

PALYNNOS

Volume 13, No. 2 - December 1990

NEWSLETTER of the INTERNATIONAL FEDERATION of PALYNOLOGICAL SOCIETIES

IFPS MINI-COUNCIL MEETING

Because of the widely-scattered geographical locations of the 30 IFPS Officers and Councillors, it is obviously difficult to obtain a quorum of the Executive, except during the business meetings held at the quadrennial International Palynological Congresses (IPCs). Accordingly, most routine IFPS business between congresses is conducted by mail and facsimile messages.

Although IFPS President **Henk Visscher** and Secretary-Treasurer **Wim Punt** have met informally from time to time with some of the European Councillors during the past two years, the occasion of the recent AASP-CAP meetings in Banff (Alberta, Canada) provided Pres. Visscher with the opportunity to meet formally with several IFPS Officers and Councillors simultaneously. A brief summary of this "Mini-Council" meeting follows:

I. Introduction

President **Visscher** called the meeting to order at 8 p.m. on October 9 in the Normandy Room of the Banff Springs Hotel. In attendance were: **Mike Boulter** (BMS Councillor), **Jim Canright** (*Palynos* Editor), **David Jarzen** (CAP Councillor), **Susan Jarzen** (Recorder), **Harold Kaska** (AASP Councillor), **Doug Nichols** (AASP Councillor) and **Colin McGregor** (Immediate Past-President).

II. International Palynological Congresses (IPCs)

A. 7th IPC (Brisbane, August 1988):

President Visscher reported that the Treasurer of the 7th IPC has recently forwarded a substantial

check to the IFPS Secretary-Treasurer. This check represents the surplus remaining after all congress bills were paid.

The Proceedings of the 7th IPC have been bound together in two special issues of the *Review of Palaeobotany and Palynology*; these are scheduled to be mailed to the Congress participants by the Elsevier Publishing Company (Amsterdam) by the end of the current year.

The final text of the revised IFPS Constitution, including the amendments accepted by the General Assembly at Brisbane, was mailed to the Councillors in November. The principal change designated the Newsletter Editor as one of the four officers on the IFPS Council. This necessitated alteration of the wording on Articles 8, 12 and 14.5.

B. 8th IPC (Aix, France, September 1992):

The first Circular has been widely distributed earlier this year. It was emphasized that the Second Circular will be sent (in 1991) only to those responding to the First Circular. Advance plans for the 8th IPC are reportedly proceeding smoothly.

C. 9th IPC Proposals:

To date, President Visscher has had no serious inquiries from any of the IFPS-affiliated societies regarding their possible hosting of the 9th IPC in 1996. It was pointed out that it is not too early for societies to formulate plans for definite proposals for the 9th IPC; selection of the host society will be made by the IFPS Council when they meet in Aix in 1992. Accordingly, all proposals should be in the hands of the councillors by mid-1992 at the latest.

III. Number of Councillors/Society

It was pointed out that the IFPS Constitution (Art. 8) provides for two councillors from any affiliated society having more than 200 members; all others have but a single councillor. At the present time (based on societal dues received by IFPS in 1990), one society that has had 200+ members since joining IFPS may have to forfeit a councillor because of declining membership. However, another society's membership has apparently burgeoned above 200, thus may be eligible for the appointment of an additional councillor. The members of Mini-Council advised the president that decisions on these cases will have to be made at a meeting of the full Council at Aix in 1992. Furthermore, it was suggested that it may be necessary to amend Articles 8 and 13 of the Constitution in order to avoid similar problems in the future.

IV. *Palynos* Report

The editor, **Jim Canright**, handed out copies of his report on the costs of production and distribution of the most recent four issues of *Palynos*, as well as a report on the kinds of news coverage obtained in these issues (see summary below). These data indicated that, with the considerable savings gained by having our newsletter produced by a university press, plus the recent postage reductions made possible by the use of International Surface-Air Lift (instead of AO-Airmail), for the first time it is at least *theoretically* possible to produce and deliver two 8-page issues/year to each society member for the US \$1.00 dues that they pay annually.



A&C— Attendees at IFPS Mini-Council meeting, Banff, Alberta. A (Left to Right): Jim Canright, Henk Visscher, Colin McGregor, Harold Kaska. C (Left to Right): Mike Boulter, Doug Nichols, Susan Jarzen, David Jarzen.

B&D— Seen at the AASP "Icebreaker," Banff Springs Hotel, Oct. 10, 1990

B: Gerhard & Eva Kremp (Tucson, Arizona); D: Geoff Playford (Brisbane, Australia) and Reed Wicander (Mt. Pleasant, Michigan)

V. Finances

Although the newsletter costs would be marginally covered if the IFPS treasury received US\$2600/yr. in dues from the affiliated societies, the actual fact is that the annual dues payments are well below that figure. Additionally, it should be emphasized that, at the present time, IFPS receives no financial support from either the International Union of Geological Sciences (IUGS) or the International Union of Biological Sciences (IUBS), umbrella groups to which IFPS belongs.

Accordingly, President Visscher pointed out that if IFPS is to remain viable and carry out important services, e.g., revision of the *World Directory of Palynologists* and/or publishing an illustrated glossary of

palynological terms, an increase in dues may be necessary. David Jarzen stated that this step was recom-

mended in his final report as Secretary-Treasurer at the 7th IPC (see *Palynos* 11(2), p. 1, Dec. 1988).

PALYNOS PRODUCTION AND MAILING COSTS (POST-7th IPC)

	No. Copies	CRP*	Post.+	Total	Cost/Copy
Vol. 11, No. 2 (Dec. 1988)	2600	\$702	\$658	\$1360	\$0.52
Vol. 12, No. 1 (June 1989)	2400	\$747	\$573	\$1320	\$0.55
Vol. 12, No. 2 (Dec. 1989)	2400	\$760	\$577	\$1337	\$0.56
Vol. 13, No. 1 (June 1990)	2600#	\$817	\$356*	\$1173	\$0.45

* Composition, photo reproductions and printing costs.

+ Postage charges, including mailing bags.

2896 actually mailed due to printing overages.

* International surface-air lift mailing instituted.

TYPES OF COVERAGE IN PALYNOS (POST-7th IPC ISSUES ONLY)*

	IFPS News on IPCs	Reports	News of Affiliated Societies	Book Notices & Reviews	Notices of Future Meetings	Miscellaneous**
Vol. 11 (2)	103"	30"	27"	24"	15"	26"
Vol. 12 (1)	9"	54"	48"	73"	21"	20"
Vol. 12 (2)	40"	15"	50"	10"	16"	84"
Vol. 13 (1)	9"	42"	30"	69"	19"	46"

*Coverage measured in inches of copy in 3-column format. N.B.— Each copy is 8 pages, thus each issue contains ca. 225" of copy exclusive of the *Palynos* masthead and mailing label spaces).

**Includes various cuts, cartoons, noteworthy palynomorphs, etc.

PALYNODATA COMPUTERIZED

PALYNODATA, Inc. is converting its datafiles from a mainframe to a PC-based system which will be available in December, 1990. The new system will run under DOS 4.01 on an IBM compatible PC with 40MB hard disk, and the datafiles will reside on an optical disk in a worm drive.

PALYNODATA will license the software and datafiles together to universities for \$6,000. This price includes user manuals and the 1991 updates (available 9/1/91), and will be a turnkey system if the hardware is in place. Users will provide their own hardware and their own copy of DOS 4.01. The annual update for 1992 will be available at a cost of \$1/document, and we would anticipate that about 1,000-1,200 documents would be available in that update.

The database currently contains the stratigraphic and geographic occurrences of palynomorphs from over 15,800 published documents on pre-Pleistocene materials. The datafiles can be searched by author, by taxon, or by age and location. Retrievals also indicate the reference in which a taxon was synonymized, emended, combined or first described. It is possible to scroll and/or print out the search output, and to print off a complete list of references which contain information requested in a search.

Interested parties should contact:

Kenneth M. Piel
UNOCAL Research Center
P.O. Box 76
Brea, CA 92621
USA

Palynological Society of China (PSC)

Two important meetings were sponsored by PSC in 1990. The first was a symposium held in Shanghai on September 5-7 entitled "Development and Utilization of Pollen Resources"; this meeting was attended by over 100 scholars and specialists from such diverse fields as biology, medicine, pharmacology, industrial chemistry, agriculture and forestry.

Approximately 110 papers and abstracts were delivered, including 70 oral research reports. These included recent achievements on the quantitative calculation of pollen resources, the extraction of chemical components of pollen grains, the clinical uses of pollen (including problems of the cardiovascular and digestive systems), as well as the treatment of sexual dysfunction. Further applications of pollen grains were described in the area of production of nutritious food additives and cosmetics, in addition to their utilization in investigations of both plant and animal growth. The next symposium on this topic is scheduled to be held in Xi'an in 1992.

The second meeting, "Symposium on Environment and Archeology of China," was held on October 20-24 in Lintong, just northeast of Xi'an, the scenic and ancient capital of Shanxi Province. More than 50 scholars specializing in palynology, archeology and Quaternary studies reported on their research, particularly emphasizing the significant role that palynology plays in the determination of paleoenvironments.

A post-symposium archeological investigation was also initiated, resulting in the recovery of numerous relics ranging from the Neolithic Age to the Zhen and Qin Dynasties.

REWORKED PALYNOMORPHS

Reworked palynomorphs (R.P.) are considered by some biostratigraphic workers as valuable tools for the reconstruction of paleogeographical events, allowing the tracing of tectonic movements and source areas of the sediments, rather than mere contamination.

Because of their frequency and interest a programme of research on the R.P. is now being developed at the University of Liege (Belgium). All the stratigraphic stages will be considered, from the oldest up to the present. An important bibliographical work is essential. Unfortunately, the published data are generally incomplete. In order to create a data bank would you please complete the following questionnaire? Thank you for your help.

Questionnaire

- 1) Where are your palynological samples containing R.P. exactly collected?
- 2) What is (are) the age(s) of the samples? And dated by what?
- 3) What is (are) the age(s) of the R.P.?
- 4) What is the nature of the R.P. and of the P. in situ (spores, acritarchs...)?
- 5) Have you an idea on the proportion of the R.P. to the total of all palynomorphs?
- 6) Did you observe some vertical variations (on the ages, nature, proportions... of the R.P.)?
- 7) Did you observe some horizontal variations?
- 8) Have you deduced some palaeogeographical (or tectonic or others) implications based on the R.P.?
- 9) What are the observations which have allowed you to identify the presence of the R.P. (reflectance, biostratigraphical or paleogeographical incompatibility...)?
- 10) Are these data published? If yes—can you send a reprint (or give the references)? If no—do you give me the authorization to use these data for my research and eventually publications (with of course complete citation of the origin of data)?
- 11) Are you interested in the creation of a working group on this subject?

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**8TH IPC-FIRST CIRCULAR
AIX-EN-PROVENCE
(FRANCE)**

September 6-12, 1992

The Organizing Committee:

President: Armand PONS
Laboratoire de Botanique Historique et Palynologie
Faculte Saint-Jerome
F-13397 Marseille cedex 13

Vice-Presidents: Raymonde BONNEFILLE
Laboratoire de Geologie du Quaternaire
CNRS-Luminy
F-13288 Marseille cedex 9

Secretary: Jean-Pierre SUC

Treasurer: Jacques-Louis DE BEAULIEU
same address as the President

IFPS Correspondent: Annick LE THOMAS
Laboratoire de Phytomorphologie
16 rue Buffon
F-75005 Paris

Mailing address:

Jean-Pierre SUC
Secretary - 8th International Palynological Congress
Laboratoire de Palynologie (case 061)
Universite de Montpellier II
F-34095 Montpellier cedex 5
Telex: 490944F USTMONT
Fax: (33) 67.04.20.32

Scientific program:

The main fields in which Palynology contributes would constitute the framework of the Congress sessions: Physiology, Reproductive Biology, Biochemistry, Ontogeny, Morphology, Systematics, Evolution, Ecology, Climatology, Palaeoenvironments, Oceanology, Organic matter, Biostratigraphy, Aerobiology, Melittopalynology, Allergology, Data management, Models. Specific Symposia will be allowed and encouraged. Contributions: lectures and posters with an Abstracts Volume.

Several international journals will publish a selection of the papers presented at the Congress.

Official languages: English and French.

The American Association of Stratigraphic Palynologists annual meeting will be held at Aix during the 8th IPC.

Accommodations:

Hotels of different categories, student residences.

Social Program.

Welcome Party and visit of the city. Gala Dinner, Medieval music performance and one-day excursion in Camarque are also planned.

All details including program for accompanying members will be given in the Second Circular.

Tourism and climate.

Aix, a middle size city, is the cultural and historical capital of Provence. Among the Mediterranean vegetation and archeological sites, Aix is not far from the sea-shore and the Alps mountains. September weather is very pleasant (dry and sunny).

Excursions:

I. Pre-Congress:

A - Paleozoic in Western Brittany

Leader: FL. PARIS

B - Mesozoic in southern Alps

Leader: R. JAN DU CHENE

C - Paleogene in the Paris Basin and Belgium

(regional stratotypes)

Leader: M. SCHULER

D - Vegetation, lakes and volcanoes in the French

Massif Central since the Mid-Pleistocene

Leader: M. REILLE

II. Post-Congress:

E - Permian in the French Massif Central

Leader: J.J. CHATEAUNEUF

F - Jurassic in South-West Germany

Leader: S. FEIST-BURKHARDT

G - Neogene and Lower Quaternary in southern

France and northeastern Spain

Leader: J.-P. SUC

H - Modern vegetation and prehistoric sites in

French and Italian Riviera

Leader: J. RENAULT-MISKOVSKY

I - Long pollen sequences and the last glaciations

from southern Alps to Vosges mountains

Leader: J.-L. DEBEAULIEU

J - History of the vegetation in the Pyrenees

mountains

Leader: G. JALUT

K - Modern vegetation of Provence and southern

Alps, Late Glacial-Holocene history

Leader: A. PONS

A special effort will be made to propose moderate costs for Junior Palynologists.

Ed. Note: Original copies of the above circular were

distributed in the summer of 1990 (via the IFPS

Councillors) to individual palynologists belonging

to a society affiliated with the International Federation of

Palynological Societies. Reprinting of the First Circular

here is intended to serve a twofold purpose: (1) to

reach palynologists not previously contacted, and

(2) to remind all palynologists to send in the pre-

liminary (non-binding) registration form to Prof.

J.-P. Suc if they wish to remain on the 8th IPC

mailing list in order to obtain additional Congress

information in the future.

REGISTRATION FORM

Deadline January 31, 1990 (to be sent to J.-P. SUC)

Surname Forename

Position

Institute or Firm

Mailing address

intends to attend the 8th IPC at Aix-en-Provence

will present a lecture a poster

Field of research

I am interested by the following field-trips

pre-congress: or post-congress: or

The Second Circular will be sent only to those who have replied to this Registration Form.

Dr. Raymonde Bonnefille, Program Chairperson for the 8th IPC, reports that the Organizing Committee held its second business meeting on December 10 at Arles (Bouches-du-Rhone). It was reported that over 1,000 palynologists have already responded to the First Circular. The members of the Organizing Committee decided that the scientific program for the 8th IPC will cover 4½ days. Several symposia have already been selected and a specific organizer has been designated for six of the following 8 topics:

A. PALYNOLOGY, SYSTEMATICS, PHYLOGENY AND GENETICS (A. Le Thomas, Fax: 33 16 1 40 79 34 84)

B. PALYNOLOGY AND VEGETATIONAL HISTORY (J. L. de Beaulieu, Fax: 33 91 28 86 68)

C. ALLERGOLOGY, AGRONOMY AND MELITTOPALYNOLOGY (TBA*)

D. PALEOZOIC AND MEZOZOIC PALYNOSTRATIGRAPHY (TBA*)

E. MARINE PALYNOLOGY (M. Streel, Fax: 32 41 66 57 00)

F. PALYNOLOGY AND GLOBAL CLIMATIC CHANGES (R. Bonnefille, Fax: 33 91 26 66 38)

G. PALYNOLOGICAL RECORD OF PAST AND PRESENT HUMAN IMPACT (K. Behre, Wilhelmshaven, Germany)

H. ACRIARCHS AND DINOFLAGELLATES (E. Masure and another TBA*)

*TBA - to be announced later

Each principal topic will include several symposia on specific themes; for these the Organizing Committee requests international collaboration among the various conveners. Although several special symposia have already been proposed, the Organizing Committee wishes to emphasize that additional suggestions are encouraged from the palynological community. For example, whereas a great number of palynologists have expressed an interest in Paleozoic and Mesozoic Palynostratigraphy, thus far no proposals have been received for symposia on this topic. **Your assistance is strongly solicited!** The deadline for proposing new ideas or topics is March 1st, 1991.



ALEKSANDER JACHOWICZ
1928-1989

Aleksander Jachowicz, one of Poland's leading palynologists, died on the 15th of August, 1989, after a short but severe illness, at the age of 61. He was Professor of Palaeontology and Stratigraphy at the University of Silesia (Sosnowiec) where he was for several years Deputy Rector and Head of the Department of Earth Sciences.

Aleksander Jachowicz was born on February 26, 1928 at Grybow in southern Poland and went to school there. During the German occupation, he began his secondary education at an illegal (underground) school, acting at the same time as a liaison for illegal secondary schools in the Nowy Sacz district. It was at this time that he became interested in botany and geology, and especially in collecting fossils.

After his graduation in Geology in 1952 at the Academy of Mining and Metallurgy in Krakow, Aleksander Jachowicz started working with Professor Tadeusz Bochenski, who introduced him to the geology of coal resources, coal petrography and palaeobotany. The first of his major publications, co-authored with his wife, Sonia Dybova-Jachowicz, appeared in 1957. This paper, entitled "Microspores of the Upper Silesian Coal Measures," marked the beginning of the study of Carboniferous miospores in Poland. The paper introduced the first spore-based zonal scheme for the Upper Carboniferous and is one

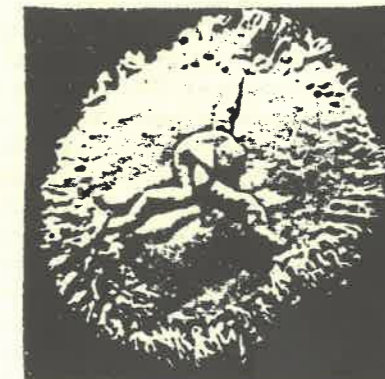
of the few referred to in almost all palyno-logical publications concerning European Carboniferous strata. In subsequent publications, the zonal scheme was refined and supplemented.

Professor Jachowicz also worked and published on the Lower Carboniferous palynology of the Holy Cross Mountains and the Carboniferous of the Lublin Coal Basin. During his scientific career he published 90 papers on palynology, in addition to contributions on the geology of the Silesian Coal Measures.

Until the early 1970's, Aleksander Jachowicz worked for the Geological Survey of Poland and for some time headed the Upper Silesia branch of the Survey. In 1974 he became associated with the University of Silesia and became the architect of the newly formed Department of Earth Sciences. The Chair of Palaeontology and Stratigraphy in that department was really his creation. He was a most successful and dedicated teacher and creator of ingenious teaching programs. Teaching and leading the department were the joys of his life until his final days.

In palynology, Aleksander Jachowicz cooperated extensively with his colleagues in many other countries. He was from the early 1960's onwards an active member of C.I.M.P., which under his guidance organized a number of very successful palynological meetings and workshops in Sosnowiec. He was an excellent colleague, a good teacher and a kind person who will be greatly missed by all who knew him.

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5

SOME TYPES OF EXCYSTMENT OPENINGS IN EARLY ORDOVICIAN ACRIARCHS

During studies of Perigondwanan acritarch assemblages of Early Ordovician age (Arenig, *Corymbograptus v-similis* graptolite zone; Llanvirn, *Expansograptus ferrugineus* horizon), the following types of excystment openings were observed: archeopyle(?), median split, pylome, epityche, trochospiral split, T-shaped, munium and munitium. Some openings that are apparently caused by ruptures are illustrated below. One possibly disputable type represents a T-shaped rupture of some diacromorphid vesicles; this is still poorly documented. Apparently, the aperture involves a C-shaped line in the apical part of the vesicle, combined with a lateral suture in a median position. Openings not caused by rupture, e.g., by a gradual dissolution of the vesicle wall that results in a collar of hair-like filaments (munitium), are not illustrated here.

Recognition of the distinctive types of openings are considered extremely important for the identification of various stages in algal life cycles, viz., autospores, auto-sporangia and resting cysts. The vacated spore-pollinose auto-sporangial mother cell walls of the chlorococcalean families Scenedesmeaceae, Oocystaceae, and Chlorellaceae are suggested as possible modern analogues of acritarch vesicles characterized by median split types of openings.

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(The editor gratefully acknowledges the assistance of Geoff Playford and Reed Wicander in clarifying the above text).

	MEDIAN	APICAL	EPITYCHE	TROCHOSPICAL	T-SHAPED
APICAL					
DOREAL					
VENTRAL					



THE ANGIOSPERM POLLEN: STRUCTURE AND FUNCTION.

K. R. Shivanna and B. M. Johri. Wiley Eastern Ltd., New Delhi, India (ISBN 0-85226 738X) and John Wiley & Sons, Inc., New York (ISBN 0-470-21330-2); 374 pages, 1989, US \$29.95.

This book is a descriptive work which integrates available cytological, ultrastructural, physiological and biochemical information concerning angiosperm pollen from pollen development through pollen germination and pollen tube growth in the pistillate tissue. The book was first published in 1985 and then reprinted in 1989. The introduction sets forth the importance of an integrated approach to the understanding of the structure of pollen in relation to its function and the importance of understanding pollen structure and function as one strategy for maintenance of genetic variability in plant crops. These themes are repeated throughout the remaining chapters. The second chapter concerns pollen development, from the origin of sporogenous tissue through meiosis, tetrad formation and post-tetrad stages, mainly emphasizing cytological and ultrastructural aspects. However, this chapter also addresses the biochemical, physiological and cytological aspects of the tapetum and its possible role in microsporogenesis and pollen development.

In Chapter 3 on pollen sterility, a comparison of structural and biochemical features in fertile and sterile anthers is made. Since male sterility has practical applications in plant breeding, chemicals used to induce male sterility are briefly outlined. In keeping with the theme of applications of pollen in plant breeding, the fourth chapter deals with viability and storage. Possible causes of loss of viability due to biochemical impairments are outlined. Additionally, techniques to

assess pollen viability and pollen storage techniques are described. Information conveyed about *in vitro* pollen germination and tube growth (Chapter 5) include the requirements for germination as well as physiological, cytological and ultrastructural features of pollen tube emergence and tip growth.

In chapter on pollen-pistil interactions (Chapter 6), topics which are covered include cytological and chemical features of stigma and styles, physiological and cytological aspects of post-pollination events, such as pollen hydration, adhesion, germination and tube growth, and lastly, cytological features of fertilization. This chapter establishes the basis of the subsequent two chapters on intraspecific (Chapter 7) and interspecific incompatibility (Chapter 8). In Chapter 7, the genic, physiological, and cytological aspects of heteromorphic and homomorphic incompatibility are described. The location and the biochemical nature of incompatibility recognition factors, as well as hypotheses of possible mechanisms of recognition, are discussed. Methods of overcoming self-incompatibility are also outlined. In Chapter 8 the basis of interspecific incompatibility and methods to overcome this type of incompatibility are described. In the last chapter, the authors assess the state of knowledge of pollen biology and outline the areas of investigation which need to be pursued. An appendix describing some basis techniques to study pollen is also included.

In summary, this book provides an integrated overview of information concerning structural and functional aspect of pollen biology for a variety of angiosperm species. However, it is somewhat disconcerting that the book was reprinted in 1989 without revision to include more recent information. The most recent reference cited was in 1984. The diagrams which are included are quite good and add to the information within the text. There is only a minimal number of reproductions of light and electron micrographs. Unfortunately, the quality of those that were reproduced is marginal. Additionally, the quality of the paper is quite poor. Nevertheless, I found this book to be very readable and informative and think that it is quite worthwhile, especially for an individual beginning research in the field

or for someone who has an ancillary interest in pollen biology.

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TRIASSIC AND EARLIEST JURASSIC MIOSPORES FROM THE MURIHIKU SUPERGROUP, NEW ZEALAND.

N. J. de Jersey & J. I. Raine. 1990. *New Zealand Geological Survey, Paleontological Bulletin* 62, 164 pp., 21 plates, stratigraphic charts and misc. figs., Lower Hutt, N. Z. US \$60.

Noel de Jersey, now theoretically retired and working out of his home in suburban Brisbane, is well-known for his many decades of productive research at the Geological Survey of Queensland, Australia. For this recently published monograph on New Zealand Triassic/Jurassic palynofloras, he is joined by J. I. Raine, who works for the New Zealand Geological Survey at Lower Hutt. They have produced a very interesting and attractive volume that was published on the occasion of the New Zealand Survey's 125th anniversary. The Triassic and Lower Jurassic rocks of New Zealand studied by de Jersey and Raine, unlike coeval non-marine Australian sections (on many of which de Jersey has previously worked) are well-controlled biostratigraphically by marine animal fossils. Thus, part of the importance of this study is that it offers by correlation with the Australian rocks some further improvement in their geochronology. This study deals almost exclusively with miospores, although a number of samples were also rich in acritarchs and dinoflagellate cysts; some of the latter are illustrated in one plate. A partial reason for the miospore emphasis is the linkage with the Australian miospore floras and their stratigraphy and biogeography. The authors call for another study, emphasizing the phytoplankton fossils.

The sporomorphs are grouped into five interval-palynozones, ranging from Anisian (Lower Triassic) to Hettangian/Sinemurian (Lower Jurassic), and the zonation is nicely displayed in charts. The taxa studied are very adequately described and

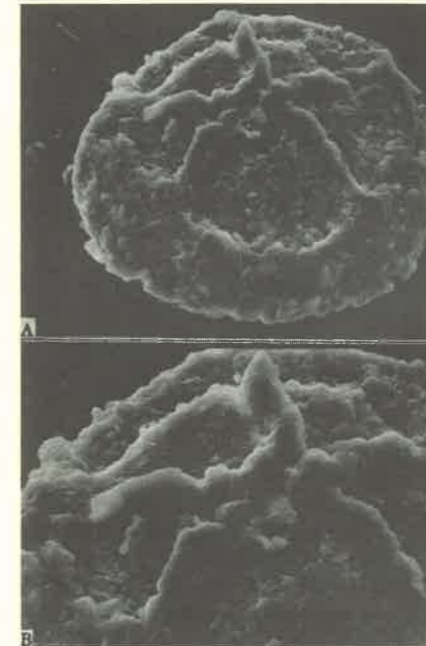
illustrated photomicrographically. The slide locations for illustrated specimens of the new taxa are listed by England Finder coordinates, but the heading to the plates directs one to "Chapter 2" for instruction about it. Yet Chapter 2 provides only information on stratigraphic-geographic locations; instead coordinate information for specimens is provided in Chapter 1. In my opinion it would have been better to give this information at the beginning of the plates. (I think England Finder locations are great, but Bill Elsik informs me that when one uses certain Zeiss microscopes that invert the image with respect to, for example, Leitz and Olympus, there is a big problem with use of EF locations. We're still trying to sort this out with the help of Graticules, Ltd., manufacturers of the England Finder.) An Appendix charts the abundance of taxa for the samples and lists separately all taxa for the samples. Although the lists are arranged alphabetically, the charts do not alphabetize the taxa as a whole, but in three groups, depending on their stratigraphic range. I found it pretty hard to find taxa, because I didn't know ahead of time what to expect as to range.

However, this is not just a list of taxa with ranges and illustrations—there is much here that provokes thought or even dispute! Table 5.1 presents a very complete list of relationships of spore and pollen taxa to fossils and extant plant groups. The list will be used. The New Zealand palynoflora is shown to group phyto-geographically with the high-latitude "Ipswich Flora" of Australia's Triassic/Jurassic, although it is clear from de Jersey and Raine's correlation charts that the Australia and New Zealand palynofloras differ from each other quite a bit. Tucked away on p. 69 is the authors' speculation that there's something wrong with most conventional gymnosperm classifications, because taeniate pollen is found in plants classified as voltziales, podocarps and glossopterids. The authors feel that "such a morphologically distinctive feature as...taeniae is unlikely to be polyphyletic." Actually it seems to me that, like presence of sacchi, this character is a response to the environment and is quite likely to be produced by parallel evolution. This is just a smattering of the sort of

interesting stuff in this monograph. Palynologists who specialize in the Mesophytic especially will read this work carefully and use it, but others will benefit from it too. It's a beautifully executed, virtually flawless, piece of work. The price seems, however, rather steep.

Alfred Traverse
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NOTEWORTHY PALYNOMORPH



Pentaletes verrucatus SEMs: (A) dried megaspore X200; (B) pentalete mark X400.

A single pentalete megaspore measuring 350 x 410 micrometers (*Pentaletes verrucatus* gen. et sp. nov.) was discovered in a coal sample from the Umaria Coalfield, Shahdol District, M.P., in the Barakar Formation of the Lower Gondwana of India. This is the same source as that from which four specimens of another abnormal type of megaspore, viz., *Tetraletes verrucatus*, were recovered (*Palynos* 12, No. 2, p. 7, 1989).

Pentaletes, as the name implies, is strikingly different from all other known megaspores in having five laesurae instead of the usual three on the proximal face. These 5 laesurae fuse medianly on the proximal face, forming a pentajunction instead of the usual trijunction found on trilete megaspores. These prominent laesurae divide the spore's contact

area into five more or less equal parts; these are bounded by inwardly-curved and evenly-raised arcuate ridges. Although the formative process for this unusual spore type must have been unique, any speculation about it is premature. However, it is clear that instead of the more usual condition of four spores arranged in a tetrahedral tetrad, in this case six spores were arranged in a group. We are coining the term "hexad" for such an imaginary group of six megaspores. Obviously, the meiotic process during the development of these spores would certainly not have been normal. Anyhow, it is presumed that six megaspores would have been formed, and that cytokinesis of the spore mother cell was simultaneous.

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COMMISSION INTERNATIONALE DE MICROFLORE DU PALEOZOIQUE (CIMP)

During the North Sea Symposium held in Nottingham (UK) last April, the CIMP Executive met and elected a new Secretary General—Dr. Jacques Verniers of the Earth Technology Institute, Brussels, Belgium. He succeeds Dr. Willem A. Brugman, who is leaving the Laboratory of Paleobotany & Palynology in Utrecht for a new position with Royal Dutch Shell in Hague. Perhaps Dr. Brugman's foremost contribution to the 2-year administration of CIMP affairs was his complete computerization of the mailing list and financial records of this organization. It is anticipated that a new president will be elected early in 1991 to replace the incumbent, Dr. Bernard Owens of the British Geological Survey. However, Dr. Owens retains his post as Vice-President of IFPS, at least until the 8th IPC at Aix in 1992.

Soviet Palynological Commission (SPC)

SPC's VIth All-Union Palynological Conference, entitled "Palynology and Raw Materials" and held in Minsk December 18-22, was dedicated to the memory of the recently-deceased former Chairman of the Soviet Palynological Commission, Professor **Elena D. Zaklinskaya**. In attendance were 358 palynologists from 51 cities in all regions of the USSR.

The theme of this conference emphasized the following topics:
 (1) The significance of palynomorphs in determining ages and correlation of sediments in connection with the prediction of the chances of recovery of raw materials;
 (2) The taxonomy and nomenclature of fossil spores and pollen; and
 (3) Research on the ultrastructural characteristics of pollen and spore exines.

In addition to the plenary sessions, the Conference program included 14 sections devoted to different questions of palynostratigraphy, morphology and statistical methods employed in palynology. Many of these reports emphasized the significance of research on fossil palynomorphs for the study of deposits bearing oil, gas, coal, diamonds and bauxite.

During this Conference it was demonstrated that much progress has been made in several nontraditional methods of research on the origin and catagenesis of dispersed organic material, oil migration and related problems of oil geology. Special attention was directed to the detailed zonation and correlation of producing sediments, as well as the difficulties of dating, particularly frontier strata.

At the final plenary session, the delegates elected Dr. **Lidiya V. Rovnina** to succeed Professor Zaklinskaya as the Chairman of the Soviet Palynological Commission (SPC). At this time it was also announced that the VIIth All-Union Palynological Conference will be held in Tbilisi (Georgian S.S.R.) in 1993 at a specific date to be named later.

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FUTURE MEETINGS

1991

March 24-25

EUROPEAN UNION OF GEOLOGICAL SCIENCES (10th Anniversary Meeting), Strasbourg, France. (Organizing Committee EUG VI, University of Trieste, Institute of Mineralogy, Piazzale Europa 1, I-34100 Trieste, Italy)

April 7-10

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS AND SEPM (Society for Sedimentary Geology) (Annual Meeting), Dallas, Texas, USA, (Convention Department, AAPG, Box 979, Tulsa, OK 74101, USA)

April 23-25

SIMPOSIO ARGENTINA DE PALEOBOTANICA Y PALINOLOGIA, Corrientes, Argentina. (Dr. Raphael Herbst, Casilla de Corro 128, 3400 Corrientes, Argentina)

May 27-29

GEOLOGICAL ASSOCIATION OF CANADA/MINERALOGICAL ASSOCIATION OF CANADA (Joint Annual Meeting), Toronto, Canada. (J. Fawcett, Department of Geology, University of Toronto, Toronto, Ontario M5S 1A9, Canada)

June 23-27

ANGIOSPERM POLLEN AND OVULES (International Symposium), Villa Olmo, Como, Italy. (E. Ottoviano, Dept. Genetics, Univ. Milan, Via Celoria 26, 20133 Milano, Italy. Phone: 2/2663498; Fax: 2/2684551)

June 27-28

OPEN WORKSHOP FOR PALYNOLOGISTS IN ORGANIC MATTER CLASSIFICATION, Hugo de Vries Laboratory, University of Amsterdam, (Dr. M.A. Lorente, Univ. Amsterdam, The Netherlands. Phone: (31)(20)5257950; Fax: (31)(20)52577154)

August 2-9

QUATERNARY RESEARCH (13th INQUA International Congress), Beijing, P.R. China. (Secretariat, 13th INQUA Congress, Chinese Academy of Sciences, 52 Sanlihe, Beijing 100864, People's Republic of China)

August 12-15

MESOZOIC TERRESTRIAL ECOSYSTEMS AND BIOTA (5th Symposium), Oslo, Norway, Symposium will deal with Mesozoic terrestrial floras and faunas, their evolution, ecology, taphonomy, and stratigraphy. (Dr. Natascha Heintz, Paleontologisk Museum, Sarsgate 1, N-0562 Oslo 5, Norway)

September 6-11

PALEOECOLOGY (2nd International Congress), Nanjing, P.R. China. (Ma Yu-Ying, Nanjing Institute of Geology and Palaeontology, Academia Sinica, Chi-Ming-Ssu, Nanjing 210008, P.R. China)

September 22-27

CARBONIFEROUS-PERMIAN STRATIGRAPHY AND GEOLOGY (12th International Congress), Buenos Aires, Argentina. Language: English. (Dr. S. Archangelsky, Museo Argentino de Ciencias Naturales, Av. A. Gallardo 470, Buenos Aires 1405, Argentina)

October 21-24

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), San Diego, California, USA. (Meetings Department, GSA, P.O. Box 9140, Boulder, CO 80301, USA)

1992

June 28-July 1

PALEONTOLOGY (5th North American Convention), Chicago, U.S.A. (Dr. Peter R. Crane, Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605-2496, U.S.A.)

August 24-September 3

INTERNATIONAL GEOLOGICAL CONGRESS (29th), Kyoto, Japan. (Dr. Tadasahi Sato, Chairman, Japanese-National Committee on Geology, Inst. of Geoscience, The University of Tsukuba, Ibaraki, 305 Japan)

August 30-Sept. 3

INTERNATIONAL ORGANIZATION OF PALEOBOTANY (4th Conference), Paris, France. (Secretariat 4th IOPC, Université de Paris VI, 12 rue Cuvier, 75005 Paris. Fax: (33) 143 54 40 97).

September 6-12

INTERNATIONAL PALYNOLOGICAL CONGRESS (8th), Aix-en-Provence, France. (J-P Suc, Laboratoire de Palynologie, Univ. Montpellier II, F-34095 Montpellier cedex 5.)

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