

Permophiles



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A NEWSLETTER OF SCPS



Frontispiece of Ural Sopika
after Murchison et al., 1846

SUBCOMMISSION ON PERMIAN STRATIGRAPHY

INTERNATIONAL COMMISSION ON STRATIGRAPHY

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)

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Membership

Annual Report of IUGS Subcommittee on
Permian Stratigraphy for the year 1985

Membership

Before taking over the executive of the subcommission we received a renewed list of members in which a remarkable change had been made by our predecessors. Among the retirees, Prof. Waterhouse has expressed in his letter to us that he does not expect of leave the subcommission.

From the response to a recent questionnaire and call for attending the Permian symposia during the XI-ICC, we are very sorry to say that a few members do not pay enough attention to their own duty; such a situation in the Subcommission probably is no news to us. In our consideration, this should not be allowed to continue any longer, and a readjustment will be made when we have communicated more with members of the subcommission. In the list enclosed herewith, only four new corresponding members have been added.

Working Groups

As indicated in the Subcommissions' annual report for last year, the Working Group on the Carboniferous-Permian Boundary was rather inactive. This has been reported to the Executive of the Commission on Stratigraphy with deep concern, and it has been suggested that the working group should be re-organized. In addition, since the leaders to the working group have not been re-elected during the 27th ICC according to the actual situation, it has been approved that the working group should be dissolved for re-organization; in the meanwhile, a group consisting of chairmen and secretaries of SCPS and SCCS should be enjoined to nominate the candidates for chairman of the working group as early as possible.

With a grateful feeling I would like to report that several working groups have achieved excellent results in studying the Carboniferous-Permian Boundary in China; This boundary generally recognized in China is much higher than that widely accepted in other countries. A meeting will be held in next March in order to formulate a stratigraphical scheme of the Carboniferous in China, there appears a tendency towards taking first appearance of Pseudoschwagerina as the base of the Permian.

Feature Meeting

Letters of invitation have been sent to all members to attend the symposium on "Permian and Permian-Triassic Boundary in Western Tethys" to be held in Italy and Yugoslavia next July. A business meeting of the Subcommission will be held during the symposium. One of the issues to be discussed at the meeting is the organization of a small group to carry on the task of compiling a correlation chart for the Permian sequences in Tethys, a topic which has been proposed for discussion in a symposium of the XI-ICC in 1987.

Requests for organizing symposia during the IX-ICC have been approved at the meeting of the Permanent Committee for ICC last July. Additional contents related to the Permian will be included in most other symposia and session to the greatest extent. Letters of invitation also have been sent to all members, calling for their attention that this congress will be the most important gathering for Permian workers as long as we hold the office.

Newsletter

Newsletter No. 9 on Permian stratigraphy edited by Dr. Nassichuk, appeared last April. Newsletter No. 10 has been scheduled for January 1986.

Account for 1985	
Grant received	\$300.00
Secretarial expenses	\$125.00
Budget for 1986	
Expenditure for Newsletter	\$300.00
Secretarial expenses	\$250.00
Balance for 1985	\$175.00
Grant requested for 1986	\$375.00
Total revenues	\$550.00

Permian-Triassic Boundary Working Group 1985 activity
E. T. Tozer

The Sixth Gondwana Symposium was held at The Ohio State University, Columbus, Ohio, USA. 19-23 August. 1985. As had been announced in the Second Circular (July 1984) a meeting of the Working Group of IGCP Project 203 (Permian-Triassic Events of Eastern Tethys Region and their Intercontinental Correlation) was planned. This took place on August 22, chaired by Yang Zun-yi, the leader of the project. Professor Yang is a member of PTWG. Nine other members of PTWG (Bsaud, Dickins, Kapoor, Kozur, Marcoux, Newell, Sweet, Tozer, and Visscher) are members of the Working Group of IGCP 203. This arrangement assures satisfactory cooperation between IGCP 203 and PTWG.

Although a meeting of PTWG had not been formally planned at the Gondwana Symposium, 6 PTWG members were present (Dickins, Kapoor, Sweet, Tozer, Utting, Yang). It was noted that a conference with the theme "Permian and the Permo-Triassic Boundary in the Western Tethys" will take place in Italy (4-12 July, 1986). There was also discussion and general agreement that it would be desirable to have a field excursion, involving members of both IGCP 203 and PTWG to the important P-T section in Kashmir. In this context it was noted that the 11th International Congress on Carboniferous Stratigraphy and Geology (XI ICC) will take place in China, September 7-11, 1987. This meeting will be of interest to members of IGCP 203 and PTWG because I have received a letter from Professor Sheng Jin-zhang, Chairman of the Commission on Permian Stratigraphy, indicating that there will be at least two Permian Symposia held in conjunction with the XI ICC. The possibility that meetings of IGCP 203 and PTWG also be held at the XI ICC was raised. It was also suggested that field excursions to the important P-T boundary localities in China and Kashmir be held before or after the XI ICC Conference. Dr. Kapoor undertook to investigate the possibility of arranging the excursion to Kashmir.

In 1984 I circulated a questionnaire to all members of PTWG concerning the definition of the Permian-Triassic boundary. The questions were:

1. Should the boundary be defined in a marine sequence, or non-marine?
2. Suggested level in terms of biochronology - Base of *Otoceras* beds?; Younger beds (specify) ?; older beds (specify)?
3. Suggested stratotype section (specify) ?
4. Suggested parastratotype (s) ?

Of the 21 PTWG members, replies have been received from 18.

Question 1 elicited a unanimous response: 18 votes for marine.

Question 2: 16 votes for *Otoceras* beds; one for base of Dienerian, one for base of *Isarcicella isarcica conodont* zone (base of E3, Khunamuh Formation, Kashmir).

Question 3: 9 votes for Kashmir, 8 for China, 1 voted that the decision would be premature.

Question 4: this elicited an assortment of suggestions which cannot be concisely summarized.

The most important question is 2. I hope, in 1986, to write a short paper advocating the merits of the Otoceras beds and through this advocacy achieve a consensus. I am postponing identifying the minority voters to question 2 until I have made this attempt towards unanimous agreement. If this can be achieved I would then make a recommendation to the Commission of Stratigraphy on behalf of PTWG.

Short comments on the Permian-Triassic boundary stratotype

Yin Hongfu

It seems now a dominant opinion that the base of Otoceras bed be chosen as the boundary. However, several points should be clarified before such a decision is made. First, what is the nature of the Permian-Triassic boundary? Is it a boundary where "something happened" or "nothing happened"? If the former is correct, is the appearance of Otoceras representative of the happenings? Many signs have indicated that there may be something catastrophic happened at the boundary in South China. If the same occurred in other regions we may have to choose a catastrophic event for the boundary. One may argue that it is accompanied by biotic extinction and can be marked by such a biotic event. Unfortunately the appearance of Otoceras represents neither of the two. It is the last budding of a relict Paleozoic stock.

Now turn to the biostratigraphic aspect. That Otoceras postdates Permian index fossils and thus Triassic in age is not all justified. So far over the world, Changhsing is the only place where Otoceras sp. continuously overlies Pseudotirolites zone, but this does not necessarily indicate a sequential zonation of Pseudotirolites or Paratirolites (below) and O. woodwardi or O. concavum (above). No definite Triassic element has yet been found in the O. concavum zone. Its fauna is essentially Permian. Results of graphic correlation among Kashmir, Salt Range and Julfa sections (Sweet, 1979) support the downward extension and partial overlapping of the lower Otoceras zone with topmost Permian ammonoid zone.

Otoceras has a distribution confined within Boreal, Arctic and Gondwana Tethys, thus basically a psychrophillic genus. Its occurrence in Tropical (or Eurasian) Tethys is very rare. On the other hand a majority of most perfect Upper Permian sections are located along Eurasian Tethys. It is essential for a worldwide standard to be applicable to this most important region.

The author has proposed (Yin, 1985) Anchignathodus parvus for recognition of the basal Triassic. It meets the requirement of a chronostratigraphic boundary stratotype for time accuracy and wide distribution. Its occurrence in Permian Changhsing Limestone has been doubted or denied by many conodont workers. Earlier, Wang (1984) has suggested Hypophiceras for the basal Triassic zone of South China. I think it appropriate to postpone the choice of a golden spike until more investigations on these suggested fossils and their time relationship are made. To me a multiple standard available worldwide (especially in Tethys) is preferred. This does not necessarily exclude Otoceras.

Norman D. Newell

To raise a point unconnected with the Jin questionnaire, I note that, on page 5 of Newsletter 10, I. A. Dobruskina assumes that the base of the Otoceras zone is now established for the systemic boundary in the International Time Scale. On the contrary, there are many international time scales with considerable variation in usage. In my view, it is our duty to examine carefully the various reasonable suggestions with respect to all case, we are talking about the Paleozoic-Mesozoic boundary, which concides strikes me as impractical to try to mark this event by a

single hard-to - recognize and rare ammonoid.

H. Kozur

I am also disappointed about the non-working "working group on Carboniferous-Permian boundary", because this problem is by far more important as the Permian-Triassic boundary, where the opinions are rather near each other (base of the O. concavum zone or top of the Otoceras fauna). But in the Carboniferous-Permian boundary the opinions are extremely far each other: Base of the Asselian, base of the Sakmarian, base of the Chihshian, like in China or in the continental Euramerian province first appearance of Callipteris what is in the higher Missourian (!) and in the Gzhelian (!) respectively.

But not the working group on the boundary is the most important think, but both boundaries (P/T and C/P) should organize working groups on different fossils in selected areas or outcrops. In any marine facies both of the boreal and tethyan realm at least one complete section should be studied as well as in all continental floral provinces - and, if possible in marine continental transition sections. There will be no progress, if a part of the member say: The Permian-Triassic boundary is at the top. There are no real good correlation to the Changhsingian. The conodonts shows that the Otoceras fauna is time-equivalent to the Upper Changhsingian and the Otoceras bearing beds of the Changhsingian corresponds only to the topmost part of the Otoceras boreale zone (!).

Likewise in the C/P boundary working group this boundary had to be independently studied in the Euramerian, Gondwana, Cathaysia and Angary province, in shallow water environments etc. After proposals for the boundary in different environments with different faunas and floras the next step must be to correlate these different proposals and only after this we should discuss the position of the boundary in the sense of making a decision. The same situation at the P/T boundary. Our newest results have shown that (see p.14).

Therefore my proposal: At first to study the changes of all faunal and floral elements across the boundary. As well isotope, trace element and paleomagnetic investigation in the same interval. Than arrange a big volume with publication about the results. After this first setp we should choice the most suitable boundary for the different fossils and after this second step the third step to try to correlate the different subdivisions. Only after the finishing of the correlation we should choice by decision, where is the boundary.

Informations for Newsletter-SCPS

M. Pasini

The Italian Groups of study on Permian, Lower Triassic and the Permian-Triassic boundary in the Italian Southern Alps are pursuing their researches, each of them on their different kinds of specialization in view of the Meeting on "the Permian and the Permo-Triassic boundary" of July, 4-12 (1986). On this subject, in the marine sequences of Italian Southern Alps the boundary seems to pass up to the first levels of the Werfen Formation. At the base of this Fm. We have found Permian Brachiopods (f. ex. Ombonia) and Foraminifers (Nankinella and (!) Palaeofusulina). Other Permian Foraminifers, like Robuloides, Stipulina, Pachyphloia, Geinitzina, Biseriamminids and Ophthalmidids and some primitive Triassic-like Molluscs are been found just above.

Some Lower Permian Fusulinids are been found in the Verrucano Formation near Siena. It is a very important finding for the italian Permo-Triassic Paleogeography.

Meeting on the Permo-Triassic Boundary in the Western Tethys (N. Italy and N. Yugoslavia)

(4 - 12 July, 1986)

The Italian IGCP Group 203

Organisation

This symposium is organized by a team of Italian geologists involved in IGCP Project 203, as part of the activities proposed at its inaugural meeting in Pejing, and promoted by the Italian Geological Society, Foreign geologists have also collaborated in this respect.

The meeting will consist of a series of excursions, and a scientific conference to be held in Brescia (Eastern Lombardy) on July 10th and 11th.

Aims of the symposium

The meeting will be mainly concentrated on the Late Permian and Permian - Triassic boundary. It is intended not only to present the results of research carried out over recent years in the areas under consideration, but above all, to establish possible correlations between the Southern Alps and other Tethyan sectors. The meeting, therefore, is essentially aimed at stimulating the development of regional comparisons and their discussions.

Conference and field trips

Key lectures and contributions will be published in an issue of the "Memorie della Societa Geologica Italiana". A field guide book on the Permian-Lower Triassic geology of the Southern Alps and Karawanken Mts. will be distributed to the participants at the beginning of the meeting in order to facilitate the discussion.

Meeting on the later Permian and the Triassic in the Western Turkey

(13-23 July 1986)

Organization

This meeting is organized by a team of Turkish, French and Swiss geologists, in conjunction with the scientific activities of the Subcommittee on Triassic Stratigraphy and the Permian Triassic Boundary Working Group.

The workshop will consist of a scientific conference to be held in Istanbul on July 14th, and a series of excursions.

Workshop programme

- July 13 afternoon (Istanbul): registration in the Faculty of Mines of the Istanbul Technical University and lodgement of participants in Hotels.
- July 14: Scientific Meeting at Istanbul.
- July 15: Bus trip to the classical Triassic sections in the vicinity of Gebze.
- July 17 to July 19: three days in the Antalya Nappes to examine several late Permian and Triassic sections (including middle Triassic to upper Triassic Halstatt type series).
- July 20: Antalya to Seydisehir by bus, geological stops along the road.
- July 21: middle and upper Triassic sections nearby Seydisehir.
- July 22: Seydisehir to Antalya by bus, stop on the road to examine the upper Triassic Isparta say sections.
- July 23: Antalya to Istanbul International Airport, end of the Field Workshop.

New Publications

The Permian of Southeast Asia

by

Henri Fontaine

with contributions of
Nguyen Duc Tien
Fanniel Vachard
Colette Vozenin-Serra

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by Colette Vozenin-Serra

News from our members

Replies to Questions of the following:

1. Current researches, including field work and manuscripts in preparation.
2. Papers published in 1985 and those in press.
3. Suggestions and comments on Permian Symposia during the XI-ICC 1987 Beijing and on Working Group of Carboniferous Permian Boundary.
4. Meetings, field trips, etc. scheduled for 1986 related to the Permian in your country.

D. Baghbani

1. I am now working on small Foraminifera and fusulinids from the Permian deposits of south, southwest and east of Iran. I have planned fourteen field trips covering Permian of most parts of Iran for 1986-90.
2. I have two papers as follows:
 - a) "Upper Permian foraminiferal biostratigraphic of southwest Iran", which is ready for publication.
 - b) Shanita zone and its biostratigraphic significance in south and southwest Iran", which is under preparation.

B. E. Balme

1. a) Palynology of Middle to Late Devonian, Carnarvon Basin, Western Australia
b) Palynology of early late Triassic, Bonaparte Gulf Basin, Western Australia
c) Palynology of Western Australian Permian, especially that of the Canning Basin.
2. Balme, B. E. & Backhouse, J., Catalogue of Plant microfossils from Western Australian Permian sediments. Bulletin Geological Survey of Western Australia (in press).
3. Morphology, stratigraphic and geographic distribution of Late Permian pollen grains. I think the non-saccate groups, especially, are capable of providing important palaeophytogeographic information.

E. W. Bamber

1. Biostratigraphic study of Upper Carboniferous and Permian rugose corals. Sverdurp Basin, Arctic Archipelago, Canada (with Dr. J. Fedorowski, Poznan, Poland).
2. Wu Wang-shi, C. H. Stevens, and E. W. Bamber: 1985: New Carboniferous and Permian Tethyan and Boreal corals from northwestern British Columbia, Canada; *Journal of Paleontology*, V. 59, no.6, 1489-1504.

Sando, W. J. and Bamber, E. W.: 1985, Coral Zonation of the Mississippian System in the Western Interior Province of North America; U. S. Geological Survey, Professional Paper 1334, 61 p.

B. I. Chuvashov

1. The type sections of the Upper Carboniferous and Lower Permian in the different facial zones of the West Urals.
Manuscript in preparation: The type sections of the Upper Carboniferous and Lower Permian of the West Urals. - 350 p. (must be published in 1987).
2. a) Upper Paleozoic deposits of the Eastern slope of the Ural (Stratigraphy and Geological history). Sverdlovsk, 1984, 229, 31 plates.
b) Upper Carboniferous of the Urals (biostratigraphy and facies). Sverdlovsk, 1985, 70p.
c) B. I. Chuvashov, E. Ja. Leven et al.: Upper Carboniferous and lower Permian boundary beds of the Urals, Cis-Ural and Middle Asia. Moscow "Nauka", 1986, -450p, 32 plates (fusulinids, ammonoids, condonts).
3. No international meetings and field trips have been scheduled for 1986 related to Permian on the Ural and USSR.

John M. Cys

1. Permian stratigraphy and carbonate sedimentology of southern New Mexico and west Texas, USA.
2. a) Cys, J. M., 1985, Lower permian phylloid algal mounds, southern Tatum Basin, southeastern New Mexico, USA; in Toomer, D. F., and Nitecki, M. H. (eds.), *Paleoalgology: Contemporary research and applications*: Springer-Verlag, Berlin, pp. 179-187.
b) Cys, J. M., 1985, Taxonomic survey of Lower Permian algae from the southern Tatum Basin, southeastern New Mexico, USA; in toomer D. F., and Nitecki, M. H. (eds.), *Paleoalgology: Contemporary research and applications*: Springer-Verlag, Berlin, pp. 306-318.
c) Cys, J. M., and S. J. Mazzullo, 1985, Depositional and diagenetic history of Lower Permian (Wolfcampian) phylloid-algal reservoir, Hueco Formation, southeastern New Mexico; in Roehl, P. O., and Choquette, P. W. (eds.), *Carbonate petroleum reservoirs*: Springer-verlag, New Zork, pp. 279-288.

Y. M. Crosbie

1. Permian spores and pollen from New Zealand.
2. Permian palynomorphs from the Kuriwao Group, southland, New Zealand in *Research Notes 1986*, New Zealand Geological Survey, Record 8.

Ruben Cuneo

1. Final stage Ph. D. Th.: "Geological and Palaeobotanical studies in the Permian of Patagonia".
Field trips: examination of Permian units of Patagonia where were recorded

fossil plants and carries out ecological analysis.

Manuscripts in preparation (provisional titles): Study of a new group of Permian fructified Ginkgoales. A new Conifer-like cone from the Rio Genoa Formation, early Permian, New fertile ferns for the Gondwana of Patagonia. ecological studies in some localities of Permian age from Patagonia, Study of Permian megaspores with TEM and SEM:

2. a) Fertile specimens of *Genoites patagonica* Feruglio (buriadiaceae, Coniferopsida?) from the lower Permian of Chubut, Argentina, *Ameghiniana* 22 (3/4) 269-279.
b) Phytopalaeoecology of Lomas Chatas locality, Permian of Chubut, Argentina. *Ameghiniana* (in press).
c) *Feruqliocliocladaeae*, a new conifer family from the Permian of Gondwana. *Rev. Palaeob. and Palin.* (In press). With Dr. S. Archangelsky.
d) *Corynepteris australis* sp. nov., first record of a Conenopterid in the lower Permian of Chubut, Argentina. *Actas IV Congr. Arg, Paleont. Y Bioestrat.* (In press). With Dr. S. Archangelsky.
e) Ecology of neopalaeozoic floras from Argentina. (In press). Idem.
f) The genus *Sphenophyllum* in the lower Permian of Chubut, Patagonia (In press). *The Scripta Geologica.* With Drs. S. Archangelsky and R. Wagner.
3. a) It would be interesting a meeting about the problem of Permian biostratigraphy and the lower boundary of the System in Gondwana.
4. March-April 1986: field trip with members of SCCS and working group of South America IGCP Project 211 ("Late Palaeozoic of South America"). during the trip several Permian units will be visited to discuss the Carboniferous-Permian boundary in Argentina.

W. R. Danner

1. No field work during 1985. Currently working on manuscripts concerning the Permian-Carboniferous of the Harper Ranch area near Kamlopps, British Columbia (non-Tethyan) and the Tethyan Cache Creek Permian and Triassic near Cache Creek, British Columbia.
2. No papers published 1985. A guide book for the Cordilleran section of the Geological Society of America field trip to the Cache Creek, British Columbia area to examine cherts and limestones was prepared and is now being revised.
3. A symposium on the ranges of faunas in the Permian Tethyan and the Carboniferous might prove useful. We are finding more and more conflicts between conodont ages, fusulinid ages and those of brachiopods, corals, etc.

M. J. Dickins

1. a) Upper Permian pelecypods and gastropods of Western Australia with S. K. Skwarko.
b) Description of fauna from Branxton Formation (Artinskian) of the Sydney Basin, eastern Australia.
c) Description of pelecypods and gastropods from the lower part of the Byro Group (Artinskian of Western Australia).
d) World significance of the Hunter-Bowen (Artinskian) mid-Permian to Triassic "Orogeny" and the nature of Tethys.
e) World correlation of Kungurian to Kazanian deposits and description of faunas from Oman.
f) Climate of Triassic.
g) The relationship of the Indian and West Australian Permian marine faunas with S. C. Shah.

2. a) Publications 1985

- i) Late Palaeozoic glaciation, BMR Journal of Australian Geology and Geophysics, 9, 163-169.
- ii) Palaeobiofacies and Palaeobiography of Gondwanaland from Permian to Triassic; The Tethys (K. Nakazawa and J. M. Dickins, Eds.) Tokai University Press, Tokyo, 83-92.
- iii) Climate of the Triassic, Hornibrook Symposium 1985, New Zealand Geological Survey, Record 9, 34-36.

b) In Press ^o

- i) Youngest Permian (Kazanian) marine faunas from the Bowen and Sydney Basins, eastern Australia.
- ii) Permian pelecypods and gastropods from Western Australia with S. K. Archbold and G. A. Thomas.
- iii) Correlation of West Australian marine Permian faunas with N. W. Archbold and G. A. Thomas.
- iv) Permian climate of Western Australia.
- v) The stratigraphic position and age of the Croissiles Melange, east Nelson, New Zealand with M. R. Johnston, D. L. Kimbrough and C. A. Landis.

3. In addition to the symposia set out in the program, I would suggest a symposium titled as follows: "The correlation, subdivision and standard scale of the present stage of work on the Permian system and the need to make something more concrete than at present is the case. This would allow discussion of a 2 or 3-fold division and also discussion of what stages might be most useful for the standard scale and where work needs to be directed.

4. Shallow Tethys 2, 15-17 September 1986 at Riverina-Murray Institute of Higher Education, Wagga Wagga, NSW 2650, Australia. Contact: Dr K. G. McKenzie, School of Applied Science at the above Institute.

M. V. Durante

1. The MS in preparation: "Carboniferous phytostратigraphy of North and Central Asia". Field work concern with Upper Palaeozoic Plant-bearing sequences of different parts of People's Republic of Mongolia.
2. Paper published in 1985: "Palaeobiogeography of Mongolia and adjacent area during Upper Palaeozoic time". Papers in press: "Main problems of Permian phytostратigraphy of North and Central Asia", "Palaeoethetic problem from palaeobotanical point of view".
3. It seems to me that on Permian Symposia during XI ICC 1987 would be better to discuss Chinese data, concerning with Carboniferous/Permian and Permian/Triassic boundaries.

Erik Flügel

1. Study of Lower Permian mud mounds in the Carnic Alps with regard to the internal structure, the origin and the microfacies of these mounds. These studies are included within a major research project dealing with the "Evolution of Reefs in Time".

Manuscript in preparation: a) Lower Permian Mud Mounds in the Southern Alps (will be published 1986 in FACIES)

b) Facies and sedimentology of Permian carbonate breccias in the Sexten Dolomites, Southern Alps (together with Sabine Kraus)

2. a) Diversity and Environments of Permian and Triassic Dasycladacean Algae - In:

TOOMEY, D. F. & NITECKI, M. H. (eds.) *Paleoalgology*, p. 345-351, 6 figs., Berlin-Heidelberg-New York 1985.

- b) Reorganization, development and evolution of post-Permian reefs and reef organisms" (together with G. D. STANLEY). *Palaeontographica Americana*, 1985, p. 175-186

C. B. Foster

1. Latest Carboniferous - Middle Permian palynology of the Bonaparte Gulf Basin, Australia. Earliest Permian palynology of the Canning Basin, Australia.

MS In prep. FOSTER, C. B. & WATERHOUSE, J. B., Early Permian plant microfossils and faunas from the Grant Formation on the Barbwire Terrace, Canning Basin, Western Australia.

2. Plant microfossils, foraminiferida, and Ostracoda, from the Fossil Cliff Formation (Early Permian, Sakmarian), Perth Basin, Western Australia. *Spec. Publs. S. Aust. Dept. Mines & Energy* 5: 61-105 by FOSTER, C. B. & others, 1985.
3. Adequate time for excursions, including Kweilin area.
4. Permian geology of the Hasllett Cove area (strated Pavement) Excursion during 8th Australian Geological Convention, Adelaide, South Australia, February 19th 1986. Scientific Convenor; C. B. Foster.

Ernest H. Gilmour

1. Presently working on Permian bryozoans from the following formations and areas (partial manuscripts prepared for some):

- a) Murdock Mountain Formation, northeastern Nevada, U.S.A.
- b) Wargal Formation, Salt range and Khisor Range, Pakistan
- c) toroweap Formation, southern Nevada, U.S.A.
- d) Kaibab Limestone, southern Nevada, U.S.A.
- e) Garden Valley Formation, northern Nevada, U.S.A.
- f) Mission Argillite, northeastern Washington, U.S.A.

2. a) *Stellahexaformis* and *Morozoviella*, two new genera of Bryozoa from the Gerster formation, northeastern Nevada.
b) Bryozoans from the Phosphorin Formation (Permian), southeastern Idaho.
3. The Permian Symposia scheduled for XI ICC 1987 Beijing appears excellent, and I look forward to attending the sessions. A new or expanded Working Group of Carboniferous-Permian Boundary is needed.
4. I will be leading an eight-day field trip for the International Bryozoology Association Meeting (1986) through Oregon and Nevada (U.S.A.) during which we will see and collect a number of Permian bryozoan localities.

A. V. Gomankov

1. Palynology of uppermost Permian of Russian platform; field investigation of the stratotype of Tatarian stage; paper in preparation on some upper Permian lycophytes from Mongolia.
2. Gomankov A. V., Meyen S. V. Tatarina flora (Composition in the Late Permian of Eurasia) (in Russian) in press.
4. Meeting on the Upper Palaeozoic of Kazakhstan, October, Alma-Ata.

Richard E. Grant

1. Late Permian brachiopods of Hydra, Greece (ms); Early Permian brachiopods of

Khios, Greece (ms) Conodont biostratigraphy of Glass Mountains, Texas (ms, field work)

Biostratigraphy & brachiopods of Salt Range, Pakistan (field work)

2. "Phylum Brachiopoda", chapter in textbook on Invertebrate Paleontology edited by Boardman, Cheeham, and Rowell, to be published in 1986.
3. I agree that the topics suggested, namely; Permian stratigraphy and faunas of the Tethys, and the proper subdivision of the Permian are excellent. I am somewhat less enthusiastic about the topics on the boundaries Permo - Carboniferous and Permo - Triassic. Not that they are poor topics, but only that they have been so belabored that they seem shopworn.

V. J. Gupta

1. Working on the Permian stratigraphy and palaeontology of Himalayas.
2. Middle Permian fusulinaceans from Karakorum Himalayas. Contr. Him.
 - a) Geology, vol. 3, pp. 1-11, 1985, by V. J. Gupta and T. Ozawa.
 - b) Stratigraphic position of the Darband Formation, Kohistan, Northern Pakistan. Res. Bull. (Science), Pajab University, vol. 36, Pts. I-II 1985, by C. J. Pudsey and V. J. Gupta
 - c) Permian fossils from the Shyok Melange, near Shigar Baltistan, Pakistan, Bull. Ind. Geol. Assoc., Vol. 17, No. 1 pp. 39-44, 1985, by V. J. Gupta and M. E. Brookfield
 - d) Geology and Stratigraphy of Eastern Karakoram, Ladakh. Bull. Ind. Geol. Assoc., vol. 17. no.2, pp. 217-218, 1985, by V. J. Gupta
3. Invited papers on "Permian sequences in Tethys" presented by scientists working in different regions
4. Field work in Shyok and adjoining areas of Karakorum; Parts of Ladakh and Spiti to be undertaken.

Suggestion:

- a) It is suggested that small working groups on different fossils groups (Permian) may be created for better understanding and mutual exchange of scientific papers and specimens.
- b) Directory of Scientists working on different aspects of Permian system (including Lower and Upper boundaries with the Carboniferous and Triassic systems) may be published giving details of their specialization.

Y. G. Jin

- 1 a) Carboniferous and Permian brachiopods and Stratigraphy of Northern Xinjiang (Sing Kiang).
 - b) Brachiopods from the Chihhsia Formation.
- 2 a) Jin Yu-gan, Wang Yu, Sun Dong-li and Shi Quan: Late Paleozoic and Triassic Brachiopods from East of the Qinghai-Xizang(Tibet) Plateau. Stratigraphy and Palaeontology of Eastern Xizang and Western Sichuan, vol. III, p. 182-234, Sichuan Sci Press, 1985.
 - b) Jin Yu-gan and Fang Run-sen: Early Permian Brachiopods from the Kuangshan Formation in Luliang County, Yunnan with notes on paleogeography of South China during the Liangshanian stage. Acta Palaeontologica Sinica, 1985, vol. 24, no.2.
 - c) Jin Yu-gan: On the family Lochengiidae. Bull., Nanjing Institute of Geology & Palaeontology, Academia Sinica, no. 6, P. 243-261.

- d) Jin Yu-gan, Wang Yu-Jing and others: Stratigraphy of the Upper Paleozoic, Mesozoic and Cenozoic in Northern Xinjiang. in Press.
- e) Jin Yu-gan, Wang Yu-jing and others: Integrated Stratigraphy of the Carboniferous and Permian in Northwestern Tzungle Basin. in Press.

F. Kahler

- 1. Study of fusulinids, Upper Carboniferous and Permian, Anatolia and Aegean Islands, Greece
- 2. a) "Ein Vergleich der Fusulinidenfauna des Oberkarbon und Unterperm der Ostalpen mit dem Dongebiet (UdSSR), Mitt. Oester. Geol. Ges., 77 p. 247-261, 2 figs., 1 table, Wien 1984.
- b) "Oberkarbon und Unterperm der Karnischen Alpen. Ihre Biostratigraphie mit Hilfe der Fusuliniden. Carinthia II, Sonderheft 42, 93., 11 pls., 1 fig., 6 tables, Klagenfurt 1985.
- c) Catalogus fossilium Austriae, Foraminifera palaeozoica, Fusulinida - Osterr. Akad, Wiss. Wien (in press).
- 3. Unfortunately I will not be able to participate in the meeting because of my advanced age

M. Kato

- 1. a) Taxonomic study of Palaeozoic corals of the Tethyan region.
- b) Geological evolution of northern Japan.
- 2. a) Kato, M. (1985): Palaeozoic and Mesozoic strata of the Kitakami Mountains, Japan - An overview. Mem. Geol. Soc. Japan, no. 25, pp. 19-29.
- b) Minato, M., Hunahashi, M. and Tsuchiya, T., Kaseno, Y., Okada, H., Watanabe, J., Kato, M. and Tsuchiya, T. (1985): Crustal structure of the Japanese islands, Japan sea, coastal part of the western Pacific and Philippine sea. Bull. Japan sea Res. Inst., Kanazawa Univ., no. 17, pp, 13-42.
- c) Kato, M. and Ezaki, Y. (in press); Permian corals from Pahang, Trengganu, Malaysia. Jour. Fac. Sci., Hokkaido Univ., ser. 4, vol. 21, no. 4.
- 3. Symposia topics
What are Permian stages? Stage boundaries, stratotype, lithologic as well as biostratigraphic contents of each stage.
Correlation among zonations established on macro- and microfossils.
- 4. In Japan, Nakazawa, Nakamura and I are appealing Permian workers to organize a research group. which currently circulating news information, such as on the coming ICC In China.

H. Kozur

- 1. a) Permian Triassic boundary in European Tethys and Germanic Basin.
- b) Subdivision of the Permian in marine and continental sediments (conodonts, radiolarians, ostracods, tetrapod footprints and arthropod trackways, conchostracans, sporomorphs, marine fungi)
- c) Carboniferous-Permian boundary in the Euramerian province and in marine sediments of Eurasia.
To these topics are several papers in preparation.
- 2. a) Kozur, H.: Biostratigraphic evaluation of the Upper Paleozoic conodonts, ostracods and holoherian sclerites of the Bukk Mts. Part II: Upper Paleozoic ostracods. Acta Geol. Hungarica, 28(3-4), 225-256, 2 Tab. 13 Taf., Budapest 1985.

- b) Kozur, H.: Boundaries, subdivision and correlation of the marine and continental Permian. Geol. Palaont. Mitt. Innsbruck. in press.
- c) Barabas-Stuhl, A. & Kozur, H.: Sporomorph zonation of the European Middle and Upper Permian (in prep.)
- d) Fuglewicz, R. & Kozur, H.: Sporomorphs from the Permian-Triassic boundary of the Germanic basin. - Geol. Palaont. Mitt. Innsbruck. in press.
- e) Kozur, H. & Mostler, H.: Radiolarien und Schwammspiculae aus dem Unterperm des Vorurals. - Geol. Palaont. Mitt. Innsbruck in press.
- f) Kozur, H.: Neue Ostracoden-Arten aus dem oberen Mittelkarbon (hoheres Moskovian), Mittel- und Oberperm des Bukk-Gebirges (N-Ungarn). Geol. Palaont. Mitt. Innsbruck, 15, 157 S., 22 Taf. 1985.

The main stratigraphic results of these papers are: a) Hindeodus latidentatus Kozur et al. emend., a transitional form between H. minutus and H. parvus, begins at the base of the Otoceras faunas and at the base of the Upper Changhsingian. H. parvus begins in the upper third of the Otoceras fauna (upper half of the O. boreale zone, upper part of the O. woodwardi zone) and in the topmost Changhsingian with Otoceras, Pseudogastrioceras and Permian brachiopods. This Otoceras-bearing horizon in the topmost Changhsingian corresponds therefore not to the whole Otoceras fauna, but only to its upper third.

b) Isarcicella isarcica begins worldwide immediately above the Otoceras faunas and immediately above the Changhsingian (including its Otoceras-bearing topmost part). This event coincides with the first appearance of Claraia wangi and with the base of the Hollinella tingi ostracode zone and with the disappearance of the Permian Cathaysia floral elements. This synchronous horizon can be traced all over the world both in Otoceras-bearing and in Otoceras-free and ammonoid-free sediments.

c) By these results the Otoceras faunas can be correlated with the Upper Changhsingian. This is supported by occurrences of Paleofusulina and Permian brachiopods in the lower Tesero horizon of Southern Alps (Neri & Pasin) in the same beds also H. Latidentatus and the sporomorph association of the O. boreale zone (like in Greenland, Arctic Canada) is present, clearly younger than the sporomorph association of the lower Otoceras beds.

d) In the Germanic Basin, the type area for the two-fold subdivision of the Permian (Dyas: Rotliegendes + Zechstein), the "Lower Permian", Rotliegendes comprises the Upper Carboniferous, Lower Permian, Middle Permian and in some places the basal Upper Permian. After a gap the base of the Zechstein - traditionally regarded as the Upper Permian in the two-fold subdivision, lies in the Upper Abadehian, not far from the Dzhulfian basis. So, the traditional basis of the Upper Permian in the Germanic Basin lies within the Upper Permian of the tethyan three-fold subdivision and the Middle Permian is included in the "Lower Permian" Rotliegend.

e) The largest part of the whole Tatarian is older than the Zechstein.

f) Still the base of the Upper Tatarian lies within the Capitanian and therefore within the highest Middle Permian. Therefore almost the whole Upper Permian of the Cis Ural (two-fold subdivision) is a time equivalent of the Middle Permian of the Tethyan three-fold subdivision. This is the reason why also here like in the whole Boreal realm, only a two-fold subdivision of the Permian is applied. Most of the Upper Permian in the Tethyan three-fold subdivision is missing in the Cis-Urals (gap), a part (Upper Changhsingian) is included in the Vetluga series of the Lower Triassic.

3. I agree with the topics for the Permian Symposium during the IX ICC. My remarks to the unsatisfactory work of the P/T and C/P Boundary Working Groups I have given in the enclosed letter.

G. V. Kotlyar

1. Studying deposits of Median stage in the Tethyan Realm: the boundary of it, Palaeontological characteristic and correlation. Field works had placed in Transcaucasus, Far East, Pamir. The Monograph will be preparation for print.

2. Abstract published: "Evolution of Jakutoproductus Kaschirzew genus". 1st International Congress on Brachiopods (France).

3. Papers in press: a) Permian Stratigraphy of Azerbajdzhan .

- b) Nakhodka Reef and the place of Lyudyanza horizon of Southern Primorye in Permian Tethys stage scale.
- c) Stage scale of the Tetyan Permian deposits and its global correlation.

3. I think it is necessary to discuss methodic points of view on the subdivision of Permian system in the Tetyan .

Chang Zin Lee

1. My current research is on fusulinacean biostratigraphy of the carboniferous-Permian strata in Mitán area, Kangweon-do, Korea. As is shown in my manuscript, Upper Carboniferous fusulinids have never been found from the Yeongweol coalfield. So I thought that the Carboniferous-Permian boundary would be a paraconformity. To confirm the relation of the Carboniferous-Permian strata, I am now trying to find out the Upper Carboniferous fusulinids from the Mitán area, which is closely located in the north-eastern part of the Yeongweol coalfield. Geological map of Mitán area is enclosed here.
2. A paper (Moscovian fusulinids from the Upper Yobong and Pangyo formations in the Yeongweol coalfield, Korea) is enclosed here.
3. I really hope to enter for the Symposia and discuss on the Carboniferous-Permian boundary of Yeongweol coalfield and Mitán area, Korea. I hope to take advice from the members of the Working Group.
4. Three investigators will take a field trip on the Carboniferous-Permian boundary of Mitán area during March 28-30, 1986. Other schedules of meeting and field trips are not fixed yet.

Liao Zhuo-ting

1. a) The Carboniferous of Xinjiang.
b) Late Permian Silicified brachiopods from Guangxi.
2. a) Liao Zhuo-ting, Meng Feng-yuon, Late Changhsingian Brachiopods from Huatang of Chenxian, Hunan.
b) Liao Zhuo-ting: New genus and species of Late Permian and Earliest Triassic brachiopods from Jiangsu, Zhejiang and Anhui Provinces. *Acta Palaeontologica Sinica*, 1984, Vol. 23, No. 3.
c) Liao Zhuo-ting, Meng Feng-yuon: The Changhsingian in Huatang area of Chenxian County, Southern Hunan. *J. Stratigraphy*, 1984, Vol. 8, No. 2.

C. B. Meyen

1. Permian floras of Russian platform, various Permian and Carboniferous floras of Siberia and Kazakhstan. Monograph on Permian conifers of Western Angraland. Paper on Permian stratigraphy of Vilyui Syncline (With V. V. Grausman, Yakutsk)
2. No stratigraphical papers, only palaeobotanical ones, including one on the Upper Palaeozoic dicranophylls (with H. G. Smoller, Ukhta).
4. a) Stratigraphical conference on the Upper Palaeozoic of Kazakhstan, Alma-Ata, October 1986;
b) Stratigraphic conference on the Upper Palaeozoic of Russian platform, Leningrad, November 1986.

E. V. Movshovich

1. Correlation of the Permian in USSR.

2. a) About palinological correlation of Lower Permian rocks fo West European and Cis-Uralian (with G. V. Djupina and H. Kozur). Annual All-Union Paleontological Soc. of the USSR, 1985, XXVIII, p. 220-235.
- b) Permian conodonts of the USSR, and correlation problems fo the Permian in Laurasia (in press).
- c) The problems of two-members dividing of Permian system in the light of conodonts (in press).
- d) The problem of lower boundary of the Permian (in press).

K. Nakamura

1. I am continuously doing research on the Permian brachiopods of the Kitakami Mts. and Miharanoro (Japan), Sisophon (Cambodia), salt Range (Pakistan), Abadeh (Iran) and Spitsbergen.
 - a) K. NAKAMURA and G. KIMURA (in prep.) brachiopod zonation and age assignment of the Kapp Starostin formation (central Spitsbergen)
 - b) K. NAKAMURA and J. TAZAWA (in prep.): On an aberrant Permian brachiopod genus Permianella and its additional occurrence in Japan.
2. a) Pakistani-Japanese Research Group, 1985: Permian and Triassic Systems in the Salt Range and Surghar Range, Pakistan. IN: NAKAZAWA and J. M. DICKINS (eds.), "The Tethys" Her paleogeography and paleobiogeography from Paleozoic and Mesozoic.
- b) K. NAKAMURA, D. SHIMIZU and LIAO ZHUOTING, 1985: Permian palaeobiogeography of brachiopods based on the faunal provinces op. cit.

Sergiu Nastaseanu

Concerning the activity of the Romanian SPS working group I inform you that no special studies are achieved; however, the study of Upper Carboniferous coal deposits (in which I am interested together with other Romanian specialists) involves Permian deposits as well. The researches regard especially the stratigraphy and tectonics of the Variscan molasse formation (Westphalian-Autunian) from the South Carpathians (south-western area of the country); the results are presented in a study to be published in 1986 within the framework of IGCP Project no. 5.

I regret that our collaboration is not efficient enough, but there are several impediments, such as the absence of a financial support of any direct contact between the members of SPS working groups. However, I believe that a close collaboration might be possible with the Romanian specialists concerned with the study of Permian igneous rocks and the palynologic study of continental-lacustrine deposits of the same age.

Norman D. Newell

1. Together with Professor Donald W. Boyd I am engaged in a comprehensive monographic revision of world bivalve molluscs near the Permian-Triassic boundary. This work is being based on the very best-preserved fossils obtainable, and has been under way as a distinct project for about three decades. One firm conclusion is that the bivalves make up most of the marine fossil record from those times in point on abundance and diversity. We have issued numerous publications on this subject, and shall continue into the foreseeable future.

The Summer of 1985 was devoted to stratigraphic studies and collecting in Nevada, Utah and Montana. The objective was to enhance general knowledge about the morphology and classification of the bivalves, and to place the species in the sequence of conodont zones.

New information was obtained on the evolution of the Pectinacea (the most diverse group), and the nature of the pre-Griesbachian hiatus, which we think may occur within - rather than above - the Permian.

During the year we completed a manuscript on the diverse morphology of Pectinacean ligaments in our collections and their bearing on classification.

2. a) (with Donald W. Boyd,) Vestigial shell structure in silicified pectinacean pelecypods. Contributions to Geology Univ. Wyoming, vol 23. no. 1, pp. 1-8, 5 figs. ("December 1984")
- b) (and Donald W. Boyd), Permian Scallops of the Pectinacean Family Streblochondriidae. Am. Mus. Novitates, no. 2831, pp. 1-13, figs. 1-13, tables 1-6, October 23.

M. J. Orchard

2. a) Orchard, M. J. 1984: Pennsylvanian, Permian and Triassic conodonts from the Cache Creek Group, Cache Creek, Southern British Columbia. G. S. C., Current research, Paper 84-1B, p., 197-206.
- b) Orchard, M. J. 1984: Early Permian conodonts from the Harper Ranch Beds, Kamloops area, southern British Columbia, G. S. C.. Current Research, Paper 84-1B, p. 207-215.
- c) Orchard, M. J. 1985: Carboniferous, Permian and Triassic Conodonts from the central Kootenay Arc: constraints on the age of the Milford, Kaslo and Slocan groups. G. S. C., Current Research, Paper 85 - 1A, pp, 287-300.
- d) Orchard, M. J. & Struik, L. C. 1985: Conodonts and Stratigraphy of Upper Paleozoic limestones in Cariboo Gold Belt, east central British Columbia. Canadian Journal of Earth Sciences, vol. 22, no. 4, pp. 538-552.
- e) Struik, L. C. & Orchard, M. J. 1985: Upper Paleozoic conodonts from ribbon chert delineate imbricate thrusts within the Antler Formation of Slike Mountain Terrane, central British Columbia. Geology, v. 13, pp. 794-798.
- f) Orchard, M. J. 1985: Are Cache Creek Conodonts "exotic". Geol. Soc. Amer., Cordill. section, Abstracts with Programs, vol. 17(6), p. 398.
- g) Orchard, M. J. In press. Conodonts from Western Canadian chert: Their nature, distribution and stratigraphic application. In: Austin, R. L. (ed) Conodonts, Investigative Techniques and Applications. Proceedings of the Fourth European Conodont Symposium (ECOS IV). Ellis - Horwood, Chichester, England.

Pasini Mario

1. Field work: Biostratigraphy and Palaeoecology in the marine Upper Paleozoic.

Manuscripts in **Preparation**:

- a) - Foraminifers of the Permo-Triassic boundary in Southern Alps.
- b) - Some observation Permian Fusulinids found in the Apenninic Formations.
2. a) Pasini M. Biostratigrafia con i Foraminiferi del limite Formazione a Bellerophon/Formazione di Werfen fra Recoaro e la val Badia (Alpi Meridionali). Riv. It. Paleont. Str., 90.4 (1985), Milano (Italy).
- b) Pasini M. (in press) -Faune oligotipiche a foraminiferi al Passaggio Permiano-Trias nelle Dolomiti. Acta III symp. Ecology and Palaeoecology of Benthic Communities, Catania (Italy).
- c) Pasini M. et al. (in press) -Segnalazione di nuovi affioramenti paleozoici nella dorsale Medio-Toscana the Monticiano e Monti Leoni (Italy). Soc. Geol. It., Mem.
- d) Pasini M. et al. (in press) -Inquadramento micropaleontologico degli strati a Comelicania (Formazione a Bellerophon) del Sass da Putia (Bolzano, Italy). Sov. Geol. It., Mem.

Anton Ramovs

1. Permo/Triassic boundary in the surroundings of Idrija and in the Karavanke Mountains.

Manuscripts in preparation: a) Upper Permian Chonetids in Slovenia, NW Yugosl-

lavia. b) Permian brachiopod fauna and the strat. development in western Serbia and the correlation with the Upper Permian in South Europe.

2. Permian Brachiopod fauna for Velebit mountain and Lika region. (In print).
3. To define the Carboniferous/Permian and the Permian/Triassic boundary in a marine sequence. - To discuss about the significance of the fusulinid genus Pseudoschwagerina (Schwagerina) for Carboniferous/Permian boundary. - Permian subdivision in the Carnian Alps - a parastratotype for southern Europe. - Clear the position of Otoceras beds.
4. A field trip dealing with development of the Upper Permian and Permian/Triassic boundary in Montenegro is scheduled for 1986.

Rui Lin

1. a) Carboniferous - Permian Boundary in Guizhou, South China
b) Upper Carboniferous fusulinids of southeastern Shanxi, North China
c) Permian Reefs in South China
d) Permian - Triassic boundary in South China
2. a) Sheng Jin-zhang, Rui Lin and Chen Chu-zhen: Permian and Triassic sedimentary facies and Paleogeography of South China.
b) Rui Lin: Lepidolina kumaensis fusulinid fauna. 1984, Bull., Nanjing Institute of geology and Palaeontology, Academia Sinica, No, 6.
c) Rui Lin: Restudies on the Wujiapin Limestone in Liangshan of Hanzhong, Shaanxi, 1984. Jour, Stratigraphy, Vol. 8, No. 3.

J. Z. Sheng

1. a) Permian fusulinids from Bainaimiao Neimongol.
b) Fusulinids and Carboniferous - Permian boundary of southeastern Yunnan.
2. a) Sheng Jin-zhang, Wang Yu-jing and Zhong Bi-zhen. Some species of the genus Robustoschwagerina from Eastern Yunnan. Acta Palaeontologica Sinica, Vol. 23, No. 5, 1984.
b) Sheng Jin-zhang, Chen Chu-zhen, Wang Yi-gang, Rui Lin and Liao Zhuo-ting: On the lower Boundary of Triassic in Central and Eastern Tethys. in Developments in Geoscience, Academia Sinica contribution to 27th International Geological congress, 1984, Moscow. Science press, Beijing.
c) Sheng Jin-zhang and Rui Lin: Fusulinaceans from Upper Permian Changhsingian in Mingshan coal of Leping, Jiangxi. Acta Micropalaeontologica Sinica. Vol.1, No. 1, 1984.
d) Sheng Jin-zhang and Wang Yu-jing: Fossil Radiolaria from Kufeng formation at Longtan. Nanjing Acta Palaeontologica Sinica, Vol. 24, No. 2, 1985.

E. Sitting

1. Biostratigraphic researches in Rotliegendes of the Baden-Baden depression based on Conchostraca and trace fossils (in cooperation with H. KOZUR)

D. B. Smith

1. In response to your Questionnaire in Newsletter 10, I have to tell you that there is very little current research into the broader aspects of Permian stratigraphy in Britain, several workers are investigating British Permo-Triassic rock but almost all the work is sedimentological. Exceptions are some interesting work on

Late Permian (Zechstein) reef faunas in NE England by my research student N. Hollingworth and on Zechstein reef bryozoans by Dr. D. Southwood; both of these workers were at the University of Durham, England, but their results have not yet been published.

2. So far as I am aware, there were no stratigraphically useful papers on the Permian of Britain published in 1985, but there are several of British interest in a book entitled "The English Zechstein & Related Topics" which also contains papers on the Zechstein rocks of Poland and Germany and should be published in May or June; the book is edited by G. M. Harwood & D. B. Smith and will be published by Blackwells Scientific Publications Ltd. Oxford.
3. Because so little active research is being conducted into the broader aspects of Permian stratigraphy in Britain, I do not feel that we can usefully comment on work being carried out elsewhere. There is, of course, a long-standing need for both marine and continental fossils in strata in the Zechstein province to be more closely correlated with their Tethyan counterparts; until this is satisfactorily achieved, research into Zechstein biotas will continue to be of only limited relevance to the problems of the World Permian.
4. Field meetings to Permian strata in Britain in 1986 include 2-day visits to the Zechstein shelf-edge reef in County Durham (Palaeontological Society) and to the shelf-facies carbonate rocks of Yorkshire (Yorkshire Geological Society, June 20-22). Both Durham and Yorkshire are in north-east England.

Jasenka Sremac

1.
 - a) Sremac, J.: Middle Permian Brachiopods of the Velebit Mt. (Croatia, Yugoslavia). *Palaeont. jugosl., Jugosl. akad. Zagreb.*
 - b) Sremac, J.: Evolutionary trends of Some Upper Palaeozoic Brachiopods. XI ICC, Beijing, China.
 - c) Sremac, J.: Influence of Environment on Brachiopod Populations from the Middle Permian of the Velebit Mt. XI Congress Geol. Jugosl., Beograd.
 - d) Ramovs, A., Pesic, L. & Sremac, J.: Upper Permian Beds of the Jadar Region (W. Serbia, Yugoslavia) and their position within Paleotethys. *Ibid.*
 - e) Pesic, L. & Sremac, J.: Contribution to the knowledge of the Upper Permian brachiopod fauna from Western Serbia. Beograd.
2. Ramovs, A., Sremac, J. & Kulenovic, E.: Results of biostratigraphical investigations in Western Yugoslav Paleozoic Realised within IGCP Project No. 5. IGCP, Regional Volume.

C. H. Stevens

1.
 - a) Stone, Paul and Stevens, C. H., in prep., Permian stratigraphy in the western Inyo Mountains, eastern California, USA
 - b) Stone, Paul, Stevens, C. H., and Magginetti, R., In prep., Permian stratigraphy in the Darwin Canyon - Argus Range area of eastern California, USA
 - c) Stevens, C. H., and Stone, Paul, in prep., Early Permian thrust faults in eastern California, USA
 - d) Stevens, C. H., Lico, Mochael, and Stone, Paul, in prep., Permian sediment - gravity-flow deposits in east-central California, USA
 - e) Stone, Paul, Dunne, George, Stevens, C. H., and Gulliver, Rachael, in prep., Revisions to the Paleozoic and Mesozoic geology of the Darwin region, eastern California, USA
2.
 - a) Wu, Wang-shi, Stevens, C. H., and Bamber, E. W., 1985, New Carboniferous and

Permian Tethyan and Boreal corals from northwestern British Columbia, Canada: Journal of Paleontology, v. 59, no. 6. 1489-1504.

- b) Stevens, C. H., in press, Evolution of the Ordovician through Middle Pennsylvanian carbonate shelf in east-central California: Geological Society of America Bull.

Walter C. Sweet

1. I have no current research, field work, or manuscripts in preparation dealing with Permian problems.
3. My principal interest is in the region of the Permian/Triassic boundary. I hope that there will be interest in a Symposium on that subject, perhaps organized officially by IGCP Project 203.

John Utting

1. Palynology of the Carboniferous, Permian and Permian-Triassic boundary in Canada. Field work in Canadian Arctic archipelago (1982 and 1984) and the Yukon (1986).

Manuscripts in preparation: a) palynology of the Lower Carboniferous Windsor and lowermost Canso Groups of Nova Scotia and their lithostratigraphic and biostratigraphic equivalents in Quebec, New Brunswick and Newfoundland. Bulletin of the Geological Survey of Canada.

- b) Palynostratigraphic investigation of the Albert Formation (Lower Carboniferous) of New Brunswick, Canada.
 - c) In the early stages of preparation is a manuscript concerning the taxonomic description of palynomorphs in the Lower Permian (Artinskian) of the Canadian Arctic archipelago.
2. a) Utting, 1985. Preliminary results of palynological studies of the Permian and lowermost Triassic sediments, Sabine Peninsula, Melville Island, Canadian Arctic Archipelago. in Current Research, Part B, Geological Survey of Canada, Paper 85-1B, P. 231-238.
b) Utting, 1985 Palynomorphs from the type section of the Otto Fiord Formation (Upper Carboniferous) on Ellesmere Island, Queen Elizabeth Islands Canada. Bulletin of Canadian Petroleum Geology, Vol. 33, 3, p. 314-349.
3. World-wide correlation of the Permian might be a topic of interest to some.

Zhang Lin-xin

1. Carboniferous and Lower Permian strata in W. Yunnan and Guizhou.
2. a) (Niu Bao-xiang and al.) Carboniferous fusulinid-bearing strata in Zibo, Shandong, 1985 Jour. Stratig., vol. p. no. 2.
b) Zhang and Sun Qiao-li: Upper Carboniferous Fusulinids from the Altun Mountains, Xinjiang. Acta Micropalaeontologica Sinica, 1985 vol. 2, no. 1.
c) Zhang and Guo Jing-xin: Weiningian Fusulinids from Beishan area, Gansu. Acta Micropalaeontologica Sinica, 1985 vol. 2, no. 3.
d) Zhang and Sun Qiao-li: Eostaffella fauna from the Yining area of Xinjiang. Acta Palaeontologica Sinica, 1985 vol. 24, no. 2.
e) Zhang and Sun Qiao-li: early Permian Fusulinids from Alge Mountain of Xinjiang, Acta Palaeontologica Sinica, 1985, vol. 24, no. 5.
f) Zhang and Wang Yu-jing: Fusulinids of Tuomou area, Xinjiang. Xinjiang People Press.

(to be continued)

Scientific activities related to the Permian in
The XIth International Congress of Carboniferous
Stratigraphy and Geology, August 31-September 4,
1987, Beijing, China

CONGRESS THEME SECTIONS

- 1) Stratigraphy and Geochronology;
- 2) Palaeontology, Palaeoecology and Palaeobiogeography;
- 3) sedimentology and Geochemistry;
- 4) Palaeogeography and Palaeoclimatology;
- 5) Economic Geology-exploitation and exploration of coal and other natural resources;
- 6) Petrology and Geology of Coal;
- 7) Tectonics and Geophysics; and
- 8) Geobiochemistry and Potential Hydrocarbon.

LECTURES ON INVITATION

The following three lectures have been fixed:

- 1) Carboniferous stratigraphy of China;
- 2) Carboniferous palaeogeography, tectonic evolution and mineral deposits of China;
and
- 3) Permian-Carboniferous coal resources of China.
Lectures on some other subjects are also being invited.

SPECIAL SYMPOSIA

The topics and organizers of these symposia have been arranged as follows:

- 1) Carboniferous-Permian boundary-
Working Group on Carboniferous-Permian Boundary IUGS;
- 2) Devonian-Carboniferous boundary-
Working Group on Devonian-Carboniferous Boundary, IUGS;
- 3) Subdivisions of the Carboniferous System-
International Subcommittee on Carboniferous Stratigraphy, IUGS;
- 4) Palaeozoic microflora-
International Commission on Palaeozoic Microflora;
- 5) Evolution of Tethys during Permian-Carboniferous time;
- 6) Carboniferous and Permian of Gondwanan land.
- 7) Exploration of Permian-Carboniferous coal resources-
International Committee on Coal Petrology;
- 8) Global events and evolution during Permian-Carboniferous time;
- 9) Coal and coal environment in earth history;
- 10) Correlation of Permian sequences in Tethys-
International Subcommittee on Permian Stratigraphy, IUGS; and
- 11) Subdivision of the Permian, the boundaries and stages of the Middle and Upper Permian-
International Subcommittee on Permian Stratigraphy, IUGS.
Symposia on such topics as Permian-Triassic boundary and mid-Carboniferous boundary are also being organized at request of related working groups.

EXCURSIONS

Excursions 1 Carboniferous and Permian coal-bearing strata in Shanxi

- A. Section in Taiyuan - sequences of upper Carboniferous and Permian, depositional environments of coal deposits and adjacent lithological facies, economics, mining technology and coal petrology, coal ball, Cathaysian flora, Carboniferous-Permian boundary.
- B. Linchuan section - Late Carboniferous and Early Permian sequences with more deposits and abundant marine fossils.

Excursion 2 Carboniferous and Permian coal basin of central Henan

- A. Yuxian section - Unconformity between Carboniferous and Cambrian deposits, fossil zonation, trace fossils, lithological facies, character and development of coal resources, almyte,
- B. Luoyang section - Late Carboniferous and Permian sequences.
- C. Jiaozuo section - Cyclotheric sedimentation, trace fossils and coal mine.

Excursion 4 Carboniferous and Permian of Tianshan

- A. Section in Urumqi - Carboniferous carbonate deposits with volcanic beds, Early Permian flysch facies, Late Permian terrestrial deposits with bituminous shale beds, Angara flora, fish fossils.
- B. Turpan section - Late Carboniferous marine conglomeratic continental sequence of Permian, Dicynodon fauna related to Gondwanan vertebrate fauna Permian-Triassic boundary in continental facies, Lystrosaurus fauna of Triassic.
- C. Fukan section - rhythmic sequence of Carboniferous in tectonic history.

Excursion 5 Carboniferous and Permian biostratigraphy in Guizhou

- A. Changshun section - Devonian-Carboniferous boundary in pelagic facies.
- B. Sections in Dushan and Pingtan - Continuous succession of lower Carboniferous, Mid-Carboniferous boundary, facies development related to carbonate shelf.

Excursion 8 Carboniferous and Permian in Southeast China

- A. Section in Nanjing - A condensed sequence of Carboniferous and Permian, Carboniferous-Permian boundary, beach facies, dedolomitization and of carbonate rocks, carbonate deposits in Permian restricted sea.
- B. Yixing section - Continental sequence of Lower Carboniferous, purple clay deposit.
- C. Changxing section - Marine coal-bearing strata of Upper Permian, facial changes of Upper Permian from shelf carbonate sequences to pelagic facies, well-known Permian-Triassic boundary.
- D. Sections in Hangzhou - Facial changes from marine to continental environment of Lower Carboniferous, sequence of Upper Carboniferous and Early Permian, carbonate petrography, fossils zonation.

A business meeting on subdivision of the Carboniferous in China

This meeting was held in Nanjing from March, 18 to 19 1986. Participants of the meeting included members of the Working Group on Carboniferous Stratigraphy, the Working group on Permian Stratigraphy of the All-China Commission on Stratigraphy, the Chinese Program Committee for the XI-ICC, and leaders of excursions arranged for the Conference.

The main issue of the meeting is to recommend a broad stratigraphic scheme of the Carboniferous in China for the invited lectures to be delivered by Chinese scientists at the Conference and for the guide books of excursions to be made before or after the Conference.

After a detailed consideration, the participants unanimously agreed to recommend a twofold classification of the Carboniferous with the mid-Carboniferous boundary suggested by the Working Group on mid-Carboniferous, IUGS and the base recently defined by the Working Group on Devonian-Carboniferous Boundary, IUGS.

The Carboniferous-Permian boundary evoked a heated discussion with a final suggestion that the top of the Pseudoschwagerian (s. s.) Zone will be taken as the upper boundary of the Carboniferous. However, other boundaries widely accepted at home and abroad also should be described in detail, since the traditional Carboniferous-Permian boundary in Europe and America greatly differs in level from the boundary which has been used in China for many years; also, a unified international Carboniferous-Permian boundary has not yet been substantially achieved, and the biostratigraphic sequences across the Carboniferous-Permian boundary in various areas of China together with their correlation have not yet been satisfactorily established for the time being.

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