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**INTERNATIONAL UNION OF
GEOLOGICAL SCIENCES
COMMISSION ON STRATIGRAPHY**

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**SUBCOMMISSION ON DEVONIAN
STRATIGRAPHY**

NEWSLETTER NO.6

July 1988



I.U.G.S. Subcommittee on Devonian Stratigraphy

Newsletter No. 6, 1988

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University of Bristol,
United Kingdom.**

Items for inclusion in Newsletter No. 7, January 1989 should reach the Editor by 1st December 1988.

NEWS FROM THE U.S.S.R.

TM E.A. VOLKIN writes from Novosibirsk:-

During recent years a decision was made to carry out large-scale geological mapping over the entire territory of the U.S.S.R. In order to clarify the stratigraphical basis for this mapping the Commissions on Systems of the U.S.S.R. (of the Interdepartmental Stratigraphic Committee) is making special preparations. They are organising colloquia on different groups of organisms, field excursions, and are preparing the first versions of stratigraphic schemes. Agreed versions are then accepted by interdepartmental regional conferences and the schemes then adopted by the Interdepartmental Stratigraphic Committee become obligatory for the developing of legends for geological maps. Two regional conferences have been held (Kazakhstan and Russian Platform) and two conferences are planned to be held in the near future (Urals and Central Asia).

1. The third stratigraphic conference on the Kazakhstan Prepalaeozoic and Palaeozoic (Alma-Ata, October 1986)

The new data acquired over the last 15 years did not change the principal ideas on Kazakhstan Devonian stratigraphy. The new scheme was varied only slightly from the previous one as regards the nomenclature of regional subdivisions (Horizons), but it has been changed more fundamentally with respect to the scale of Stages. For the first time the Lochkovian and Pragian Stages were introduced into the Kazakhstan Devonian. Their alignment with local Horizons is still tentative. The treatment of the Eifelian Stage is similar to the European usage but in Eastern Kazakhstan (Rudny Altai) it includes also a considerable part of the Emsian. The Kazakh Horizon is aligned with the Emsian and removed to the Lower Devonian.

The D_2/D_3 boundary, as previously, is defined by the entry of Cyrtospiriferids and located at the base of the May Horizon. The position of the Frasnian/Famennian boundary (at the base of the Meisterov Horizon) is unchanged. The Simorin Horizon, correlated with the Wocklumeria Zone, is removed into the Devonian, according to a decision of the Allunion Conference on the Devonian/Carboniferous Boundary (Minsk, April 1986). It is also to be mentioned that so far data on Devonian conodonts from Kazakhstan are too limited for recognition of a zonal succession. Until this conference it was not possible to define any zonal boundary though some stratigraphic intervals in the Upper Devonian were characterised by conodont associations.

2. The Interdepartmental Stratigraphic Conference on the Middle & Upper Palaeozoic (Devonian, Carboniferous, Permian) of the Russian Platform (Leningrad, February-March 1987)

The Russian Platform is a huge region. Because of this it has been divided into several subregions - Central, Volga-Ural, Northwestern, Timan-Pechora, Volyn' Padolia and Dnepr-Donetsk. The stratigraphic schemes for each of these subregions were accepted at the conference. They provide more detailed subdivisions of some intervals and more precise correlation of local units. The application of standard units is, however, still very complicated. The Stage scale recommended by the SDS has accepted insofar as the nomenclature is concerned, the contents of the Stages are different. No one boundary coincides with the decisions of the SDS. Unfortunately even some of the leading workers (Rzhonsnitskaya, Khalymbadzha) erringly believe that such adjustments are acceptable.

Exactly the same situation occurs with Series boundaries. the D_1/D_2 boundary is located at the base of the Zdimir pseudobasehkiricus Zone,

despite the fact that the entry of the zonal species occurs at different levels (from the inversus Zone to the patulus Zone) in different regions of the U.S.S.R.

The D₂/D₃ and Frasnian/Famennian boundaries are kept at traditional levels for the Russian Platforms - at the base of the Pashiya and Zadonsk Horizons (lowermost asymmetricus Zone and Upper triangularis Zone). The Devonian/Carboniferous boundary is accepted at the base of the Acutinitorceras Beds as per the decision of the Allunion Conference on this boundary in Minsk (April 1986). It is aligned with the base of the sulcata Zone. It should be mentioned that the Alfonin Horizon is removed from the Givetian to the Eifelian. However, there are no conodont data for the precise location of the boundary between these two stages nor for the Lochkovian/Pragian boundary.

3. Allunion School: Palaeobiology, Biostratigraphy and Palaeoecology of Conodonts (Kitab Geological Reserve, September 23-October 3, 1987)

Present at the school were 70 participants. There were 40 reports, including information about the 2nd International Symposium on the Devonian System and the SDS meeting at Calgary (E.A. Yolkin, A.I. Kim). In the light of this information a discussion on Series boundaries took place: this also revealed the peculiar situation that exists. Many conodont specialists are ready to accept completely the SDS decisions, but at the same time all of them believe that two levels (the base of the dehiscens Zone and the base of the Lowermost asymmetricus Zone) are the main points in the evolution of conodonts. Thus they divide the System into three equivalent parts. This conclusion coincides with the opinion about the positions of the Series boundaries which was based on the results of studies of the benthic faunas in the U.S.S.R.

On the stratotype of the Pragian/Emsian Boundary It was suggested by SDS members that a further study be made of the sections where there is an overlap of P.pireneae and P.dehiscens ranges in order to establish the stratotype of the Lower Emsian boundary. The Zinzilban section is one of them. In 1987 additional samples were collected from the boundary interval. New data show the necessity to distinguish the mentioned species more accurately. There is reason to suppose that the adult specimens of P.pireneae could be defined as P.dehiscens. Moreover the same specimens were used to establish the new species P.pannonicus (Mashkova, Apekina, Paleotologichesky Zhurnal 1980, No. 3). Hence this question has to be solved before the final decision is made on the stratotype of the lower Emsian boundary. (June 1988)

NEWS FROM COLOMBIA

Dr. Jorge E. Valdiri W. of the Instituto Nacional de Investigaciones Geológico - mineras, (INGEOMINAS) in Bogotá, Colombia S.A. writes to inform us that a National Committee for Geology in Colombia, to correspond with IUGS, has been set up. The President is Dr. Alberto Lobo-Guerrero Uscátegui (INGEOMINAS) and the Secretary is Dr. Jorge E. Valdiri W. (INGEOMINAS) with 12 Members of Committee.

A National Committee for the IGCP has also been named:-

President: Dr. Jorge Juliá Restrepo
Univ. Nacional de Medellin

Vice President: Dr. Jairo Mojica,
Univ. Nacional de Colombia,
Bototá D.E.

Secretary: Dr. Victor Eduardo Pérez
ECOPETROL
Bogotá D.E.

With six other members of the Committee.

CHANGE OF ADDRESS

for TM D.C. McGregor as of 18th August 1988 to 1st June 1989

D.C. McGregor,
c/o Dr. Geoffrey Playford,
Department of Geology & Mineralogy,
University of Queensland,
St. Lucia, Queensland,
AUSTRALIA 4067.

DEVONIAN PALAEOONTOLOGY AND STRATIGRAPHY OF VIETNAM

CM Tong-Ozung Thanh has kindly provided a list of papers concerned with the palaeontology and stratigraphy of his country, Vietnam. They are primarily papers published since 1954. Before the second World War most works were published in the Memoirs and the Bulletin of the Service géologique de l'Indochine. Most of those now listed by Prof. Thanh are in Vietnamese with English or French summaries. Given below are a few that are in English: I will be pleased to provide the complete list of Vietnamese titles to members who wish to have it.

DOVJIKOV, A.E. et al., 1965 Geologia Severnogo V'etnama. (Geology of the North Vietnam). 665p. Hanoi, 1965 (in Russian).

DUONG XUAN HAO, NGUYEN THOM, 1979 Biostratigraphy of Devonian deposits in Vietnam and their correlation with some foreign countries. In: Stratigraphic correlation between sedimentary basins of the ESCAP region Vol. VI. (Proceedings of the Third working group meeting, 1978). Min. Res. Develop. Ser. 45. pp 45-88. United Nations, New York.

DUONG XUAN HAO, NGUYEN THOM, 1979 Devonian deposits in Vietnam. Item., pp61-62.

FONTAINE, H. 1954 Etude et revision des Tabulés et Héllolitidés du Dévonien d'Indochine et du Yunnan. Archives géol. Vietnam. 2. 86p, 8pls. Saigon.

FONTAINE, H. 1961 Les Madréporaires Paléozoïques du Vietnam, du Laos et du Cambodge. Item. 5. 276p. 35pls. Saigon.

FONTAINE, H. 1967 Le Dévonien du Cambodge, du Laos et du Vietnam. Inter. Symp. Devonian System Vol. 1, pp569-581. Calgary.

FONTAINE, H., WORKMAN, D.R. 1978 Review of the geology and mineral resources of Kampuchea, Laos and Vietnam. In: Proc. Third Reg. Conf. Geol. Min. S.E. Asia, pp541-603. Bangkok. Thailand.

JANVIER, P., BLIECK, A., GERRIENNE, P., TONG-DZUY THANH 1988 Faune et flore de la Formation de Sika (Dévonien inférieur) dans la presqu'île de Ooson (Vietnam). Bull. Mus. Nat. Hist. Nat 4, 9(3) pp291-301. Paris.

KELLER, J.P. 1966 Les Brachiopodes de la collection Mansuy. Etude de quelques especes dévoniennes. Travaux Lab. Paléont. Facult. Scien. Orsay. Univers. Paris. 52p, 9pls.

NGUYEN DINH HOE 1986 Devonian of Asia: Historical development and Brachiopods. Proceedings First Conference on Geology of Indochina. 1

pp79-87. Ho Chi Minh City.

- PHAM DINH LONG, TA HOANG TINH 1981 Devonian stratigraphy of the Northeastern Bacbo, Vietnam. Fourth Regional Conference on Geology. Min. Ener. Res. S.E. Asia (Abstract papers). p.9. Manila.
- SAURIN, E. 1956 Lexique stratigraphique international. Fasc. 6a. Indochine. 140p. Paris.
- SAURIN, E. 1958 Le Dévonien en l'Indochine. Sa stratigraphie et corrélation. Ann. Facult. Scien. Saigon. pp193-221. Saigon.
- TONG-DZUY THANK 1965 Rasprostraneniye devonskikh Tabulat v Severnom V'etnama (Distribution of the Devonian Tabulata in the North of Vietnam). In: Tabulatomorphnye korraly devona i karbona SSSR. pp25-40. Nauka. Moscow. (In Russian).
- TONG-DZUY THANH 1966 Nouveaux genre et sous genre chez les Coelentérés tabulatomorphes dévoniens du Nord Vietnam. Acta Scien. Vietnam. Sect. biol., geogr. geol. T.I. pp23-32. Text-fig. 1-2 pl1. Hanoi.
- TONG-DZUY THANH 1966 Sur le genre Favositella Mansuy. Item. pp33-36. Hanoi.
- TONG-DZUY THANH 1967 Les coraux tabulatomorphes du Dévonien au Nord Vietnam. Item. T. III 304p, 33pls. Hanoi.
- TONG-DZUY THANH 1979 Devonian deposits in Vietnam. Abstract. In: Stratigraphy and Paleobiogeography of the Pacific Rings. Precambrian and Phanerozoic. Vol. 1 XIV. Pacific Scien. Congr. Comm. B. pp87-88. Khabarovsk.
- TONG-DZUY THANH 1980 Stratigraphia devonskikh otlojenii V'etnama (Devonian stratigraphy of Vietnam). Geologia i Geofizika. 4. pp46-58. Nauka. Novosibirsk. (In Russian).
- TONG-DZUY THANH 1982 Biostratigraficheskoe znachnie kompleksov fauny v Devone regiona Bacbo - V'etnam (Biostratigraphic significance of fauna assemblages in the Devonian of Bacbo region (Vietnam). In: Stratigrafia i Paleontologia Devona i karbona. Nauka. pp90-102. Moskva. (In Russian).
- TONG-DZUY THANH, JANVIER, P. 1987 Les vertébrés Dévoniens du Vietnam. Ann. Paléont. 73. 3 pp165-194. Paris.
- TONG-DZUY THANH, JANVIER, P. 1987 The Lower Devonian Vertebrates of Vietnam with reference to the stratigraphical correlation with the Lower Devonian of China. Abstracts. The Second International Symp. Devon. Syst. Calgary.
- YOLKIN, E.A., TALENT, J.A., TONG-DZUY THANH, IRINA M.V., GRATSIANOVA, R.T., KIM A.I., MAWSON, R. 1976 Alignment of reference stratigraphic scale for the Devonian of Siberia, Central Asia, Vietnam and Australia. Proceedings First Conf. Geol. Indochina. T.I. pp59-77. Ho Chi Minh City, 1976.

A summary statement about the Devonian of Vietnam recently appeared in Phan Cu Tien (ed.) 1986. Dia Chât Campuchia Lào Việt Nam. (Geology of

Cambodia, Laos and Vietnam). NHA XHCAT BAN KHOA HOC VA KY THUAT. HHa Noi, 196p. 15 figs, 3 tables. In Vietnamese with English abstracts. The abstract for the Devonian by Tong Dzuy Thanh, Nguyen Dinh Hoe and Nguyen Dinh Hong (pp152-153) follows:-

Devonian sediments in Indochina belong to three litho-facies existing on three different territorial units.

In Northwest Indochina, west of trans-Indochinese fault, (Muongle area of Northwest Bacbo, Paklay of North Laos), Devonian formations are mainly characterised by the carbonate-terrigenous sediments with intercalation of acidic volcanic rocks. In those areas, the detailed classification of Devonian system was a knottiness due to the limitation of stratigraphic documents and poor remains of fossils.

In Southwest Indochina (Battambang, Poursat, Conpong speu, Conpong trach, Kep of Kampuchea), shale, siliceous rocks with intercalating sandstones and limestones were supposedly arranged to Devonian due to direct position under Carbonaceous sediments containing the late Palaeozoic fossils.

In North Indochina, Devonian sediments have abundant fossil assemblages of marine and continental shelf facies.

1. In Bacbo region (the areas of Bacbo, Thanhhon and the north part of Ma river zone), Devonian deposits were started by the continental sediments unconformably overlying on Lower Palaeozoic formations, which belong to southern periphery of Cathaysian continent and carbonate-terrigenous sediments continuously resting on Silurian formations in low course of Da river.

Lower Devonian is characterised by carbonate-terrigenous sediments with the fossil assemblages of *Hysterolites wangi*, *Euryspirifer tonkinensis*, *Parastristopora champungensis*, *Nowakia-zlikhovensis*.

Middle Devonian is mainly composed of carbonate formations, containing abundant remains of corals with the assemblages of *Pachyfavosites polymorphus*, *Caliapor a battersbyi*.

Upper Devonian crops out in the limited areas. These are bedded siliceous limestone, shale, siliceous rocks, containing Frasnian and Famennian Conodont assemblages.

2. In Vietnam - Laos region (Central Vietnam, Central and North Laos), beside the Northern part of Indosinian microcontinent, Devonian sediments continuously rest on Silurian formations.

Lower Devonian is characterised by a thick formation of shale, sandstone, containing *Nowakia*, *Monograptus*, *Erbenceras*.

Middle Devonian is characterised by terrigenous sediments (in lower part) and carbonate sediments (in upper one). Abundant assemblages of Coelenterata, Brachiopods are seen in Givetian sections.

Upper Devonian is composed of two facies: Carbonate facies contains Frasnian-Famennian Stromatoporoids and Conodonts while the clastic facies of tidal - littoral zones are of Frasnian (Dongtho formation).

DEVONIAN VERTEBRATES FROM THE GONDWANALAND MARGINS

During the last decade new occurrences of Devonian vertebrates have been found in countries not well known for their Devonian fossils or Old Red Sandstone facies. French colleagues have been able to study them in regions on the northern margin of the Devonian Gondwanaland. Through Alain Blicek we have a list of recent publications which record some of these remarkable fossils and very much enlarge our knowledge of the geographical ranges of the animals. Also included here are other important contributions from these authors on Devonian vertebrate biostratigraphy.

- LELIEVRE, H., JANVIER, P. & GOUJET, D. 1981 Les Vertébrés dévoniens de l'Iran Central. IV: Arthrodires et Ptyctodontes. Géobios, 14 (6): 677-709, 23 fig., 2 pl.
- BLIECK, A., JANVIER, P., LELIEVRE, H., MISTIAEN, B. & MONTENAT, C. 1982 Les Vertébrés du Dévonien supérieur d'Afghanistan. Bull. Mus. natn. Hist. nat., 4e sér., 4, sect. C (1-2): 3-19.
- LELIEVRE, H. 1984 Atlantidosteus hollardi n.g., n.sp., un nouveau Brachythoraci (Vertébrés Placodermes) du Maroc présaharien. Bull. Mus. natn. Hist. nat., 4e sér., 6, C (2): 197-208, 5 fig.
- BLIECK, A., GOUJET, D., JANVIER, P. & LELIEVRE, H. 1984 Microestes de Vateblez du Siluro Dévonien d'Algérie, de Turquie et de Thaïlande. Géobios, Lyon, 17 (6): 851-856, 2 fig., 1 pl.
- LELIEVRE, H. & GOUJET, D. Biostratigraphic significance of some placoderms during the Uppermost Devonian, 1986, Ann. Soc. Geol. Belgique, T.109:55-59.
- LELIEVRE, H. & JANVIER, P. L'Eusthenopteride (Osteichthyes-Sarcopterygii) du Famennien (Dévonien supérieur) du Tafilaït (Maroc) Bull. Mus. natn. Mhist. Nat., 4, série 8 (3): 351-365. 1986.
- BLIECK, A. 1983 Problèmes actuels en paléontologie des Vertébrés paléozoïques. In Actualisation de quelques thèmes géologiques - Conférences. Ann. Soc. géol. Nord, Villeneuve d'Ascq, 106, (4): 343-358.
- LELIEVRE, H., GOUJET, D., BLIECK, A. & JANVIER, P. 1988 Poissons du Dévonien du Boulonnais (France) In BRICE, D., ed., Le Dévonien de Ferques, Bas-Boulonnais (N. France). Paléontologie - sédimentologie - stratigraphie - tectonique. Coll. Biostr. Paléoz., U.B.O. édit., Brest, No. 7 :503-522.
- BLIECK, A., BATAILL, B. & GRAUVOGEL-STAMM, L. 1988 Tétrapodes, plantes et Pangée: relance du débat sur les relations paléogéographiques Lauraisie-Gondwanie. In Aspects de la Géologie du Gondwana (séance spéc. SGN-GFEG-CIFEG, Villeneuve d'Ascq, 5-6 Mai 1987), Ann. Soc. Géol. Nord., 107 (1): 45-56.
- LELIEVRE, H., FEIST, R., GOUJET, D. & BLIECK, A. 1987 Les vertébrés de la Montagne Noire (sud de la France) et leur apport à la phylogénie des Pachyostéomorphes (Placodermes, Arthrodires). Palaeovertebrata, Montpellier, 17, (1): 1-26.

PALYNOLOGY IN SOUTH WEST ENGLAND

The use of scanning electron microscopy in the search for palynomorphs from the Devonian rocks of Southwest England has resulted in the discovery of spectacular numbers of these fossils in rocks previously considered barren and undatable by means of fossils. Drs. E.B. Selwood and M.J. Thomas of the University of Exeter have, with their research assistant Mr. Andrew Dean, processed almost 350 samples of fine-grained sediments from the Devonian formations and retrieved several thousands of specimens, many in a state of excellent preservation. Previous samples examined by standard means of microscopy had been thought barren: now they are known to be highly productive. The work has been part of the South Devon Project of the British Geological Survey and Drs. Selwood and Thomas are on contract research for B.G.S. on the revision of the Padstow Sheet. The samples have been prepared by Dr. Bernard Owens of B.G.S. Keyworth and the S.E.M. work has been carried out at the Department of Geology at the University of Exeter.

Spores, acritarchs, hystrichospheres and scolecodonts in abundance and of great variety have now been collected from the slates of the peninsula and a large number of samples remains to be processed. It is already clear that this study will effect a major advance in the biostratigraphy of rocks hitherto of uncertain age. Some formations have yielded conodonts or other fossils of stratigraphic value. Thus some identification of the age of the new assemblages may be attempted. What is now envisaged is a systematic study of the palynomorph succession in some of the classic localities and sections in Europe so that a stratigraphic sequence may be identified. Application of these results to sections in Devon and Cornwall may further reveal the nature of the Devonian and Carboniferous successions there and the extent of tectonic deformation of the original rock sequence. Several years of intensive study will be required but the prospects are extremely promising.

INTERNATIONAL PALAEOZOIC MICROVERTEBRATE CORRELATION PROGRAMME

Susan Turner of the Queensland Museum, Brisbane, Australia has sent (Dec. 1987) to colleagues who are already active in the study of Palaeozoic vertebrates the notice given below. Microvertebrate remains have been recovered in the residues that are the primary objects of study by conodont experts. There may thus already be a wealth of material in store ready for study in connection with the suggested programme.

Following on from the successful Symposium on Early Vertebrates held in China in October, a few colleagues suggested that we should formally begin a programme of research using Palaeozoic microvertebrate remains for international correlation. This would extend the work of Gross, Karatajute-Talimaa, Turner and Märss for the thelodonts, and Valiukevicius for acanthodians, as well as to test thoroughly shark and placoderm scales etc, as tools for biostratigraphic correlation. In the first instance we might concentrate on the Devonian (including upper and lower boundary problems) to tie in with the marine/non-marine project. However, we should set up teams for each of the Palaeozoic periods.

Susan Turner (Honorary Research Fellow, Queensland Museum) agreed to initiate the programme for contacting as many interested parties as possible. Over the past 6 years, Sue has carried out a major Australian Research Grants-funded project on Australian Palaeozoic microvertebrates and since 1987 has worked particularly on the scales of the Thelodonti. She is now attempting to get funds to carry out an international research programme using the Australian material as a basis and linking it with what we already know from Europe. Some of these funds will be used initially to investigate the correlation of Australian and Chinese microvertebrate fauna.

The goal of the programme will be to publish detailed correlation charts for the Palaeozoic incorporating especially useful microvertebrate zone fossils. To facilitate this we would hope to hold an International Symposium on microvertebrates in about 5-6 years time, probably at a centre in Europe.

Please let Susan Turner know:-

- a) If you will be happy/willing/able to participate and will send me an outline of your current work for our first newsletter, and any thoughts on the programme.
- b) If you will agree to become a correspondent for your country/district, gathering news from other parties. This might mean contacting oil companies, conodont, ostracode or other microfossil workers who have microvertebrate collections tucked away in their slide cabinets.

MICROVERTEBRATE BIOSTRATIGRAPHY IN SOUTH CHINA

CM. WANG SHITAO sends this news from the Institute of Geology, Chinese Academy of Geological Sciences, Beijing, China.

In recent years Wang Shitao has collected and studied acanthodian, chondrichthyan, placoderm and thelodont teeth and scales from the Devonian of South China. He has material relevant to the study of the Devonian/Carboniferous boundary and for the correlation of the yielding horizons with those known now in Europe, Australia and S.E. Asia (Thailand) and other regions such as Iran and Afghanistan. Now he intends to turn to the Silurian-Devonian microvertebrates of the Longmenshan section in Sichuan Province. In that vicinity there are 186 units recognised in the section with microvertebrate fossils in about 60 of them. The groups of organisms represented include acanthodians, chondrichthyans, crossopterygians, sharks and probably galeaspids. Microvertebrate fossils may also be collected from samples yielding conodonts in Guangxi, Guangdong, Hunan, Yunnan, Guizhou and Xizang (Tibet).

Microvertebrate fossils may prove to be very effective in marine/non marine correlation as may spores and plants. Several workers, including Cai Chongyang, Gao Lianda and Hou Jingpeng, are interested in this kind of work but funds so far do not allow. South China has several famous Devonian localities where non-marine and marine strata intercalate, as at the Dale, Liuqing, Qinzhou sections of Guangxi, the Cuifengshan section of E. Yunnan, the Longmenshan section of Sichuan and the Tiaomajian section of Hunan. Only a few have received sedimentological study (Liuqing, Dale and Longmenshan) but so far they have not been studied for microvertebrate fossils.

The monograph "The Devonian Biostratigraphy and Sedimentary Facies of Longmenshan, Sichuan Province" has now been published (Eds. Hou Hongfei et al., 1988) and "The Devonian System of China" will appear late this year (Eds. Hou Hongfei and Wang Shitao). The paper "Early Devonian Vertebrate Paleocommunities of South China", (Wang Shitao) reported to the Symposium on Early Vertebrates in Beijing in October 1987 will be published in the near future.

Recent publications of interest

Community palaeoecology as a geologic tool: The Chinese Ashgillian-Eifelian (latest Ordovician through early Middle Devonian) as an example Wang Yu, A.J. Boucot, Rong Jia-yu, Yang Xue-chang. The Geological Society of America, 1987, Special Paper 211, 100pp. U.S. \$18.50, softback. ISBN 0-8137-2211-X.

Conodonts - Investigative Techniques and Applications

R. Austin (ed.) Ellis Horwood Ltd. for the British Micropalaeontological Society 1987, 422 pp. £65.00, hardback. ISBN 0-85312-907-X.

Conodont biofacies & provincialism

David L. Clark (ed.) The Geological Society of America, 1984, Special Paper 196, 340pp. U.S. \$36.00. ISBN 0-8137-2196-2.

A stratigraphical index of conodonts

A.C. Higgins & R.L. Austin (eds.) Ellis Horwood Ltd. for the British Micropalaeontological Society, 1985, 263pp. £27.50, hardback. ISBN 0-85312-641-0.

Global Bio-Events - A Critical Approach

O.H. Walliser, (ed.). Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1986. IX, 442pp. (Lecture Notes in Earth Sciences, Volume 8), soft cover DM 69. ISBN 17180-0.

Patterns and Processes in the History of Life

D.M. Raup, D. Jablonski (eds.). Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1986. 4 photographs, 36 figs, 8 tabs., approx. 460pp (Dahlem Workshop Reports, LS 36), hardback DM 158. ISBN 15965-7.

Relevant to the August Business Meeting in Rennes is the following paper:-

Sandberg, C.A., Ziegler, W. & Bultynck, P. 1988 Middle-Upper Devonian series boundary as an example of intent and reality in biostratigraphic zonation. Newsletters in Stratigraphy, 18, (2), 117-121.

Abstract:- The position of the global stratotype section and point (GSSP) selected for the Middle-Upper Devonian Series boundary, as announced in the June 1987 issue of Episodes, exemplifies how a final decision by a voting body may inadvertently alter its own original intent. The original 1982 decision of the IUGS Subcommittee on Devonian Stratigraphy (SDS) intended to place this series boundary at the base of the Lower *asymmetricus* conodont Zone, as defined by ZIEGLER in 1971. He defined that zone by the joint occurrence of *Polygnathus asymmetricus* and *Ancyrodella rotundiloba* before the first appearance of *Palmatolepis punctata*. However, the final 1985 decision by the same body located the boundary in a rock sequence at a position based on a taxonomic redefinition, made in the meantime, of the definitive key species, *A. rotundiloba*. The inclusion of phylogenetically older forms than the one on which both the species and the zone originally had been defined resulted in placement of the GSSP not only below the Lower *asymmetricus* Zone, but low within the underlying Lowermost *asymmetricus* Zone. The moral is that, unless zonal revision is formally proposed, a zonal boundary should not move with successive taxonomic revisions of the definitive species otherwise zonal boundaries would be in a constant state of flux.

International Union of Geological Sciences
SUBCOMMISSION ON DEVONIAN STRATIGRAPHY

Agenda for Business Meeting, August 12-13, 1988

Rennes, France

1. Introduction
2. Minutes of 1987 meeting, August 21-22, Calgary
3. Review of SDS work since Calgary meeting
 - A. F/F decisions
 - B. Other
4. Current tasks
 - A. Base of Pragian
 - B. Base of Emsian
 - C. Base of Givetian
 - D. Base of Famennian
5. Future meetings
 - A. 1989 Washington -- 2-day business meeting?
 - B. 1990 and 1991 Field Meetings
 - C. 1992 Japan, IGC
6. Membership report/discussion; 1989 turnover
7. Election of officers for 1989-92 term
8. Reports
 - A. SDS Newsletter
 - B. Marine-nonmarine study group
 - C. South American activities
 - D. Devonian/Carboniferous Boundary Working Group
 - E. SDS financial report
9. Other business
10. Adjournment