

S C P S NEWSLETTER 3

IUGS Subcommittee on Permian Stratigraphy

Chairman: Prof. D.L. Stepanov
USSR 199178 Leningrad B-178
16 Linia 29
Kafedra paleontologii
Leningrad University

Secretary & Vice-Chairman: S.V. Meyen
USSR 109017 Moscow 17
Pyzhevsky per. 7
Geological Institute of the
USSR Academy of Sciences

April 1980

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PLEASE MAIL NEWS AND CORRESPONDENCE TO YOUR SECRETARY
FOR INCLUSION IN THE NEXT SCPS NEWSLETTER
THE VIEWS EXPRESSED IN THE NEWSLETTER
ARE THOSE OF ITS CORRESPONDENTS

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EDITORIAL

Dear Permophiles,

The present issue of our newsletter includes not only news relating to SCPS directly, but some other materials of general interest as well. The amount of materials received from SCPS titular and corresponding members is as previously rather limited. I suspect that some members of SCPS who promised to duplicate the issues of SCPS Newsletter for further distribution among permophiles do not perform this function properly. I am asking them to do this job at least for the present issue.

I quite agree with our future chairman Prof. Brian F. Glenister who wrote in a letter to Dr. J. M. Dickins (March 3, 1980; copies to W.W. Nassichuk and me): 'Thinking in general terms, it seems to me that the best hope or future Subcommittee progress is in improvement of communication between Titular Members and a drastically increased number of Corresponding Members. Any active researcher should be offered a platform for rapid transmittal to interested colleagues via a revitalized Newsletter. In this way we can hope to provide a foundation for real progress on those relatively few occasions when conferences are feasible'.

S.V. Meyen

John D. ...
12/2/80

ELECTION OF SCPS NEW OFFICERS

After the International Geological Congress in Paris the following new officers of the Subcommittee will function:

Prof. Brian F. GLENISTER. Department of Geology, Trowbridge Hall, The University of Iowa, Iowa City, Iowa 52242 U.S.A. - Chairman

Dr. W.W. Nassichuk. Institute of Sedimentary and Petroleum Geology, 3303-33rd St., N.W., Calgary, Alberta T2L 2A7 Canada - Secretary

Dr. S.V. Meyen. USSR 109017 Moscow 17 Pyzhevsky per. 7, Geological Institute of the USSR Academy of Sciences - Vice-Chairman

Your secretary received the following letter of February 1, 1980 from Dr. Richard E. Grant, Chairman, Nominating Committee, Subcommittee on Permian Stratigraphy:

Dear Dr. Meyen:

As Chairman of the Nominating Committee of the Permian Subcommittee I can now report that the proposed slate of officers has been approved unanimously. I received 11 replies, and the stipulation was that unreturned ballots would be regarded as affirmative, hence unanimity! I have notified Dr. Glenister, Dr. Nassichuk and yourself, as well as the 2 members of my nominating committee. I presume that it is now up to you as current Secretary to make the results known to the membership at large. I am not certain when the new officers begin their terms, but I presume it will be at the International Congress in July. I personally thank you for your efforts as secretary, and hope that you will convey thanks to Dr. Stepanov for his role in organizing the Subcommittee.

IGC MEETING OF SUBCOMMISSION IN PARIS

This is to confirm that a scientific and business meeting of the subcommittee will be held during the IGC in Paris. The subject of the scientific discussion will be "Subdivision of the Permian and its boundaries with the Carboniferous and Triassic". The time should be included in the program of the conference, but I hope it will be possible to let you know individually about this before the Congress.

Although it is planned that the scientific sessions should be fairly informal, those who intend to speak should let me know together with the topic of their contribution. Professor Dr. Erik Flügel, Institut für Paläontologie, Universität Erlangen-Nürnberg, Bundesrepublik Deutschland, is prepared to organize a field visit to the Carnic Alps in order that a working group could examine the Permian units and the Permian-Triassic relationships. This would serve for the initiation of later examination by a subcommittee working group of other critical sequences for the Permian and its boundaries. I would urge the acceptance of this offer, and I and Professor Flügel will not be going to Paris and would meet us directly in the field at Carinthia, Austria, at the end of the Congress. Those of us who intend to participate would need to make our own arrangements to get to Carinthia.

March 12, 1980

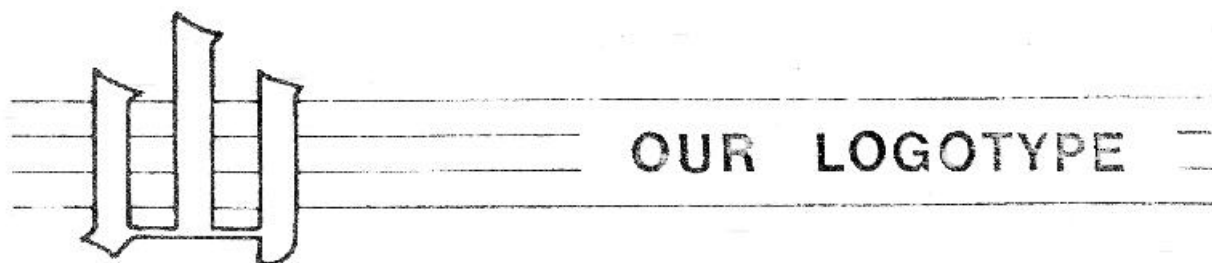
(J.M. DICKINS)
for Subcommission on Permian Stratigraphy
Bureau of Mineral Resources,
P.O. Box 378,
Canberra City, A.C.T., 2601, Australia

LOGOTYPE OF ICS

Prof. Anders Martinsson, Chairman, International Commission on Stratigraphy, informed your secretary about the ICS Logotype in the following letter.

Uppsala, 8th March 1980

To all Members of the Commission



After having searched for years for a logotype which presents an alternative to the traditional hammer, sometimes crossed with a pick, map or even a punch-card, we have now ended up with the Chinese logograph for *shan*, mountain, in the “type-face” reproduced above. There are many varieties, namely, simplified like “sanserif” in ordinary Latin or Cyrillic typography or strongly stylized. However, we have chosen a design as you mostly find it in Chinese and Japanese newspapers and books, adapted for printing out still with the serif-like tips taken over from calligraphic brush-painting.

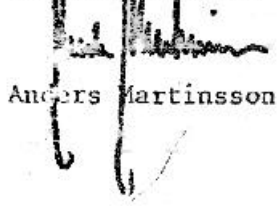
The logotype may be used by all Commission bodies, alone or against a background of four thin lines, symbolizing the three Eons of the history of the Earth and their boundaries, the uppermost one of which it is not yet our task to define. The lines may be drawn out across, e.g., your letterhead and be deformed by tectonics. It is recommendable to contour the logotype as above or print it in colour - if you use it in solid black and with the lines, try to avoid an impression of a clef for music. Use the size you prefer but keep strictly to the details of the design.

The background to the logotype is by no means that China has suddenly become our most active member country but that *shan* has such a concrete origin in a symbol naturalistically depicting three mountain peaks. In the upper of the two lines below you will easily identify this primordial (Anyang) ideograms as number three, and below you will recognize it as stylized in bush-painting. At the far right you will find the print which Mr. Yang Zhiling, Geological Society of China, kindly place at our disposal and which was used as our base.

日月山馬魚子
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Yours sincerely,



Anders Martinsson

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ORRELATION OF COAL-BERING FORMATIONS”

All permophiles dealing with coal-bearing formations ae kindly invited to participate in the following UNESCO Project:

INTERNATIONAL GEOLOGICAL CORRELATION PROGRAMME

Project No. 166

“Global correlation of geological processes of accumulation and transformation of coal-bearing formations and recent peat accumulation in the Earth’s crust continental blocks and their oceanic margins (1979-1988)”

(The short title - “Correlation of coal-bearing formations” or the CCF Project)

The present state of the world energy resources necessitates the coal-geologists to join their efforts for global investigations aimed at the profound study and correlation of peat deposits and coal-bearing formations, maintaining the principal world reserves of solid fuel and metallurgic raw material. Of primary importance is the fact that due to decrease of oil and gas output and exhaustion of their reserves the share of coal will increase in the fuel-energy balance of most countries.

The coal-bearing formations are most variable in their stratigraphy, structural-tectonic location, thickness, facial composition, rank of coal, etc. Our knowledge of coal-bearing formations, especially of their detailed stratigraphic subdivision, genesis and distribution as well as their modern counterparts are insufficient.

To meet these needs and to improve our knowledge the project CCF sponsored by UNESCO was organized within the International Geological Correlation Programme. The project covers the following topics:

1. Stratigraphy of coal-bearing formations
2. Sedimentogenesis and classification of processes of accumulation of coal-, oil-shale-, and peat-bearing formations
3. Tectonic evolution of coal-bearing formations
4. Processes of transformation of organic matter
5. Processes of transformation of embedding rocks
6. Criteria of prospecting of solid fuel, its global distribution and resources.
7. Geochemical characteristics of coal-bearing formations
8. Geophysical characteristics of coal-bearing formations

The main aim of the stratigraphical part of the project is to establish zonal subdivisions of major coal basins according to different organic groups, integration of the subdivisions with that of palaeoclimatic, palaeomagnetic and other grounds, and correlation between zonal schemes of different basins. The work should result in detailed unified schemes of zonal subdivision for major palaeogeographic areas such as Angaraland, Equatorial Belt and Gondwanaland of the Upper Palaeozoic. A good example of such subdivision for a certain region has been provided by "Report of Commission Internationale de Microflore du Paléozoïque Working Group on Carboniferous stratigraphical palynology" (G. Clayton et al. 1977. Carboniferous miospores of Western Europe: Illustration and zonation. Meded. Rijks. Geol. Dienst, vol. 29). Comparable work can be done in other areas and for other groups of fossils.

The work on the project proceeds in national working groups. As an example an activity of Soviet stratigraphers participating in CCF is briefly outlined below.

Within the Soviet Working Group of CCF, regional stratigraphic subgroups has been organised. Every subgroup is responsible for a certain coal basin and unites specialists of different organizations working in the basin. The subgroups follow a standard programme which may be modified depending on local conditions. The programme stipulates selection and detailed study of several key sections in every basin. Key sections should be measured according certain standards with all possible kinds of sampling. Additional sections, when necessary can also be measured. All the materials collected will be analyzed, identified, described or otherwise treated by a team of competent specialists working in different organizations. To achieve agreement between specialists all the results (including lists of fossils coming from key sections) are to be approved at special annual colloquia of competent specialists. Divergences in opinions are carefully recorded and recommendations on necessary further studies are accordingly given.

At the next step correlation charts between key sections are prepared. The charts will be discussed on a permanent basis at annual 'regional stratigraphical colloquia'. The colloquia recommend direction of further studies. Interbasinal correlation charts and their relating zonal schemes will be discussed at 'interregional stratigraphic colloquia'. The final stage of the work is the correlation between zonal units of every basin and international chronostratigraphical units. Besides colloquia, regular field excursions to more important sections are planned. Without such excursions no formal decisions on units and boundaries should be made.

The results of the work are planned to be regularly issued as reports containing the description of key sections, illustrations and descriptions of guide fossils, correlations charts, etc. Comprehensive monographs on the stratigraphy of major basins are planned as final published results.

The stratigraphic work is performed jointly with commissions of the Interdepartmental

Stratigraphic Committee of the USSR. Field works according to the aforesaid programme will begin in 1980. Some colloquia of specialists were held in 1979 and 1980, others are currently organized. Stratigraphical investigations will be accompanied by monographical study of more important fossil taxa. To this aim a regular exchange of material between specialists will be stimulated.

The stratigraphical studies within the CCF project must not be a merely compilation of older data. The project should serve as a basis for a much more detailed study of coal-measure stratigraphy according to a unified approach and should result in much more reliable standard zonal stratigraphy than presently available. Readers of the present informations are invited to join the project. Details can be obtained from Dr. S.V. Meyen, USSR 109017 Moscow 17, Pyzhevsky per. 7, Geological Institute of the USSR Acad. Sci., or from Prof. Dr. P.P. Timofeev (leader of the Project) and Dr. B.V. Polyansky (secretary of the Project), same address.

S.V. Meyen

SCPS VICE-CHAIRMAN IN CHINA

W. W. Nassichuk (Canada) led a delegation of Permian and Triassic specialists from Canada to the Peoples Republic of China in order to examine the Permian-Triassic boundary in South China and to lecture on Permian and Triassic geology of North America. Dr. Nassichuk's comments on the boundary and areas visited in South China are as follows:

During October and November, 1978 four Canadian geologists visited the Peoples Republic of China, as part of an exchange organized by Academia Sinica and the Geological Survey of Canada. The purpose of the trip to China was to examine Upper Permian and Lower Triassic successions and especially the Permian-Triassic boundary in South China. Included in the Canadian delegation were W. W. Nassichuk (Permian ammonoids), E. T. Tozer (Triassic ammonoids), J. Utting (Permian palynomorphs) and J. Monger (tectonics). Subsequently, during August and September, 1979, five Chinese specialists in Permian and Triassic biostratigraphy and tectonics visited Permian and Triassic successions in Canada.

An important paper on the Permian-Triassic boundary in South China has recently been published by one of the Canadian delegates, E. T. Tozer, in Canadian Journal of Earth Science, 1979, vol. 16; "The significance of the ammonoids *Paratirolites* and *Otoceras* in correlating the Permian-Triassic boundary beds of Iran and the Peoples Republic of China". W. W. Nassichuk presented a summary of Permian stratigraphy in South China to a meeting of the Permian Subcommittee in Washington, in May 1979. Permian rocks are widely distributed in China and distinctive paleogeographic realms are clearly apparent for a variety of faunal groups. It is most fortunate for Permian studies on a global scale that details of Permian stratigraphy, faunas and floras are being documented in the literature with increasing frequency.

Considerable work has been completed by Chinese scientists on the Permian-Triassic boundary in South China and it is possible that some aspects of that research will be presented at the next International Geological Congress in Paris. A most effective Working Group dealing with the Permian-Triassic boundary in China has been organized in the Nanking Institute of Geology and Paleontology and includes: Chao, King-koo (Permian ammonoids), Sheng, Jiu-chang (Permian fusulinaceans), Liang, Zi-luo (Permian ammonoids), Rui, Lin (Permian fusulinaceans), Liao Zhuo-ting (Permian brachiopods), Wang, Yi-gang (Triassic ammonoids), and Chen, Chu-zhen (Triassic bivalves).

The base of the Triassic and, therefore, the Permian-Triassic boundary is generally defined

at the base of the *Otoceras woodwardi* Zone as developed in the Himalayas. Besides the Himalayas, beds containing well preserved representatives of *Otoceras* are known only from Alaska, northern Canada, Spitsbergen, Greenland and Siberia. In all of these places uppermost Permian strata are absent. Poorly preserved specimens of *Otoceras* from Kiangsu Province in South China described by Hsu (1937) have long been considered to be questionable because sutural details were obscured. Examination of the specimens by Tozer while in China confirms that they are indeed *Otoceras*.

Thus, South China is the only place in the world where representatives of both *Otoceras*, which characterizes the oldest Triassic and *Paratirolites*, which characterizes the youngest Permian; that is, the Changxingian Stage, occur. Even though there is now no doubt that both *Otoceras* and *Paratirolites* occur in South China they have not yet been found in sequence in the same stratigraphic section. *Paratirolites*, described as *Schizoloboceras* by Zhao, Liang and Zheng (1978), occurs in the Changxingian Talung Formation in Kiangsi Province (Tozer, 1979). The presence of *Paratirolites* in upper Changxingian strata in South China suggests correlation with Dorashamian strata in Transcaucasia and with the Ali Bashi Formation in Iran.

Until recently, Chinese geologists have maintained that Upper Permian rocks in South China are disconformably overlain by Lower Triassic rocks and that the boundary between the two systems is marked by a hiatus. This point of view has changed rather dramatically in recent years with discovery of a widespread "mixed fauna" in the lower 20 cm of the Lower Triassic Chinglung and equivalent formations. The "mixed fauna" contains abundant small brachiopods of Permian aspect and fragments of the Triassic bivalve *Claraia wangi*. Brachiopods in the "mixed fauna" include species of *Acosarina*, *Waagenites*, *Paryphella*, *Neowellerella*, *Crurithyris*, *Paracrurithyris*, *Araxathyris* and *Lingula*. Although it is entirely possible that the "mixed fauna" contains reworked Permian materials deposited during Triassic time, a point of view that is widely held by Chinese paleontologists is that the "mixed fauna" represents a depositional transition from Permian into Triassic without a significant hiatus.

Permian and Triassic successions were examined in four provinces in South China by the Canadian scientists. Near Nanking, in Kiangsu Province the lower Triassic (Griesbachian) Chinglung Formation, which is known to contain *Otoceras* near its base, overlies shales and siltstones of the Changxingian Talung Formation. It is from this region that Hsu (1937) described *Otoceras*. In Chekiang Province, near the town of Changxing, the type-section of the uppermost Permian Changxing Formation was visited. The type section contains 32 cm of well-bedded, fossiliferous limestones which overlie shales and coaly beds of the Lungtan (Dzhulfian) and which are overlain by mudstone of the Lower Triassic Chinglung Formation. In Kiangsi Province near the towns of Ichum and Anfu, the Loping coal series, with abundant otoceratacean ammonoids was exposed in deep trenches which were dug specially for the Canadian visitors. In Kiangsu, Chekiang and Kiangsi most Permian and Triassic rocks have experienced considerable tectonic deformation during mid-Mesozoic orogenesis but farther to the west, in Kweichow Province, Permian and Triassic strata are relatively little deformed. In Kweichow Province, near Kweiyang and Anshun the Changxing Formation and its lateral clastic equivalent, the Talung Formation rests on the Lungtan coal series and is overlain by mudstones of the Lower Triassic Tayeh Formation which contains abundant *Claraia* and crushed ammonoids.

AMMONOIDS AND BIOSTRATIGRAPHY OF CHINA

W. W. Nassichuk Notification of recent important publications dealing with Permian ammonoids

and biostratigraphy of China.

Zhao Jinke* and Zheng Shuoguan (1977). The Permian ammonoids from Zhejiang [Chekiang] and Jiangxi [Kiangsi]. *Acta. Paleont. Sinica*, 16, 217-254, 5 pls., 17 text-figs. [Chinese with English abstract]. A review of this paper by Brian F. Glenister, W. W. Nassichuk and W. M. Furnish was recently published under the title "Ammonoid successions in the Permian of China". *Geol. Mag.*, 1979, 116(3), 231-239.

Zhao Jinke*, Liang Xiluo, and Sheng Shuoguan (1978). Late Permian cephalopods of South China. *Palaeontologia Sinica* 154, New Series B, 12, 163 p. 34 pls. [Chinese with 16 page English abstract].

Tozer, E. T., (1979). The significance of the ammonoids *Paratirolites* and *Otoceras* in correlating the Permian-Triassic boundary beds of Iran and the Peoples Republic of China, *Canadian Journal of Earth Science*, 16, 1524-1532.

* formerly Chao, King-koo

THE 2-nd ALL-CHINA STRATIGRAPHICAL CONGRESS

The following article is taken with abbreviations from 'Circular No. 59' of February 25, 1980, of 'International Subcommittee on Stratigraphic Classification' issued by A. Salvatore, Chairman:

"The Second All-China Stratigraphic Congress was held in Beijing (Peking) on November 15-19, 1979. The Second Congress was jointly organized by the national Commission of Science and Technology, the National Bureau of Geology, and the Academia Sinica. Mr. Wu Heng, Vice Chairman of the National Commission on Science and Technology, was Chairman of the Congress, and Mr. Zou Jiayou, President of the Chinese Academy of Sciences, was the Secretary General.

More than 600 Chinese stratigraphers attended the Congress. They were joined in four days of technical sessions by eleven invited foreign stratigraphers from the Federal Republic of German, Hong Kong, Japan, New Zealand, the United States, and Venezuela. Dr. H.D. Hedberg and Im were among the eleven foreign stratigraphers attending the Congress.

The first three days of the Congress were devoted to the presentation of papers by Chinese stratigraphers. During the morning of the fourth day of the Congress, some of the foreign guests read papers on their respective specialities. Dr. Hedberg spoke about "Progress and Problems in Stratigraphical Classification," and I reviewed the work and plans of the ISSC in a paper entitled "The International Subcommittee on Stratigraphic Classification and its International Stratigraphic Guide".

During the afternoon of the fourth day several round-table discussions were held on more specific themes: stratigraphic classification, and Lower Paleozoic, Continental Mesozoic, and Quaternary stratigraphy. Each of the round-table discussions was attended by 25-30 Chinese specialists on the particular subject and one or two of the foreign guests.

The papers presented by the Chinese stratigraphers were mainly concerned with the achievements and most important advances of the stratigraphic studies in the People's Republic of China during the past twenty years. A very timely paper by a working group of the Institute of Geology of the Academia Sinica discussed the work now in progress toward the publication of a revised version of the Chinese Stratigraphic Code which will follow very closely the principles and procedures recommended in the International Stratigraphic Guide.

After the Congress, the foreign participants had the choice of attending one of four well-planned and informative geologic excursions: to the classic Upper Precambrian section in

Tienchin, to the Paleozoic section along the Yangtze Gorge in Hubei, to the Mesozoic sequence in the Sichuan Basin, or to the Paleozoic exposures near Nanking.

The foreign participants were unanimously impressed by the strong desire of the Chinese stratigraphers to raise and modernize the level of their knowledge in order to overcome the years of scientific isolation, and by the preeminent recognition given to stratigraphy by highly-placed Chinese government officials. These points were clearly emphasized by Mr. Sun Daguang, Minister of Geology, in his message to the participants during opening ceremonies of the Congress. In his own words: "We have keenly felt that stratigraphic work is the important basic work in the geologic field. Without stratigraphy there will be no structural geology, without correct stratigraphic subdivisions and correlation the geological mapping and the compilation of all kinds of geological maps will be impossible, and without stratigraphic work we cannot correctly conduct ore searching and exploration".

MICROPALAEONTOLOGICAL WORKING GROUP

Dr. H. Kozur (Meiningen, DDR), form letter of November 11, 1979: "In the micropalaeontological working group I have submitted a joint paper on the newest results in conodont biostratigraphy of the Permian particularly in the Uralian type region, Svalbard, S. China, Kashmir, Iran and Transcaucasia. This paper will be published under the authorship of all members of the working group who have answered to my first circular. A refined conodont zonation is discussed. The Chihsian stage of the type region is of about the same age as the Roadian in the USA. The Permian-Triassic boundary and the correlation of the S. Chinese and Iran-Transcaucasian Upper Permian successions are discussed in detail. The conodont fauna described by Szaniawski and Malkowski from Svalbard was revised. Neostreptognathodus svalbardensis is a younger synonym of N. transitus Kozur as shown by stereoscan micrographs. Nestreptognathodus pnevi, a guide-form for the basal Kungurian Shurtan Formation, is also present in the Svalbardian of Svalbard. The Svalbardian begins in the Uppermost Artinskian or the basal Kungurian."

VIEWPOINT OF A ZECHSTEINOLOGIST

Prof. D.L. Stepanov received the following letter from Dr. D.B. Smith, UK (cc: Dr. S.V. Meyen):

"I appreciated receiving the SCPS Newsletter Number 2 recently, and learning of your activities and the activities of some of my colleagues of the IUGS Subcommittee on Permian Stratigraphy. It is interesting to see that some of my colleagues are now moved to write to you in the hope that we will start to make some substantial progress in the future, and it is interesting to see that way their thoughts are taking them.

Whilst not wishing to start a lengthy correspondence myself, I particularly approve of the letter from Taraz, because, although I do not agree wholly with what he says, I certainly sympathise with the gist of his feelings. I feel reasonably sure that in the long run most major decisions regarding the position of the bottoms and tops of biostratigraphic units will be fixed on the basis of fossils as judged by you paleontologists; having said that, though, I am keenly aware

that it is very easy, without a lot of field experience, to overlook the evidence of paraconformity and non-sequences, particularly in shallow-water rocks where depositional breaks are possibly abundant but difficult to recognize. For this reason, should our Subcommittee be seriously considering setting up working groups to collect from and survey in detail sequences of rocks that might ultimately become standards, I hope you will find it possible to include at least one sedimentologist so that these possibilities are fully taken care of.

From the point of view of a western European Zechsteinologist, I feel particularly vulnerable to charges of inactivity; I am sure that you understand this, because in Western Europe we are dealing with an atypical sequence in which the biota is peculiar to the region and strongly controlled by local or limited regional features. An it is most difficult for us to relate most of these features to those of Permian rocks in other parts of the world. For this reason, except for those of us who are specialists in micro-palaeontology and palynology, we must wait on the side lines until it has proved possible to reach an agreement on world stratigraphical Permian stages and groupings. It is not that we wish to be unhelpful or uncooperative, but we are awaiting a standard with which we can compare our own work in the years to come. What I am saying, I suppose, is that inactive is not necessarily synonymous with lazy!"

GUIDE ON MAGNETOSTRATIGRAPHY

IUGS International Subcommittee on Stratigraphic Classification (Chairman, Amos Salvador, USA) and IUGS/IAGA Subcommittee on a Magnetic Polarity Time Scale (Chairman, Neil D. Opdyke, USA)

"Magnetostatigraphic polarity units - A supplementary chapter of the ISSC International Stratigraphic Guide" Geology, vo. 7, pp. 578-583, December 1979.

'CONCEPT AND METHOD IN PALEONTOLOGY'

International Symposium on "Concept and method in Paleontology" will be held in Barcelona, in May 1981, organized by the Facultat de Geologia, Universitat de Barcelona (Departament de Paleontologia), to discuss the methodological problems of paleobiology and biogeology. The invited papers will be presented in a time not exceeding 30 minutes followed by a 10 minute discussion. It is foreseen to publish all the invited papers. Free contributions will be allowed 15 minutes for presentation, and 5 minutes for discussion. Their publication is not guaranteed. The Symposium includes the following topics: Scientific method and paleontology. Form, function and evolution in paleontology. Environmental paleontology (taphonomy, paleoecology and paleobiogeography). Biostratigraphy. Teaching. Divulcation via publication. Applied paleontology.

The official languages of the Symposium will be English, Spanish, and Catalan.

For details write to Dr. Jordi Martinell, Secretary of the Symposium, Department de Paleontologia, Facultat de Geologia, Univ. Barcelona, Gran Via de les Corts Catalanes, 585 Barcelona 7, SPAIN.

PATRIKA - Newsletter of Indian Association of Palynostratigraphers, No. 2, December 1979, was recently distributed.

Address: Janki Bhawan, 41/417, Narhi, Lucknow-226001, INDIA.

