

SUBCOMMISSION ON PERMIAN STRATIGRAPHY

Newsletter 10

January, 1986

CONTENTS

Plans for Subcommittee	Sheng Jin-zhang	2
Questionnaire for Subcommittee Members, Corresponding Members	Jin Yu-gan	3
Elections of Officers, Commission on Stratigraphy, 1984-88	M.B. Bassett	3
Comments from Newsletter Editor	W.W. Nassichuk	4
The Permo-Triassic Boundary in Continental Deposits of Siberia	I.A. Dobruskina	5
The Carboniferous-Permian Boundary in the USSR	E. Ya Leven	6
Fusulinacean Biostratigraphy Near the Carboniferous-Permian Boundary in North America	C.A. Ross	8
Permian Ammonoid Uraloceras in North America and its Global Significance	C. Spinosa and W.W. Nassichuk	9
Permian Coral Studies	J. Federowski	9
Japanese Working Group on Permian Stratigraphy	K. Nakamura	10
The Tethys - her Paleogeography and Paleobiogeography from Paleozoic to Mesozoic	K. Nakazawa and J.M. Dickins	11
Conference Announcement	Italian IGCP Group 203	12

PLANS FOR SUBCOMMISSION

Dear Colleagues:

Since we took up the office work of the Subcommittee on Permian Stratigraphy (SPS) in February, 1985, we have been making every effort to arrange the following programs:

- a. **Permian Symposia during the XI ICC.** Arrangements for these symposia have been approved at the First Meeting of the Permanent Committee of ICC. The topics to be discussed at these Symposia will include "Correlation of Permian Sequences in Tethys" and "Subdivision of the Permian, Two Fold or Three Fold". Six excursions to visit the Permian sections will be provided for the free choice of the participants. Any contributions on other topics related to Permian Stratigraphy and Palaeontology, also will be given an opportunity for discussion at these symposia. Members interested in attending the congress are urgently requested to return the reply form enclosed with the First Circular of the XI ICC not later than February 1, 1986. The second circular will be sent to each of those who returns the reply form.
- b. **"Permian and Permian-Triassic boundary in western Tethys".** One relevant meeting is jointly sponsored by Geological Society of Italy and IGCP Project 203. As the establishment of correlations between Tethyan and Permian sequences has been regarded as one of the tasks to be faced, it seems rather reasonable to call your attention to this meeting. At present, an informal business meeting of SPS also is being planned.
- c. **Working Group on Carboniferous-Permian Boundary.** So far as we understand, most members of SPS have an uneasy feeling about the inactive situation of this working group. Dr. Cowie, Chairman of ISC, has informed us that not even an annual report has been delivered up to now. Moreover, leaders of the group have not been re-elected during the 28th IGC. All these things indicate an abnormal situation of the working group, which makes us inevitably confronted with the problem of reorganizing the Working Group on the Carboniferous-Permian Boundary.

Enclosed herewith is a Questionnaire sheet for all of you to fill out. Would you please give your type-written responses to these questions and return the sheet to us by February 15 for printing?

With best wishes.

Sheng Jin-zhang

QUESTIONNAIRE

FOR SUBCOMMISSION MEMBERS, CORRESPONDING MEMBERS

Please type your responses (using the back of this sheet for additional comments when necessary) and return the sheet to SPS office by 15 February addressing: Jin Yu-gan, Nanjing Institute of Geology and Palaeontology, Academia Sinica, Chi-Ming-SSu, Nanjing, China.

1. Current research activities, including field work and manuscripts in preparation.
2. Papers published in 1985 and those in press.
3. Suggestions and comments on Permian Symposia being organized for the XI ICC 1987 Beijing and on the Working Group on the Carboniferous-Permian Boundary.
4. Meeting, field trips, etc. scheduled for 1986 related to the Permian in your country.
5. Recommendations of Corresponding Members.

Jin Yu-gan

ELECTIONS OF OFFICERS, COMMISSION ON STRATIGRAPHY, 1984-88

Results of ballots had been received for all Subcommissions, Working Groups and Regional Committees within the Commission. New Officers and Voting Members of the Commission are as follows:

Bureau Chairman. J.W. Cowie (U.K.)

Secretary-General. To be elected by Chairman (NB. subsequently J. Remane, Switzerland)

First Vice-Chairman. W. Ziegler (West Germany)

Second Vice-Chairman. To be nominated by host country of 28th IGC (NB. subsequently E. Kauffman, U.S.A.)

Acting Past Chairman. M.G. Bassett (U.K.)

Members K. Plumb (Precambrian, Australia)
A. Yu. Rozanov (Cambrian, U.S.S.R.)
C.R. Barnes (Ordovician, Canada)
D.L. Kaljo (Silurian, U.S.S.R.)
W.A. Oliver (Devonian, U.S.A.)
R.H. Wagner (Carboniferous, Spain)
J.M. Dickins (Gondwana, Australia)
Sheng Jin-Zhang (Permian, China)
C. Virgili (Triassic, Spain)
A. Zeiss (Jurassic, West Germany)
J.M. Hancock (Cretaceous, U.K.)
I. Premoli-Silva (Palaeogene, Italy)
J. Senes (Neogene, Czechoslovakia)
R.P. Suggate (Quaternary, New Zealand)
A. Salvador (Stratigraphic Classification, U.S.A.)
N.J. Snelling (Geochronology, U.K.)
N.D. Opdyke, (Magnetic Polarity Time Scale, U.S.A.)

M.G. Bassett
Secretary-General 1980-84

COMMENTS FROM THE NEWSLETTER EDITOR

In earlier Newsletters I have expressed the hope that contributions to the Newsletter would increase so that more than one Newsletter could be distributed each year. I am extremely pleased with the important contributions on fundamental Permian problems made to this Newsletter by Soviet colleagues E. Ya Leven and I. Dobruskina. I am optimistic that those excellent articles will inspire other discussions on the Carboniferous-Permian and Permian-Triassic boundaries that can be printed in the Newsletter. Indeed, there are innumerable other topics of fundamental scientific importance that require general attention and the Newsletter has the potential to be an important medium for communication.

Many Newsletter recipients have expressed interest in the Newsletter and have urged that more issues be published. I am anxious to comply with that desire but without your participation, it is impossible. It is my sincere wish that all of you enjoy a happy and productive New Year and that many of us will have a chance to participate in Subcommittee meetings planned for Beijing in 1987. In the meantime, please send Newsletter contributions directly to me and I will try to compile another issue before Spring.

W.W. Nassichuk
Geological Survey of Canada
3303 33 St. N.W.
Calgary, Alberta
Canada
T2L 2A7

THE PERMO-TRIASSIC BOUNDARY IN CONTINENTAL DEPOSITS OF SIBERIA

The task is to find in this region the stratigraphic analog of the base of the Otoceras-zone, because this level is accepted as the Permo-Triassic boundary in the International Geologic Time Scale. In Siberia the transition from continental to marine strata of this age cannot be traced laterally, as can be done, for example, in southern China for the uppermost Permian. Therefore, correlations can be made only by comparisons of paleontological, paleomagnetic, lithologic, and geochemical data.

In the Tunguska and Kuznetz basins the vertical change from coal-bearing beds to volcanics coincides with the change of plant assemblages. The coal-bearing beds contain the **Cordaites**-flora (about 90% leaves of **Cordaites**), whereas the volcanics contain the conifer-fern-flora (the so-called Korvuntchanian flora). These two floras do not have any species in common, with only two common genera, which are not dominant. When this level was discovered it was considered to be the boundary between the Permian and the Triassic mainly because of the fact that ferns are the major constituents of Siberian Mesozoic floras. Later, it became clear however, that nearly all the ferns are endemic, and as a whole they are closer to Paleophytic groups than to Mesophytic ones. Pteridosperms and conifers of the Korvuntchanian flora are also comparable with those of the Late Paleophytic floras.

Floras of the Late Permian and of the first half of the Triassic are considered to be Late Paleophytic: Zechstein flora of western Europe, Tatarina-flora of eastern Europe and northern China, and some floras of southern China which lie above the continental analogs of the Changhsingian Stage. These Late Paleophytic floras differ from earlier Paleophytic ones in two ways: 1) the extinction of dominant groups of the Paleophytic Floral Kingdoms, and 2) the flourishing of pteridosperms, conifers and ferns, which earlier were in the background. Precise correlations of different plant horizons of the Korvuntchanian flora with different plant horizons of the Late Paleophytic can help us to find the Permo-Triassic boundary in Siberia.

New data by Chinese and Soviet paleobotanists (see Dobruskina, 1984, Geobios, 17:6) shown a wide distribution of conifers in China and Siberia. These conifers (**Voltzia**, **Quadrocladus**, **Darneya**, **Willisiostrabus**) are closer to conifers of the Voltziensandstein than to those of the Zechstein and Tatarian stages. Also, their abundance is the common feature of the upper parts of the sections under discussion. The lower parts of investigated sections in China and Siberia have no conifers, whereas in Europe the Lower Bundsandstein has no fossils at all. Correlation of sections in these three regions on the basis of floral contents, the development of the flora, and faunal contents (Dobruskina, 1985, Albertiana, 3) also confirms the Triassic age of the Tunguska volcanics, which contain the Korvuntchanian flora. These results are in agreement with the comparative study of Triassic plants of the Tunguska and Kuznetz basins and the Taymyr Peninsula and Verkhoyansk Range made by N.K. Mogutcheva.

Most paleozoologists who deal with fossil ostracods, conchostracans, non-marine pelecypods, fishes, and tetrapods from the Tunguska volcanics considered them to be of Triassic age, although some think they are of Permian age. Such a controversy can be decided only after monographic studies of these fossils are completed. There is also the opinion that some controversies in age determination arose as a result of

incorrect correlations of some volcanic beds during geologic mapping of the Tunguska basin.

It is of interest that both Paleophytic and Mesophytic miospore complexes are present in the Tunguska volcanics. E.K. Obonitskaya considered the Paleophytic assemblages to be reworked, whereas V.V. Krugovykh has found in them the analogs of all Permian miospore complexes known in the underlying coal-bearing beds. Until now, macrofossil remains have not been found together with such miospore assemblages, but in some geological papers we can see the indications of the presence of **Cordaites** in the volcanics. Thus, one cannot eliminate the idea that the initiation of volcanic activity in Siberia began in the Permian. However, the Korvuntchanian flora began its existence in the Triassic.

In the near future, the following are planned: 1) a field trip to the Kuznetz basin by a group of specialists of different Triassic disciplines, 2) the collecting of vertebrate fossils in the Tunguska basin, and 3) a special palynological symposium, in conjunction with the All-Union Palynological Conference, on miospores of the Tunguska volcanics.

I.A. Dobruskina

CARBONIFEROUS-PERMIAN BOUNDARY IN USSR

Dear Dr. Nassichuk: (Newsletter Editor)

Dr. M. Durante told me about your desire to have me express my opinion on the problem of the Carboniferous-Permian boundary in the USSR. With pleasure I give you my consent though with some delay. But better late than never.

The Carboniferous-Permian boundary in the USSR is now considerably lower than the top of the **Shumardites-Vidrioceras** zone. While discussing this problem I was strongly against placing it lower and was supported by Drs. Stepanov, Bogoslovskaya, Kotlyar, Barskov and many other scientists. But as this boundary satisfied the geologists who were working within the Russian platform and mainly because in 1979, by ISC Decisions it had been defined at the top of the **Daixina sokensis** zone, our viewpoint has not been accepted and a decision was taken to change nothing, though it is obvious for all that such a variant of the boundary will hardly receive general acceptance. It seems to me that we must return to this problem. The exchange of opinions in "Newsletters" could stimulate this when the SCPS members will receive the monography under publication now with actual material.

Beginning in 1951, the lower boundary of the Permian in the USSR has been drawn officially at the base of the Asselian stage. At this level Orenburgian assemblages

of ammonoids were replaced by Asselian ones and the fusulinid assemblage of the Gzhelian zone - *Daixina sokensis* - by the assemblage zone *Schwagerina vulgaris* - *Schw. fusimormis*. The last one is the lowest of three zones of the Asselian stage.

In the Urals sequences, where the zones of the Asselian stage had been established, the zone *D. sokensis* is well expressed, but the lower zone of Asselian stage is practically free of *Schwagerina*. Instead of them the interval between the *D. sokensis* zone and the middle zone of Asselian stage includes a specific assemblage of fusulinids with characteristic *Daixina robusta* Raus., *Pseudofusulina? kljasmica sjom*, *Ps. orenburgensis* Dobr., and others.

By its position in the sequence this interval was identified as a lower zone of Asselian stage in the Urals/Kireeva et al. 1971/ (Fig. 1). The difference in composition of fusulinid assemblages in these layers was explained by different facies.

In 1974, while studying Carboniferous and Permian sequences in the South Urals, the fusulinids found earlier in the platform sequences, directly above the *D. sokensis* zone, were discovered by A.N. Polozova and V.P. Pnev in the layers which had been referred (V.E. Ruzhentsev) to Orenburgian stage. This raised the problem on elimination of this stage and inclusion of major part of it into the lower zone of the Asselian. This opinion was soon fixed by the Decision of the Inter-departmental Stratigraphic Committee of the USSR/ISC/. This Decision was expressed in the reports of the Soviet stratigraphers at the Carboniferous Congress in Moscow in 1975 too. Sequences in the Darvaz region (Central Asia), characterized by fusulinids near the Carboniferous-Permian boundary were described approximately at the same time. There were found typical assemblages from both the zone *D. sokensis* of the Russian platform and the zone *Schw. fusiformis* of the Urals. Herewith, these assemblages do not transit into one another as it was thought before and are separated by the above-mentioned assemblage. This assemblage of platform type occurs in the layers directly overlying the zone *D. sokensis* and identified with the lower zone of the Urals Asselian. These data were taken as a basis for distinguishing the new zone *Daixina bosbytauensis* - *D. robusta* between the Lower Gzhelian zone *D. sokensis* and the Lower Asselian zone *Schw. vulgaris* - *Schw. fusiformis* / Leven, Davydov, 1980/.

The conclusions received in the Darvaz were completely confirmed by studies of the South Urals sequences. The new zone appeared to correspond here to a part of Orenburgian stage by V.E. Ruzhentsev and is characterized by a corresponding assemblage of ammonoids. This brought forth the problem where to draw the boundary between Carboniferous and Permian systems: either at the base of the new zone or at its top? In the last case, this would completely coincide with the boundary drawn by Ruzhentsev when he had established the Asselian stage, i.e. by replacement of Orenburgian assemblages of ammonoids for Asselian one. It is fixed here by the appearance of index species in the lower zone of the Asselian stage - *Schw. vulgaris* and *Schw. fusiformis*. Both from the viewpoint of essence and from formal position, this variant of the boundary undoubtedly has an advantage over all others. However, the Carboniferous-Permian boundary in the USSR for many years was actually drawn considerably lower - at the top of the zone *D sokensis*, i.e. at the

base of the zone **Daixina losbytanensis** - **D. robusta**. It was caused by the wide interpretation of the zone **Schw. vulgaris** - **Schw. fusiformis** (with inclusion in it of the layers without species-indexes and included now into a new zone).

Thus, the distinguishing of the new zone revealed an essential discrepancy between formal and actually realized variants of the considered boundary. With an aim of elimination of this discrepancy in the spring of 1984 was held the Plenary Session of the ISC Commission on Carboniferous and Permian systems. By the Decisions of this Plenary Session, the zone **Daixina bosbytauensis** - **D. robusta** was introduced in the general scale for the Carboniferous and Permian, adopted in the USSR. It was included in the Asselian stage, which consists now of four zones instead of three zones as it had been before. With respect to the Carboniferous-Permian boundary, it was decided to legalize the status quo and to draw this boundary between the zones **S. sokensis** and **D. bosbytauensis** - **D. robusta**, i.e. lower than the level adopted earlier. This variant of the boundary encountered objections of many specialists and therefore, such a decision most likely cannot be regarded as final.

The substantiation of the zone **D. bosbytauensis** - **D. robusta** and discussions on the problem of Carboniferous-Permian boundary will be published in the monograph "Carboniferous and Permian boundary deposits of the Urals, Cisurals and Central Asia" in the nearest future. The monograph gives the layer-by-layer description of Gzhelian and Asselian sequences and fusulinids, ammonoids and conodonts found in them. It will be distributed to all SCPS members.

With best wishes.

E.Ya. Leven

FUSULINACEAN BIOSTRATIGRAPHY NEAR THE CARBONIFEROUS-PERMIAN BOUNDARY IN NORTH AMERICA

From: 1982 Neuvieme Congres international stratigraphie et de Geologic du Carbonifere; Compte Rendu, volume 2, Biostratigraphy (edited by P.K. Sutherland and W.L. Manger), Southern Illinois University Press, Carbondale and Edwardsville.

ABSTRACT: In the midcontinent and southwestern parts of the United States, a well-defined Upper Carboniferous and Lower Permian fusulinacean zonation has been established. Fusulinacean zones of the latest Carboniferous (Virgilian Series) are dominated by large, thickly fusiform **Triticites** and include rare **Schubertella**, **Dunbarinella**, **Waeringella** and **Pseudofusulinella** (*Daixina*) and **Triticites** identify this interval. In the Lower Permian (Wolfcampian Series) in the midcontinent and southwestern United States, three fusulinacean zones occur, and each has increasing diversity westward. The lowest zone contains **Triticites** (*Leptotriticites*) and **Triticites** (*Triticites*). **Pseudofusulina** (= *Schwagerina* of authors), **Schubertella**, **Oketaella** and **Pseudofusulinella** appear in this zone. In the Cordillera, this zone has abundant **Pseudofusulinella** and **Thompsonella**, and **Triticites** is common. The middle zone includes **Paraschwagerina**, **Pseudoschwagerina**, **Schwagerina**, **Stewartina**, and

Eoparafusulina (= **Alaskanella**). The highest zone includes most genera (except **Triticites**) of the lower two zones, as well as **Chalaroschwagerina**. Upper Carboniferous and Lower Permian zonation in the Arctic Islands and central Alaska is similar to that in Pechora and Timan, USSR. **Pseudofusulinella** and **Triticites** are common and **Pseudofusulina** (**Daixina**) appears near the top of the Carboniferous succession. Rare **Pseudoschwagerina** and common **Pseudofusulina** (**Rugosofusulina**) appear in the Lower Permian. The most diverse faunas and most complete stratigraphic and structural relations are complex. These faunas are the least well studied of those in North America.

C.A. Ross

THE PERMIAN AMMONOID URALOCERAS IN NORTH AMERICAN AND ITS GLOBAL SIGNIFICANCE

The lower Permian **Uraloceras** Ruzhencev is distributed in a rather narrow 'belt' from eastern California and Nevada northward through southern British Columbia, northwest Yukon Territory, eastern Alaska and Ellesmere Island. It is particularly abundant in the Ural Mountains but occurrences have also been recorded from Novaya Zemlya and Siberia. Elsewhere, a few species are known from Australia, Northern China (Gansu, Inner Mongolia) and Tibet. All representatives of the genus are confined to Sakmarian and Artinskian strata and are generally thought to characterize a non-Tethyan or Boreal paleogeographic realm. At single localities in the Yukon and in Tibet, however, **Uraloceras** occurs in sequences that contain representatives of typically non-boreal ammonoids of the Perrinitidea which are most commonly confined to relatively lower present-day latitudes such as Texas, northern Mexico and Timor. In California and Nevada, **Uraloceras** marks the southern limit of a late Sakmarian or early Artinskian Boreal sea in North America. Curiously, other Boreal ammonoids appeared in western North America slightly later in early Permian time; that is, during the Roadian, and those also occupied a narrow 'belt,' closely parallel to the **Uraloceras** 'belt.' **Daubichites** Popov characterizes the Roadian Boreal realm in western and Arctic North America; its southernmost occurrence is in the Phosphoria Formation of Idaho and its northernmost in the Assistance Formation in Melville and Devon Islands, Arctic Canada. Elsewhere in the world the distribution of **Daubichites** is comparable to **Uraloceras**; that is, it occurs in Siberia, Australia, and China.

Claude Spinosa
W.W. Nassichuk

PERMIAN CORAL STUDIES

Three Permian coral papers have recently been submitted for publication: 1. The first volume of the monographic description of the rugose coral fauna collected by Dr. G.A. Cooper / Smithsonian Institution, Washington / in the Glass Mountains, Texas and vicinity. The volume contains the palaeontological descriptions of the Gaptank Formation and the Wolfcamp nondissepiment rugose corals. The table of

the occurrence may help in the stratigraphic comparisons, although the detailed zonation was postponed to the last volume of the monograph.

2. **The introductory description of a new suborder of the rugose corals from the same collection.** Only the Wolfcamp taxa / two new families, three new genera, and ten new species / were considered, although the suborder is traceable up to the Guadalupian.

3. **The paleogeography and relationships of the rugose coral faunas from the Carboniferous/Permian boundary.** It has been stated that the world's coral faunas form two almost entirely separated realms. The inter-realms correlations seem hardly possible, but corals can support the intra-realms stratigraphy.

References:

Fedorowski, J. Upper Palaeozoic rugose corals from southwestern Texas and adjacent areas. Part 1. *Palaeontologia Polonica*, 1986.

- Diffingiina, a new suborder of the rugose corals from SW Texas. - *Acta Palaeontologica Polonica*, 1985
- The rugose coral faunas of the Carboniferous - Permian boundary. - *Ibidem*, 1986.

Jerzy Federowski

JAPANESE WORKING GROUP ON PERMIAN STRATIGRAPHY

Dear Dr. Nassichuk: (Newsletter Editor)

Thank you indeed for sending the most welcome SCPS Newsletter 9. I am happy to inform you that we are approaching formulation of the Japanese Working Group on Permian Stratigraphy, and that we may join the Permian Meeting which will be held during the XI ICCSG in Beijing with some progressing scientific results.

I am also very glad to announce that a big book on the "THE TETHYS - her paleogeography and paleobiogeography from Paleozoic to Mesozoic" edited by K. Nakazawa and J.M. Dickins will be released next month. I will send a copy with pleasure to you as soon as it is published.

Last summer I took a trip to the Svalbard Islands from the middle of July to the end of August, in order to investigate the Permian-Triassic boundary and the Permian biostratigraphy. In this connection, I am very much interested in the same problems in the Canadian Arctic Archipelago.

Koji Nakamura

**THE TETHYS - her Paleogeography and Paleobiogeography
from Paleozoic to Mesozoic**

edited by
K. Nakazawa and J.M. Dickins

PREFACE

PART I GENERAL REVIEW

**Paleogeography of the European Tethys from Paleozoic to Mesozoic and the Triassic
Relations to the Eastern Part of the Tethys**

A. Tollmann and E. Krystan-Tollman

Permian and Triassic Paleogeography of the Himalayas

H.M. Kapoor and T. Tokuoka

Sedimentary Facies and Paleogeography of South China

J.-Z. Sheng, C.-Z. Chen and Rui Lin

Palaeobiofacies and Palaeobiogeography of Gondwanaland from Permian to Triassic

J.M. Dickins

The Permian and Triassic Systems in the Tethys - their Paleogeography

K. Nakazawa

PART 2 PALEOBIOFACIES AND PALEOBIOGEOGRAPHY

**Biostratigraphical Significance and Faunal Provinces of Tethyan Late Permian
Smaller Foraminifera**

Y. Okimura, K. Ishii, and C.A. Ross

Notes on Tethys Biogeography with Reference of Middle Permian Fusulinaceans

K. Ishii, Y. Okimura, and K. Ichikawa

Late Permian to Early Triassic Conodont Paleogeography in the Tethyan Realm

T. Matsuda

Paleogeographic Distribution of Permian and Triassic Ectoprocta (Bryozoa)

S. Sakagami

Permian Paleobiogeography of Brachiopods based on the Faunal Province

K. Nakamura, D. Shimizu, and Z.-T. Lia

**Floral Change from Permian to Triassic and Some Problems on paleogeography,
Parallelism, Mixed Flora, and Origin of Angiosperms**

K. Asama

PART 3 PERMIAN AND TRIASSIC SYSTEMS IN THE SALT RANGE AND SURGHAL RANGE, PAKISTAN
Pakistani-Japanese Research Group

Introduction and Acknowledgements

Stratigraphy of the Permian Zaluch Group

Lithofacies Change and Sedimentary Environments of Zaluch Group

Fossil Assemblage and Age-assignment of Zaluch Group

Stratigraphy of the Lower Triassic Mianwali Formation

Lithofacies and Sedimentary Environments of Mianwali Formation

Boron Content of Carbonate Rocks of the Upper Permian and Lower Triassic Formations and its Implication

Summary of the Results

CONFERENCE ANNOUNCEMENT

**"The Permian and the Permo-Triassic Boundary
in the Western Tethys (N. Italy and N. Yugoslavia)"**

July 4 - 12, 1986

This conference and its associated excursions will be part of the scientific activities promoted in 1986 by the Italian Geological Society and by the working groups involved in IGCP Project 203 ("The Permo-Triassic events of the Western Tethys region and their intercontinental correlation"). The proposed aim of the conference is 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 intended to stimulate the development of regional comparisons and their discussion.

To this end, following a six-day preliminary excursion through the Karawanken Range and the eastern Southern Alps, during which mainly the units between the Gardena Valley Sandstones and the Werfen Formation will be examined, a scientific conference will be held in Brescia on July 10th and 11th to air the current state of knowledge of the Permian and the Permo-Triassic boundary, as well as other relevant aspects of the Tethyan realm. By means of separate sessions, it is hoped to promote an in-depth exchange of ideas on specific topics of the conference.

A further one-day excursion will be dedicated to the well-known Permian continental section exposed between the upper Trompia Valley and the Adamello

Massif. The conference will be concluded in the field during the early afternoon.

Persons interested in taking part in the conference and its excursions are invited to contact Prof. Giuseppe Cassinis (Department of Earth Sciences, Geology-Palaeontology Section, Università degli Studi, Strada Nuova 65, 27100 Pavia, Italy). The programme, with organizational and scientific details, will be circulated before the end of the year to all those who have responded to this announcement.

Note that for logistic reasons the excursions will be limited to 80 participants (precedence will be given according to the date of registration). The envisaged registration fee for both the conference and excursions will be approximately \$US400.

The Italian IGCP Group 203