortonian (ca. 9 Ma) and Early Messinian (ca. 7 Ma) age. Systematic, comparative stable isotope analysis of massive *Tarbellastraea* and *Porites* sampled from the same beds and localities reveal identical stable isotope fractionation patterns in both genera. Therefore, extinct *Tarbellastraea* represents an additional environmental archive fully compatible and mutually exchangeable with *Porites*. Provided that seasonal variations in $\delta^{18}O$ reflect SST changes only, seasonal SST contrasts of 7.3 ºC for the Tortonian and 4.8 ºC for the Early Messinian are inferred, implying warmer summer and cooler winter SSTs during the Tortonian than during the Messinian. However, reduced $\delta^{18}O$ seasonality (1.1‰ in the Tortonian and 0.7‰ in the Messinian) and slightly less negative mean $\delta^{18}O$ in Messinian corals (- 2.4‰) compared to Tortonian specimens (- 2.7‰) may not necessarily indicate a long-term fall in SSTs, but changes in surface water $\delta^{18}O$, i.e. global ice build-up or enhanced evaporation during summer or increased precipitation/river discharge during winter and changes in insolation. On the other hand, coral communities of Tortonian and Messinian age in central Crete are identical, and compatible annual extension rates indicate similar average SSTs during the two investigated time periods. In addition, lithological and paleobotanical data from Central Crete document a change from humid to dry climatic conditions during the Late Miocene. Therefore, a likely explanation for the observed shift in coral mean $\delta^{18}O$ and reduced $\delta^{18}O$ seasonality from the Tortonian to the Early Messinian is a change in ambient seawater $\delta^{18}O$ caused by a change in the hydrological balance towards high evaporation / high salinity during summer. [original abstract; Loeser]

**Oekentorp Kl. 2007.** The microstructure concept - coral research in the conflict of controversial opinions. *Bulletin of Geosciences* **82** (1), pp 95-97; Prague. [Oekentorp]

**Ogorelec B., Dolenec T. & Drobne K. 2007**. Cretaceous-Tertiary boundary problem on shallow carbonate platform: Carbon and oxygen excursions, biota and microfacies at the K/T boundary sections Dolenja Vas and Sopada in SW Slovenia, Adria CP. *Palaeogeography, Palaeoclimatology, Palaeoecology* **255**, 1/2: 64-76.
An integrated sedimentological, magnetostratigraphic, and paleontological study of the Vallcebre section (south eastern Pyrenees, Spain) is carried out in order to define and portray the transition from the Cretaceous to the Tertiary in a continental setting. A robust magnetostratigraphy is correlated to the standard polarity scale in light of known biochronological constraints (charophyte, marine invertebrates, eggshells and other dinosaur remains). Our results show that this section is among the thickest stratigraphic records for the continental Maastrichtian in the Old World. Sedimentology indicates a progressive regression from marine through lagoonal to entirely continental environments. The section is dominated by mudstones deposited under low energy conditions. Exceptionally, a basin-wide regression maximum is recorded some time before the Cretaceous-Tertiary boundary (K/T). This regression maximum is marked by the input of coarse-grained (alluvial) sediments that record a dramatic change in the landscape (quiet mud plains changed to sandy floodplains deposited by high-energy currents). After a period of renewed quiescence following the regression maximum, a Cenozoic flooding took place. Such terminal Cretaceous sequence of events has been recorded in shorter sections in several other basins from southwestern Europe. This energetic sediment input suggests that some time before the K/T event, a sudden paleoenvironmental reorganization took place in the continental basins of south western Europe. [original abstract; Loeser]

**Perry C. T. & Hepburn L. J. 2007**. Syn-depositional alteration of coral reef framework through bioerosion, encrustation and cementation: Taphonomic signatures of reef accretion and reef depositional events. *Earth-Science Reviews* **86**: 106-144.
The development of coral reef framework and the preservational character of both in-situ and rubble coral is strongly influenced by a range of physical, chemical and biologically-mediated taphonomic processes. These operate at, or just below, the reef framework-water interface and can be defined as having either a constructive or destructive effect upon primary

reef framework (i.e., coral) constituents. Constructional activities add additional calcium carbonate to the primary framework structure via secondary framework growth and early cementation. Destructive processes, which remove or degrade primary (and secondary) framework carbonate, are associated with the effects of either physical (mainly storm) disturbance or biological erosion (termed bioerosion). Key bioeroding groups include the grazing fish and echinoid groups, as well as the activities of an array of infaunal borers. These include specific groups of sponges, bivalves and worms (termed macroborers), as well as cyanobacteria, chlorophytes, rhodophytes and fungi (termed microborers). The relative importance of each process and the rates at which they operate vary spatially across individual reef systems. In addition, many of these processes leave distinctive signatures on, or in, the coral framework. In some cases (e.g., calcareous encrusters) these are the skeletons of the organisms themselves, whilst in other cases the organism may leave behind a trace of their activity (e.g., macro- and microborers). These represent useful palaeoenvironmental tools, firstly because they often have good preservation potential and, secondly because the range and extent of many of the individual species, groups and processes involved exhibit reasonably well-constrained environment and/or depth-related distributions. As a result these taphonomically important organisms or processes can be used to delineate between reef environments in core or outcrop, and to aid the interpretation of reef depositional processes and 'events'. This review summarises current understanding regarding the distribution of these species/processes within contemporary reef settings and considers the suites of taphonomic signatures that may aid in the recognition and interpretation of depositional environments and events. [original abstract; Loeser]

**Plusquellec Y. & Fernandez-Martinez E. 2007.** Comments on the paper by A. May "Micheliniidae and Cleistoporidae (Anthozoa, Tabulata) from the Devonian of Spain". *Bulletin of Geosciences* **82** (1), pp 85-89; Prague. [Oekentorp]

**Przenioslo R., Stolarski J. Mazur M. & Brunelli M. 2008**. Hierarchically structured scleractinian coral biocrystals. *Journal of Structural Biology* **161** (1): 74-82.
Microscopic (AFM and FESEM) observations show that scleractinian coral

biomineral fibers in extant *Desmophyllum* and *Favia*, and fossil Jurassic *Isastrea* are composed of nanocrystalline grains of about 30-100 nm in size. In contrast to these findings, SR diffraction data on the same coral materials exhibit narrow Bragg peaks suggesting much larger crystallite size. These seemingly contradicting results of microscopic and diffraction studies are reconciled within a new, minute-scale model of scleractinian biomineral fibers. In this model, nanocrystalline aragonite units are interconnected by mineral bridges and form aggregates usually larger than 200 nm. Most likely, the size of the aggregates is resulting from physiological biomineralization cycles that control cellular secretion of ions and biopolymeric species. Intercalation of biopolymers into crystal lattice may influence consistently several structural parameters of the scleractinian coral bio-aragonite in all studied samples: (i) the lattice parameters and internal strains of the bio-aragonite are larger than in mineral aragonite, (ii) lattice parameter elongations and internal strains reveal directional anisotropy with respect to crystallographic axes. [original abstract; Kolodziej]

**Reolid M., Gaillard C. & Lathuiliere B. 2006.** Microfacies and microfossil assemblages from the Oolithe corallienne de Pagnoz Formation (French Jura, Oxfordian): stratigraphic fluctuations in a shallowing upward sequence. *XXII jomadas de la Sociedad espanola de Paleontologia* (**2006**), pp 75-77 [Lathuiliere; pdf file can be supplied by the latter on request]

**Reolid M., Gaillard C. & Lathuiliere B. 2007.** Microfacies, microtaphonomic traits and foraminiferal assemblages from Upper Jurassic oolitic-coral limestones: stratigraphic fluctuations in a shallowing upward sequence (French Jura, Middle Oxfordian). *Facies* **53**, 5: 553-574.
The characterization and distribution of the microfacies and the microfossil assemblages of a Middle Oxfordian section from Jura Mountains composed by thick oolitic-coral limestones is analyzed. Six microfacies types (mainly grainstones) are differentiated mainly composed by ooids, intraclasts and bioclasts. Foraminiferal assemblages are dominated by agglutinated forms. Benthic microbial communities and sessile foraminifera are the main components of the encrustations. The whole set of microfossil assemblages is typical of shallow subtidal environments rich in "algae" (*Cayeuxia*, "*Solenopora*", *Thaumatoporella, Bacinella, Girvanella* and *Terquemella*)

and foraminifera such as *Nautiloculina oolithica*, *Redmondoides lugeoni*, *Ammobaculites coprolitiformis*, *Troglotella incrustans* and *Rectocyclammina*. The increasing upward record of debris of algae and *Nautiloculina*, and the decrease of serpulids, bryozoans, nodosariids and ophthalmidiids indicate a shallowing- upward trend. The stratigraphic distribution of microfacies and microfossil assemblages lead to differentiate two main successive phases. The first is a deeper subtidal environment in an open shelf, while the second is a shallow subtidal environment with evolution from winnowed to more restricted conditions. Microfabrics of radial to concentric ooids upwards in the section correspond to higher energy environments related to an oolitic shoal. This study shows how a very detailed analysis of microfacies, which integrates oolitic features, microfossil assemblages and microtaphonomy is potentially a useful tool for interpreting hydrodynamism and sequence evolution in marine carbonate shallow environments. [original abstract; Lathuiliere; pdf file can be supplied by the latter on request]

**Rodriguez S., Arribas M. A., Bermudez-Rochas D. D., Calvo A., Cozar P., Falces S., Hernando J. M., Mas J. R., Moreno-Eiris E., De la Pena J. A., Perejon A., Sanchez-Chico F. & Somerville I. D. 2007.** Stratigraphical and paleontological synthesis of the Sierra del Castillo succession (Late Visean, Cordoba, SW Spain). *Proceedings of the XVth International Congress on Carboniferous and Permian Stratigraphy*. Wong, Th.E. (Ed.). Royal Netherlands Academy of Arts and Sciences, Utrecht, 205-216. [Rodriguez]

**Scott R. W., Molineux A., Loeser H. & Mancini E. A. 2007**. Lower Albian Sequence Stratigraphy and Coral Buildups: Glen Rose Formation, Texas In: Scott, R.W. (Ed.), Cretaceous rudists and carbonate platforms: environmental feedback. *Society of Economic Paleontologists and Mineralogists* (SEPM), *Special Publications* **87**: 181-191.
The Glen Rose Formation of the Comanchean Series represents the second circum-Gulf carbonate shelf that extended from Florida to Mexico. The Glen Rose comprises limestone, dolomite, and thin interbeds of marl and calcareous shale that overlie the Hensel Sandstone and underlie the Fredericksburg Group in Texas. The Glen Rose is here formally divided into Lower and Upper, mappable members separated at the top of the

regionally persistent *Corbula* Marker, and a boundary stratotype section is designated. The age of the Glen Rose Formation ranges from latest Aptian to near the end of the Early Albian, from approximately 113.3 Ma to 108.0 Ma, and encompasses four ammonite zones. Three local assemblage zones facilitate correlation of Glen Rose outcrops in Texas. The *Salenia texana* Credner Assemblage Zone spans a marl, 3 to 4 m thick, with a diverse shelf biota in the upper part of the Lower Member. The *Corbula* Range Zone is at the top of the Lower Member. The *Loriola rosana* Cooke Assemblage Zone is in the middle part of the Upper Member. The Glen Rose together with the underlying Hensel Sandstone comprise at least five medium-scale depositional cycles separated by transgressive disconformities. Two types of biotic accumulations are well developed in the Lower Glen Rose Member, coral-rudist assemblages and caprinid- dominated assemblages. Coral-rudist biostromes crop out at the Narrows of the Blanco River and had no bathymetric relief and do not qualify as reefs. Colonial corals are common and are part of a Tethyan fauna; toucasiids and other mollusks comprise a diverse assemblage. Coral diversity is underestimated because of incomplete preservation and sampling. These biostromes are overlain by grainstone capped by a subaerial contact that serves as a sequence boundary between cycles one and two. The younger caprinid bioherms at Pipe Creek have up to 10 m of depositional relief. The bioherm facies grade landward into shoreface grainstone and seaward into shelf wackestone. The caprinid species, *Coalcomana ramosa*, dominates this low-diversity assemblage and is endemic to the Caribbean Province. The bioherm facies are overlain by dolomitic, stromatolitic facies with dinosaur tracks. The contact with the overlying *Salenia* Zone is a sequence boundary between cycles two and three. Two more long-term cycles may be identified in the Upper Glen Rose Member. The coral-rudist biostromes and the caprinid bioherms formed paleocommunities on the landward ramp of the interior marine shelf. The coral-rudist biostromes developed below normal wave base but above storm wave base and shoaled above wave base and were subaerially exposed. The caprinid bioherms formed on a ramp and grew into the zone of normal wave action in mainly normal marine salinities. [original abstract; Loeser]

**Stolarski J., Meibom A., Przenioslo R. & Mazur M. 2007**. A Cretaceous scleractinian coral with a calcitic skeleton. *Science* **318** (5847): 92-94 +

SOM at http://www.sciencemag.org/cgi/content/full/318/5847/92/DC1
It has been generally thought that scleractinian corals form purely aragonitic skeletons. We show that a well-preserved fossil coral, *Coelosmilia* sp. from the Upper Cretaceous (about 70 million years ago), has preserved skeletal structural features identical to those observed in present-day scleractinians. However, the skeleton of *Coelosmilia* sp. is entirely calcitic. Its fine-scale structure and chemistry indicate that the calcite is primary and did not form from the diagenetic alteration of aragonite. This result implies that corals, like other groups of marine, calcium carbonate-producing organisms, can form skeletons of different carbonate polymorphs. [original abstract; Kolodziej, Loeser]

**Stolarski J., Przenioslo R., Mazur M. & Brunelli M. 2007**. High resolution synchrotron radiation studies on natural and thermally annealed scleractinian coral biominerals. *Journal of Applied Crystallography* **40,** 1: 2-9.
The structural phase transition from aragonite to calcite in biogenic samples extracted from the skeletons of selected scleractinian corals has been studied by synchrotron radiation diffraction. Biogenic aragonite samples were extracted en bloc without pulverization from two ecologically different scleractinian taxa: *Desmophyllum* (deep-water, solitary and azooxanthellate) and *Favia* (shallow water, colonial, zooxanthellate). It was found that natural (not pulverized) samples contribute to narrow Bragg peaks with δ d/d values as low as 1 x 10-3 which allows the exploitation of the high resolution of synchrotron radiation diffraction. A precise determination of the lattice parameters of biogenic scleractinian coral aragonite shows the same type of changes of the a, b, c lattice parameter ratios as that reported for aragonite extracted from other invertebrates [Pokroy, Quintana, Caspi, Berner & Zolotoyabko (2004). Nat. Mater. 3, 900-902]. It is believed that the crystal structure of biogenic samples is influenced by interactions with organic molecules that are initially present in the biomineralization hydrogel. The calcite phase obtained by annealing the coral samples has a considerably different unit-cell volume and lattice parameter ratio c/a as compared with reference geological calcite and annealed synthetic aragonite. The internal strain in the calcite structure obtained by thermal annealing of the biomineral samples is about two times larger than that found in the natural aragonite structure. This effect is

observed despite slow heating and cooling of the sample. [original abstract; Kolodziej]

**Young G. A., Elias R. J., Wong S. & Dobrzanski E. P. 2008.** Upper Ordovician rocks and fossils in southern Manitoba. *Canadian Paleontology Conference Field Trip Guidebook* **13**, 97 pp.

**Zapalski M. K. 2007**. Parasitism versus commensalism: the case of tabulate endobionts. *Palaeontology* **50,** 6: 1375-1380.
Tube-like traces of organisms belonging to the ichnogenus *Chaetosalpinx* Sokolov have been considered in the literature as commensal endobiontic organisms of tabulate corals. Their position between the corallites (or sometimes within the septa), perforation of the host's skeleton and soft tissue, modification of its phenotype and a possible inhibition of its growth show that the relationship between these organisms and tabulate corals can best be interpreted as parasitism rather than commensalism, as previously suggested. Such an interpretation may be extended to the ichnogenera *Helicosalpinx* Oekentorp and *Actinosalpinx* Sokolov, which show identical placement within the host colony and similar features, such as the absence of their own wall. [original abstract; Kolodziej]

**Zapalski M. K. (submitted)**. Parasites in Emsian-Eifelian *Favosites* (Anthozoa, Tabulata) from the Holy Cross Mts. (Poland): changes of distribution within colony. In: Devonian Change - Case Studies in Palaeogeography and Palaeoecology. *Geological Society, London, Special Publications*. [Kolodziej]

**Zapalski M. K., Hubert B. & Mistiaen B. 2007**. Estimation of palaeoenvironmental changes: can analysis of distribution of tabulae in tabulates be a tool? In: J. J. Alvaro et al. (eds). Palaeozoic Reefs and Bioaccumulations: Climatic and Evolutionary Controls. *Geological Society, London, Special Publications* **275**: 275-281.
Growth periodicity (cyclomorphic variation) in corals is expressed by various features, among them changes in the distribution of tabulae. A method potentially useful in analysis of periodical environmental changes is proposed herein. Measurement of spaces between tabulae in tabulate corals and preparation of a histogram converted into a trend curve may show relative periodical fluctuations of the environment. Such an analysis,

exemplified here on Givetian *Pachyfavosites* sp. from the Avesnois (northern France), shows that this method may be used as a tool for estimation of environmental changes. [original abstract; Kolodziej]

**Zapalski M. K., Hubert B., Nicollin J.-P., Mistiaen B. & Brice D. 2007**. The palaeobiodiversity of stromatoporoids, tabulates and brachiopods in the Devonian of the Ardennes: changes through time. *Bulletin de la Societe Geologique de France* **178,** 5: 383-390.
[keywords: Devonian, Ardennes, Biodiversity, Stromatoporoids, Chaetetids, Hydroids, Tabulate corals, Brachiopods]
The specific biodiversity of stromatoporoids, tabulates and brachiopods from the Ardennes (706 taxa) has been analyzed stage-by-stage from the Lochkovian up to the Famennian. The diversity of each group may be correlated with external factors (e.g. facies), but it varied individually (e.g. decline of brachiopods in the Givetian). The faunas are discussed at the order level, however some more diversified orders are analyzed at family level. Biodiversity shows a single peak centered on the Givetian for the bioconstructors, and two major peaks (Emsian-Eifelian and Frasnian) for the brachiopods. The most diversified orders are Stromatoporellida (stromatoporoids), Favositida (tabulate corals) and Spiriferida (brachiopods). Stromatoporoids display two, tabulate corals four and brachiopods five stages of renewal of fauna. [original abstract; Zapalski]

**Zapalski M. K., Pinte E. & Mistiaen B. (submitted)**. Late Famennian *Chaetosalpinx* in *Yavorskia* (Tabulata): the youngest record of tabulate endobionts. *Acta Geologica Polonica*. [Kolodziej]

**Zapalski M. K., Trammer J. & Mistiaen B. (submitted)**. The periodic growth pattern in tabulate corals - a study on the Frasnian alveolitids from the Holy Cross Mts. (Poland). *Palaeogeography, Palaeoclimatology, Palaeoecology*. [Kolodziej]

## Fossils & Databases / as of December 2008

### Bibliography of extant corals / Hannes Loeser

**Hanske H. & Loeser H. 2006.** Annotated Bibliography on Extant Corals (1758–2002). *Coral Research Bulletin* **8**, 35 pp. + CD-ROM.

The coral bibliography includes literature published between 1758 and 2002 on all aspects of extant corals (scleractinia as well as octocorallia and hydrozoa with a calcified skeleton; e.g. includes species of *Millepora*, *Heliopora* and *Tubipora*). The database encompasses 9232 literature references on biology, morpholoy, variation, taxonomy, distribution, settlement, recruitment, calcification, chemical processes, evolution, ecology, coral associates, palaeontologic comparisons, including dissertations, theses and abstracts. The entries are full indexed according to

-- the geographic area (50 areas are distinguished)'

-- the contents of the publication (45 topics),

-- a list of headwords (5300) generated from the titles (transletd into English when necessary).

The bibliography is published in electronic version on a CD with an explanation as paper version. The CD includes the database, and a comfortable search program (including a electronic map for regional search) in a version for Windows – sorry, no version for MAC or Linux is available! (see also on-line at http://www.scleractinia.de/ )

What is the difference to the other bibliographies?
1. The bibliography is the most complete ever published.
2. The bibliography encompasses also abtracts and thesis.
3. The bibliography is annotated. Using the search program you can specify very detailed your demands (for instance, 'pollution in the Gulf of Mexico', 'Papers by X on DNA stuff', '*Heliopora* as aquarium animal'). The headword list helps you also to search articles which were originally not published in English under very special aspects (find everything on 'drilling', 'mucus', 'filaments').
4. The search program can import updated versions of the database without extra costs. Depending on the demand, interest and help by authors, the compilation of the bibliography will be continued in the future.

**TIP - Treatise on Invertebrate Paleontology, Scleractinia volume**

**George Stanley jr**, University of Montana

TIP project is progressing with the purpose of replacing the outdated 1956 Scleractinia chapter published in the Coelenterata volume by Wells. The TIP is organized by **Jarek Stolarski** (Academy of Sciences, Warsaw, main coordinator). In addition, **Steve Cairns** (Smithsonian), **Ann Budd** (Univ. Iowa), and **George Stanley** (Univ. Montana) are co-coordinators. The TIP is planned as two volumes: 1, Introduction and 2, Taxonomy. **Ken Johnson** joined the project, to help develop an interactive database called **"Corallosphere" http://obsidian.nhm.ac.uk/csphere/**

Rather than traditional authorship, the plan has been to develop an approach to allow input from the international community of scleractinian researchers. This is being accomplished via Corallosphere. Since the report presented at the 2007 Fossil Cnidaria and Porifera meeting in St. Petersburg, Corallosphere is in advanced stages of development, thanks to the efforts of Ken Johnson (see 2008 report below from Ann Budd). Steve Cairns (Smithsonian) is Managing Editor.

**Steve Cairns**, Smithsonian Institution

Report of July 2, 2008 on progress toward entering an estimated 1,600 fossil and living genera of Scleractinia:

Cenozoic and Recent (Budd, Cairns): 695 genera and subgenera (96.8% subscribed)

Cretaceous (Baron-Szabo): 407 genera (94.8% subscribed)

Triassic and Jurassic (Roniewicz and Lathuiliere): 439 genera (55% subscribed).

**Ann Budd**, University of Iowa

Report summary of TIP Workshop [Corallosphere / Scleractinian Treatise (TIP) meeting] held July 5, 2008 in Miami, Florida in advance of the International Coral Reef Symposium. Also in attendance were Ken Johnson (British Museum), Steve Cairns (Smithsonian), George Stanley (University of Montana), Bernard Lathuiliere (Nancy, France), and Jim Klaus (University of Miami). Below are highlights of this meeting.

*Should the TIP be separate from Corallosphere?* Mixed opinions were expressed as to whether the printed TIP or Corallosphere should be the main objective of the Scleractinia project. Some preferred a fluid and

dynamic database that can be continually updated and revised as future research changes our present knowledge.

*Discussion of copyrights*: The questions were raised as to whether the TIP publishers will allow us to share information in Corallosphere with other community databases (e.g., The Encyclopedia of Life) and whether publishers will allow the information to be made publically available without financial charge.

*Scleractinia glossary*: General consensus was that glossary need not be complete before the coral taxa are entered but they should be worked on simultaneously.

*Development of baseline of information about taxa*: By the end of Sept 2009, information should be added for all ~1600 genera. This information should be as complete as possible. Ken Johnson will maintain "Corallosphere" for the coming years and eventually integrate it within a larger community database. Discussion arose as to whether external users should be able to see drafts before final product and the consensus was that this is OK as long as it is flagged as a draft.

*Contributor roles*. Public (read only), reader (read and write comments), author, editor, managing editor (Cairns). A contributor page and a reviewer category will be added. Reviewers will consist of authors, editors, and other appropriate people. Johnson will develop an automatic method for listing genera that are ready for reviewing each week. Reviewers will be voluntary; editors will invite/encourage possible reviewers. Reviewers will add comments (in the comment box on "Corallosphere"), and reviews will be accessible to the public. The bibliography will consist of a file in endnote or Procite. Stolarski will be the bibliography editor and manage the files. Editors are responsible for assigning authors, and the order of authorship for each page.

*Future workshops*. Future workshops are planned and will be announced in the near future.

**News from Virtual Paleontological Museum / Tomasz Wrzolek**

**http://www.rugosa.wnoz.us.edu.pl/**

Recently some important additions and upgrades were made.

1) There is a link to the new paper on phillipsastreid genus *Smithicyathus* (Wrzolek 2007), see bibliography of the Rugosa).

2) It is accompanied by the database of numerical and ordinal data for material presented or merely listed in this paper. The data tables contain links to extensive library of scans, up to 2400dpi resolution of the fossil material, i.e. it contains much more info than illustrations in the *Smithicyathus* paper which present merely fragments of thin sections... I hope you will enjoy these pictures (some of over 10MB size).

3) Reviewed and reconstructed was the "service map" page of the Museum, especially its part concerning the massive species of the family Phillipsastreidae.

4) In July 2008 updated was the data table of the Siphonophrentidae, as listed and / or illustrated in the paper of Wrzolek (2002).

**Coral publications of Sándor Mihály / Dieter Weyer**

[**Sándor Mihály** (1941-1995), Hungarian palaeontologist in the Hungarian Geological Survey (MAFI, Magyar Allami Földtani Intézet); student of the tabulate corals and of Mesozoic-Cenozoic echinoderms]

**1971** A Szabadbattyán-köszárhegyi bitumenes mészköösszlet alsó-karbon korallfaunájának ujravizsgálata. [Revision of the Lower Carboniferous coral fauna from the bituminous limestone of Köszárhegy Hill at Szabadbattyán, Transdanubia, Hungary]. *Öslénytani Viták* **18**: 51-76, 2 figs., 4 pls.; [in Hungarian; English summary].

**1972** Elözetes jelentés a Szendröi-Hegység középsö-devon Tabulatáiról. [Preliminary report on Middle Devonian Tabulata from the Szendrö Hills, NE-Hungary]. *Öslénytani Viták* **20**: 5-16; [in Hungarian; English summary].

**1973** A Szabadbattyáni Köszár-Hegy alsókarbon koralljainak reviziója. [Revision der unterkarbonischen Korallen des Köszár-Hegy von Szabadbattyán]. *Magyar Allami Földtani Intézet, évi jelentése* **1971**: 249-276, 1 fig., 2 tabs., 8 pls.; [in Hungarian; German summary].

**1976** A Szendröi-hegység paleozóos képzödményeinek kora [The age of the Paleozoic formations of the Szendrö Mountains, North Hungary]. *Magyar Allami Földtani Intézet, évi jelentése* **1973**: 71-81, 2 pls.; [in Hungarian; English summary].

**1978** Ujabb öslénytani adatok a Szendröi devon ismeretéhez [Neue paläontologische Angaben zur Kenntnis des Devons von Szendrö (NO-Ungarn)]. *Magyar Allami Földtani Intézet, évi jelentése* **1976**: 95-112, 4 figs., 4 pls.; [in Hungarian; German summary].

**1978** A Szendröi-hegység középsödevon Tabulatái. [Die mitteldevonischen Tabulaten des Szendröer Gebirges]. *Geologica Hungarica, seria geologica* **18**: 117-191, 1 fig., 2 tabs., 14 pls.; [in Hungarian; German summary].

**1981** Hungarian literature on fossil Anthozoa. *Fossil Cnidaria* [currently *Fossil Cnidaria & Porifera*; Newsletter, International Association for the Study of Fossil Cnidaria (International Paleontological Association)] **10**, 2: 33-60; Brisbane (University of Queensland, Department of Geology).

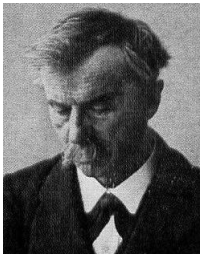
**1982** Uj Tabulata faj a Szendröi középsö-devonból. [Eine neue Tabulata-Art aus dem Mitteldevon von Szendrö (NO-Ungarn)]. *Magyar Allami Földtani Intézet, évi jelentése* **1980**: 261-265, 1 pl.; [in Hungarian; German summary].

titles of Hungarian journals translated:
*Magyar Allami Földtani Intézet, évi jelentése* - Relationes Annuae Instituti Geologici Hungarici / Annual Report of the Hungarian Geological Institute; Budapest
*Öslénytani Viták* - Discussiones Palaeontologicae; Budapest

**Thurmann and Coby - students of Swiss Jura / Bernard Lathuiliere**

After many years of "companionship" with these old coral workers, I am very glad to share the happiness I had to discover these portraits in the country in which they made their great paleontological work: Switzerland.

**Jules Thurmann** (1804-1855), geologist and botanist was born at Neuf Brisach (Alsace) and learned first in Porrentruy (Switzerland) and then in the Royal School of Mines in Paris. He published the famous Lethea bruntrutana which was completed and published after his death in 1864 with help of **A. Etallon**. This book which gives numerous paleontological data on the Swiss area near Porrentruy includes a great number of Jurassic corals.



**Frédéric-Louis Koby** (1852-1930) succeeded Jules Thurmann in the geological research of this small part of Switzerland so important for the history of stratigraphy. He was a teacher in Porrentruy and wrote several important monographies on Jurassic and Cretaceous corals (see references). He was really a great coral worker and the two plates of septal micromorphology published in 1889 at the end of his great monography still remain a kind of jewel.
I believed that the portrait of Koby was not available. So it is a great pleasure to rediscover it and to know a little more about these two old "companions".

You can find these portraits with some written comments on the following and interesting website: **http://www.palaeojura.ch/f/projet/index.html**. This website describes the huge paleontological work which is presently made by Swiss colleagues in relation to the construction of a highway in the cherished area of Thurmann, Etallon and Koby.

**Some references…**

**Koby F. 1880-1889.** Monographie des polypiers jurassiques de la Suisse. *Mémoires de la Société Paléontologique Suisse* **7-16**, 1-582.

**Koby F. 1894.** Deuxieme supplément a la monographie des polypiers jurassiques de la Suisse. *Mémoires de la Société Paléontologique Suisse* **21**, 1-20.

**Koby F. 1896.** Monographie des polypiers crétacés de la Suisse (1). *Mémoires de la Société Paléontologique Suisse* **22**, 1-28.

**Koby F. 1904-1905.** Description de la faune jurassique du Portugal, polypiers du Jurassique supérieur. *Comm. Serv. géol. Portugal*, 1-167.

**Koby F. 1905.** Sur les polypiers jurassiques des environs de St Vallier de Thiey. *Bulletin de la Société Géologique de France* **4**, 847-863.

**Koby F. 1907.** Polypiers bathoniens de St Gaultier. *Mémoires de la Société Paléontologique Suisse* **33**, 1-66.

**Thurmann J. 1851.** Abraham Gagnebin de la Ferriere, fragment pour servir a l'histoire scientifique du Jura bernois. Porrentruy, Switzerland.

**Thurmann J. & Etallon A. 1864.** Lethaea bruntrutana ou études paléontologiques et stratigraphiques sur les terrains jurassiques supérieurs

du Jura bernois et en particulier des environs de Porrentruy. *Denkschriften der Allgemeinen Schweiz. Gesellschaft.*

**Websites with living and fossil Cnidaria and Porifera / reviewed in October 2008**

1) Living Anthozoa are presented by German zoologist Vreni Häussermann at **http://www.anthozoa.com/** – last updated 17.03.2007.
2) Genomic databases of the Cnidaria of the Boston University at **cnidbase.bu.edu** – last update of 2008.10.28.
3) News on research on Fossil Cnidaria & Porifera are provided at **http://kse.wnoz.us.edu.pl/iascp.htm** – updated 2008.10.28 and subsequent updates were made.
4) Oxford University Museum – among other groups also fossil corals can be found at **http://www.oum.ox.ac.uk/** .
5) Transfer of the German site with useful data on research on fossil corals and sponges, formerly housed at **http://www.iasfcp.de/** to **http://kse.wnoz.us.edu.pl/** - not yet ready, forgive me, please, sorry!
6) Virtual paleontological museum, Sosnowiec, Poland: **http://www.rugosa.wnoz.us.edu.pl/** – recent update of 2008.07.12 (see info in "Fossils & Databases" above).
7) Bibliography on extant corals (1758–2002), with about 9000 annotated entries, is presented by Hannes Loeser at **http://www.scleractinia.de/** (see info in "Fossils & Databases" above).
8) Catalogue of Cretaceous Corals - 3 Volumes appeared so far, 4th one is in preparation; introduced by Hannes Loeser at **http://www.cp-v.de/ccc/**.
**Can you recommend any other site?** I am sure you can, so do not hesitate and let all of us know where the treasures are!

**WHERE IS THE TREASURER?**

Editors of *FC&P* will welcome the Person who will care for collecting membership fees of the IASFCP, 10,- euro per year, to cover, at least partly, costs of printing and distribution of our Newsletter. Please remember that our editorial work is made at cost of most precious and limited resource of your editors, which is TIME. Please do not allow us, dear Colleagues, to bear also financial burden of our activity.

## Failed e-addresses as of October 30th 2008

**e-mails could not be delivered to these addresses – can anybody help?**

| | |
|---|---|
| ABBASI, Dr Muhammad | Abbasi709@yahoo.com |
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# ANNOUNCEMENTS

**Paleozoic corals' research in Manitoba (Canada)**

**Bob Elias** (University of Manitoba) and **Graham Young** (Manitoba Museum, adjunct professor at U of M) welcome inquiries and applications from students interested in graduate studies [see **umanitoba.ca/geoscience/people/faculty/elias/elias.html**]. M.Sc. and Ph.D. projects are available on all aspects and applications of Paleozoic corals. There are also interesting projects related to Early Paleozoic paleoecology and stratigraphy.

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# EDITORIAL NOTES

31st December 2008

**Edited by:** International Association for the study of Fossil Cnidaria and Porifera.

**Editors:** Ian Somerville / Ireland and Tomasz Wrzolek / Poland.

**Printed in:** not printed as yet, version on-line of December 31st 2008 is saved and distributed as **archival** file and corresponds exactly to any previously printed volume of *Fossil Cnidaria & Porifera*.

**Size:** formatted as 128 pages of A5 format (printing area of ca 13x18,3 cm per page; the file is FC&P35.rtf of 2,62MB (2 750 142 B) size, version of December 31st 2008, 13:00.

**Distribution:** available at request for IASFCP Members and Sympathizers and for any Public Library interested; either from our page or contact **wrzolek@us.edu.pl**; please take into consideration limits of file size set by your servers!

8th January 2009

**Corrections to previous note**: this is the disclaimer to our previous note - as it happened what the editors saw on-screen was not what there really is in the file FC&P35.rtf of 2,62MB (2 741 103 B) size, of December 31st 2008, 13:00; corrections and some improvements have been made, the trial file has been printed, and the official file is **FC&P35.pdf** housed at **http://iasfcp.w8w.pl/FC&P35.pdf** (also accessible from IASFCP page: **http://kse.wnoz.us.edu.pl/iascp.htm**), also accessible at the same (w8w) site as **FC&P35_e.rtf**, sized 2,16 MB (2 265 898 bites), of January 8th 2009, 10:38 Sosnowiec Winter Time.

**Sorry!** We hope this will never happen again. You can help by strictly following our instructions to correspondents! We beg that you do not format your reports! PLAIN TEXT please, no extra formatting, heading hierarchy, etc., according to the rules set at p. 5 of the present volume!!! Thank you!