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J.K. Lentin, Editor

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The AASP NEWSLETTER is published 4 times annually. Members are ENCOURAGED to submit articles, "letters to the editor", technical notes, information about "members in the news" and information about job openings in the industry. Every effort will be made to publish all information received from our membership.

Deadline for the next newsletter, the second in 1993, is April 15. Please send all information on computer disk in ASCII or Word Perfect format, if possible, if not - send a typed manuscript. We look forward to contributions from our membership. FAX number for the AASP NEWSLETTER is as follows:

FAX: (403) 262-1629

MESSAGE FROM THE PRESIDENT

JUST THE FACTS, MA'AM

It's been four long months since the last AASP Presidential address, which was given at the Annual Business Luncheon in Aix-en-Provence in September (the preceding issue of the Newsletter (Vol. 25, no. 4) contained a slightly expurgated version it). Clearly it's time to present yet another Presidential Address. Here it is:

Robert L. Ravn
Aeon Biostratigraphic Services
1013 E. Dimond Blvd. #228
Anchorage, Alaska 99515 USA

I've always wanted to do that.

One of the minor benefits of being AASP President is that you receive a variety of mail that you might not ordinarily know existed. I got a newsletter called The Lattice the other day; this is the quarterly newsletter of the Mineralogical Society of America. In it was a message from the MSA President, Alexandra Navrotsky, containing the following passage, so well

expressed that it's worth repeating in its entirety:

> "In Earth Sciences our economic base and the jobs our graduate students get are impacted by the shift in emphasis from exploration and exploitation of mineral and petroleum resources to resource management, pollution control, and environmental cleanup. Many universities are revising geology curricula that had remained fairly static for the last thirty years. These revisions tend toward a broader base in earth, atmospheric, planetary, and environmental science, and one has seen the coalescence and realignment of a number of academic departments. Such curricular changes have often diminished the central role of crystallography, petrology, and optical mineralogy in the undergraduate curriculum, seeking instead to integrate the essence, but not the detailed skills, of these disciplines into courses of interest to a wider community, which increasingly includes, not just geologists, but students who will become materials scientists, environmental scientists, and biomedical professionals."

Some of you may be applauding furtively at the "diminished central role" of crystallography, petrology and optical mineralogy courses in the geological sciences curriculum, but remember that the words "paleontology, biostratigraphy and palynology" could be inserted seamlessly in their place with equivalent truth. (And be furtively applauded by our colleagues who prefer admiring x-ray diffraction patterns to examining the gonal geometry of the 3p paraplate). We are all aware of the job situation, and I won't dwell on it. I was struck, however, by another part of the final sentence in President Navrotsky's editorial, noting the integration of "the essence, but not the detailed skills, of these disciplines" into curricula. Back in the 1950's and 1960's, an unaccountably popular police program ran on American TV: Dragnet, starring the taciturn Jack Webb as Detective Sergeant Joe Friday. One of Sergeant Friday's stock lines, when confronted by some distraught crime victim, was to ask for "**Just the facts, ma'am.**" All he wanted was the basic information; he would take care of its interpretation. We now seem to have come full circle. About the last thing administrators or managers want are the detailed facts. They want the interpretations, the implications, the big picture.

Increasingly, the virtues of inductive reasoning are extolled over the stodginess of deductive reasoning. Descartes must be spinning in his grave. But for whatever reason, we have decreasing time and patience for the hard detail (maybe computers can take care of that), and want only the essence, not the detailed skills. We probably can't fight this trend. The palynologist who intends to be excellent at the discipline must exercise some degree of concentration on the detailed skill. You need to know the eensy-weensy difference between *Tubotuberella uncinata* and *Tubotuberella apatela* if you are going to date that reservoir unit correctly. But your boss doesn't. And, if yo try very hard to explain it to him or her, you are likely to get either a blank stare or an impatient wave of the hand. If the detailed skills are receiving decreasing emphasis in university curricula, it remains up to the individual to get them. This places an integrity burden on all of us to work harder privately to remain sharp and current with the tools necessary to paint those broad pictures. Credibility is at stake here.

As a parting comment, when company managements decide to get leaner and meaner, they seem to have a lot more trouble with the "leaner" part than they do with the "meaner" part. Maybe it's just easier to be nasty than it is to lose weight.

Robert Ravn,
President, AASP

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LETTER TO THE EDITOR

Dear Editor,

A quick note to inform AASP members about a recent series of publications which may be of interest. Sus Honjo, a senior scientist at the Woods Hole Oceanographic Institution, pioneered the development and deployment of deep sea sediment traps that have revolutionalized our possibilities to investigate microfossil production and sedimentation "out there in the deeps". For years, various research groups have studied Honjo's samples for different microfossil groups, and much of this work is now bein reported in a special series of publications: *Ocean*

Biocoenosis, edited by Sus Honjo, and published by the Woods Hole Oceanographic Institution. So far, this series has included:

1. Steinmetz, John C., *Calcareous Nannoplankton Biocoenosis: Sediment Trap Studies in the Equatorial Atlantic, Central Pacific, and Panama Basin.* 1991. (85 pp., 22 pls.) Price: $10.00

2. Takahashi, Kozo, *Silicoflagellates and Actiniscus: Vertical Fluxes at Pacific and Atlantic sediment Trap Stations.* 1991. (35 pp., 2 pls) Price: $10.

3. Takahashi, Kozo, *Radiolaria: Flux, Ecology, and Taxonomy in the Pacific and Atlantic.* 1991. (303pp., 63 pls.) Price: $35.

4. Ling, Hsin Yi, *Tintinnids: A Taxon-vertical Distributional Study of Settling Assemblages from the Panama Basin.* 1992. (21 pp. 2 pls.) Price: $10.

5. Dale, Barrie and Amy L. Dale, *Dinoflagellate Contributions to the Deep Sea.* 1992. (75 pp., 6 pls.) Price: $10. This includes 3 chapters: 1) *Dinoflagellate Contributions to the Open Ocean Sediment Flux*, by Barrie Dale, 2) *Thoracosphaerids: Pelagic Fluxes,* by Barrie Dale, and 3) *Dinoflagellate Contributions to the Sediment Flux of the Nordic Seas,* by Amy L. Dale and Barrie Dale.

These may be purchased directly from WHOI by writing to:

Office of the Research Librarian
Woods Hole Oceanographic Institution
Woods Hole, Massachusetts 02543
U.S.A.

Best wishes,

Barrie Dale
University of Oslo

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UNOCAL BEST APPLICATIONS PAPER AWARD

Dear Editor,

I wish to clarify several points regarding the discussion in the AASP Newsletter of the Unocal Best Applications Paper Award. The Editor commented that the award is a travel grant to send the awardee to present the paper at an annual AAPG meeting. The Editor also commented on the delay in presenting a paper to the AAPG because the deadline for an AAPG contribution precedes that of our annual meeting.

The policy regarding the venue of the award presentation, in fact, is not so restrictive. Although the national AAPG meeting may be the most apropos venue for many applications papers, other national or regional geological meetings would also be acceptable, such as the national GSA meeting; the Gulf Coast Association of Geological Societies; or regional AAPG/GS meetings. The author need only justify his/her choice of meeting.

The award is currently named the Unocal Best Applications Paper Award. If other companies or individuals will match Unocal's funding, Unocal is quite willing to rename it the AASP Best Applications Paper Award, and transfer the judging function to the AASP Awards Committee. This has been a standing offer since the award's inception. is there anyone out there to match this annual $750 grant?

Best regards,
Harry A. Leffingwell

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Dear Editor,

As the prevailing spirit in science becomes perceptibly less generous it is important, especially for our young recruits, that we not lose sight of a time when things were different. I hope you will permit me to add a not to Al Traverse's comments about the paper Elso Barghoorn presented at the First Palynology Conference.

The meeting was a very informal one, and no attempt was made to enlist palynologists from the entire country. For examples, Cal's old thesis supervisor H.P. Hansen did not attend, and so far as I know he was not invited. We faced the reality of low income and no travel money by inviting only near-by people on whom attendance would impose no serious burden.

Cal Heusser can check my suspicion that Al Traverse was not invited to the first conference because we had never heard of him. It is likely also that Elso Barghoorn was listed as the person who told us about the Brandon lignites because he actually did so. I can attest that Barghoorn gave a lucid and entertaining lecture, and that he used it to advance Al Traverse to prominence, not himself. We were left in no doubt that Al had actually done the analyses, nor that a bright new star had appeared in the palynological firmament. From that day on I have been aware of Al Traverse as an outstanding palynologist.

All of us are human, and Elso Barghoorn was in some ways more human than most. The lecture gave him an opportunity to shine, but it was as a professor who could attract students like Al Traverse, not as the analyst of the Brandon lignites. There was certainly no Machiavellian intent on his part to keep his people from prominence. He brought the current contingent of Harvard palynological

graduate students with him to Yale, and Margaret Wolfe stayed with my wife and me in our apartment. I believe that I first met several other Harvard students, including Grace Brush and Patrick Butler, at the first pollen conference.

My younger colleagues sometimes tend to suspect that professors of my time rose to prominence by exploiting the discoveries of their graduate students. The reverse situation was actually far more common, with graduate students breaking into national prominence by publishing, usually with some new illustrative data, the ideas that professors like Ed Deevey and Evelyn Hutchinson had presented to them in manuscript or in class. It was then, an is still, common for graduate students to mislead themselves about who did most of the thinking, and in some cases, even a fair bit of the technical work, that supported their early papers. With respect to the Brandon lignites, however, having heard the testimony of both the professor and the student, I have no doubt that Al Traverse did both the analyses and the thinking. He also did a good job of teaching what he had learned to his professor: I would not be able to give so clear and complete an exposition of the thesis research of my own graduate students.

I am sorry that this matter never chanced to arise in any of my conversations with Al - I could so easily have set the matter straight, and saved him some unnecessary pain.

With best wishes,

Sincerely,

D.A. Livingstone
J.B. Duke Professor of Zoology and
Professor of Geology

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Dear Editor,

I would like to raise the spectre of a finding a new title for the AASP *Palynology and Biostratigraphy* book. Jan Jansonius says he is amenable too, and he'd like some suggestions! I think the title needs to be more catchy like "Application of Palynology to law, Politics, Business, Petroleum, Ore Deposits, and Child Rearing" - some title that will attract numerous people, especially rich ones. Jan is not sure if he wants us to send him titles or to send titles to the Newsletter. What do you think?

Here's some of my ideas:

* Application of Palynology to Economic Geology, Forensics, and Food
* Palynology: Status of the Science in Regard to Biostratigraphy, Computer Applications, Ecology and palaeoecology, Economic Geology, Forensics, Global Change, Honey, and Petroleum
* Application of Palynology to Biostratigraphy, Computational Geology, Ecology and Palaeoecology, Economic Geology, Forensics, Global Change, Honey and Petroleum.

Sincerely,

Eleanora I. Robbins

[Editor's note: Norrie is referring to an AASP publication which is in the works. Originally known as THE SILVER JUBILEE VOLUME, the book (now up to two volumes) does not have a fixed title. See the article on page 20, by Jan Jansonius, one of the editors of the publication.]

NOTICE

1993 MEETING IN BATON ROUGE

SCHEDULE AND CALL FOR PAPERS.

The meeting will be held from the 23rd through 28th October, 1993 at Louisiana State University, Baton Rouge, Louisiana. Conference Organizers: Dr. George F. Hart, and Dr. John H. Wrenn, LSU. Abstract forms, schedules and registration forms are attached to the back of thi NEWSLETTER.

NOTICE

ANNUAL GOLF TOURNAMENT: The annual golf tournament will be held this year in Baton Rouge. Those interested in participating should contact Vaughn Bryant at Texas A&M University. The tournament is open to all palynological lovers of golf, ages 20-100. The weather in Baton Rouge is guaranteed to be better than that at the Calgary golf tournament where snow, ice and critters on the greens met the golfers. The venue is guaranteed to be closer to the meeting site than in San Diego, where a two hour drive was required before the first real drive.

NOTICE

DINO 5 - STUDENT TRAVEL GRANTS

Limited funding is available from the Treasurer of DINO 4 for graduate student travel to DINO 5. The grants will cover airfare only. Funding for all other expenses must be obtained from other sources. Recipients will be required to send a copy of their airfare receipt to the Treasurer via mail or facsimile transmission prior to disbursement of funds.

Applicants must meet the following qualifications:

* U.S. or Canadian citizenship
* Full time graduate student
* Present talk or poster session at DINO 5
* Paleontologist or biologist studying dinoflagellates

Applicants must submit the following information to the Treasurer:

* Letter of recommendation from their major advisor
* Brief statement (1 page) describing the significance of their research
* Signed statement listing other sources of funding that have been applied for and denied
* Abstract as submitted to DINO 5
  Letter of acceptance from DINO 5 organizing committee concerning presentation of talk or poster session
* One stamped, self-addressed envelope
* FAX telephone number (if available)

All awards shall be presented by the Treasurer, whose decisions shall be final. The Treasurer reserves the right to determine the number of grants that shall be awarded. In the event that all available funds are not awarded, remaining funds may be carried forward to DINO 6.

Send all application materials to:

Dr. Leonard N. Ford, Jr.
BioSpectrum Research
4508 Mercil Terrace
Glen Allen, Virginia
USA 230060-6449

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JANSONIUS AND HILLS GENERA FILE SUPPLEMENT 11

The Jansonius and Hills Genera File of Fossil Spores, Supplement 11 (November 1992) is now being mailed out to subscribers. There are a few copies of the complete set of cards still available. For more information please contact the Department of Geology and Geophysics, The University of Calgary, Calgary, Alberta, CANADA T2N 1N4.

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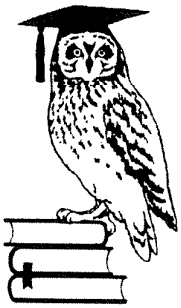
AASP STUDENT SCHOLARSHIPS AVAILABLE



The application form for the American Association of Stratigraphic Palynologists, Inc. Student Scholarships is included at the back of this newsletter. Up to two scholarships of $300 (US) each may be awarded. Applications must be received by April 1, 1993 and the winners will be announced by April 30, 1993. Previous winners of this award are eligible only if they are pursuing a different degree than the one they were pursuing when they received the previous award. **AASP Scholarships are available to all students of palynology in all countries.**

JOBS REQUIRED

Stratigraphic palynologist

PhD, M.Sc., 5 years of experience in Jurassic palynostratigraphy, palynofacies, organic geochemistry. Knowledge of sequence stratigraphy. Nationality: German, Languages: German, English, French. Searching for a position in the oil industry, any country, free immediately.

Susanne FEIST-BURKHARDT

Stratigraphic palynologist

PhD, M.Sc., 10 years of experience in Mesozoic palynostratigraphy, palynofacies, paleoenvironment, sequence stratigraphy, palynological laboratory supervision. Nationality: French, Languages: French, English. Searching for a position in the oil industry, any country, free immediately.

Eric MONTEIL

For offers please contact us at:
University of Geneva, Department of Geology and Paleontology, 13 rue des Maraîchers, 1211 Geneva 4, Switzerland.
Phone: (+41-22) 702 66 11, Fax: (+41-22) 320 57 32

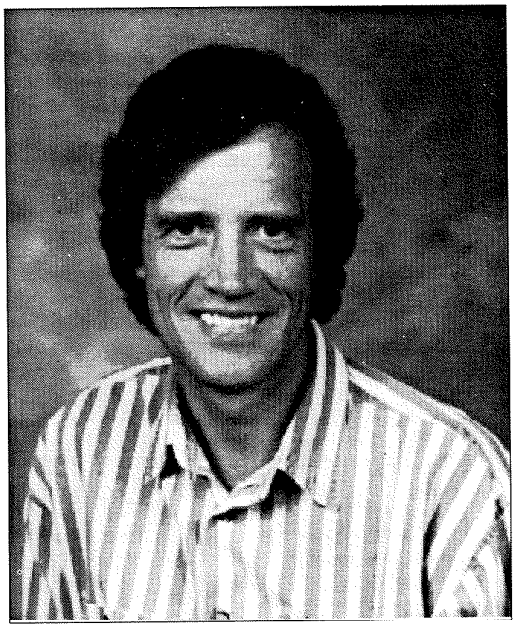
MEMBERS IN THE NEWS

Dr. David J. Batten, currently Reader in the Institute of Earth Studies, has been awarded a Personal Chair by the University of Wales.

David Batten took his initial degrees at Queen's University, Kingston, Ontario. He then studied at London University for a Master's degree in Micropalaeontology, which he gained in 1966. This was followed by a move to the University of Cambridge for further research in geology and palynology. He was awarded a PhD degree by Cambridge in 1969.

He spent a further two years at Cambridge as a Postdoctoral Fellow before being appointed Palynologist with Robertson Research International. In 1974 he joined the international staff of BP as a Biostratigrapher.

In 1976 David Batten was appointed Lecturer in the Department of Geology and Mineralogy at the University of Aberdeen. He was promoted to Senior Lecturer in 1986 and Reader in 1988. He moved to Aberystwyth in 1990.



Prof. David Batten

Professor Batten's research interests lie in the fields of palaeobotany and palynology, and particularly in Mesozoic biostratigraphy and palaeoenvironments. He also has a strong international reputation in the field of hydrocarbon exploration. He has published a significant amount of research relating to all of these activities.

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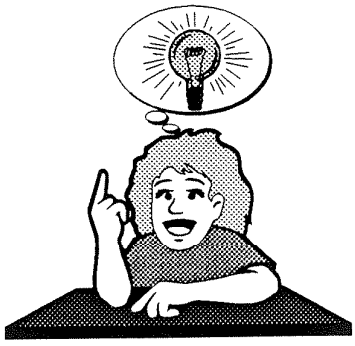


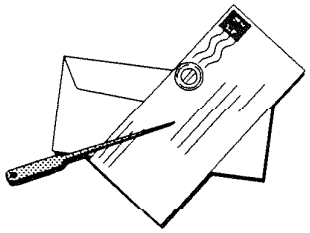
The following is a report of a "FLASH OF GENIUS" that occurred during a dino-discussion between Barrie Dale and the Union Oil Co. biostrat. group in Brea, last Fall; one that may prove to be an explosive issue!

Barrie writes..."As part of this discussion, I mentioned that one of my students, Anita Madsen (now Anita Fjellså) had

discovered exceptionally high amounts of cysts in sediments representing highly eutrophicated [sic.] conditions in the innermost part of the Oslofjord (.160,000 cysts/g dry sediment). As in many previous discussions with various other colleagues, I pointed out that scanning slides from this material gives an impression that dinos., make up most of the sediment, a bit like diatoms in a diatomite, and I tossed out the idea that we needed an equivalent term for such deposits."

"The answer cam immediately from Roger Witmer, in a flash of inspiration: "if diatom-rich sediments are diatomite, then ours would be **DINOMITE!**"

"As part of our concern with marketing palynology, should we apply to whatever wise body that decides these things to have "dinomite" formally accepted as a sediment type?"...Barrie Dale.



A DINOFLAGELLATE ON A STAMP

by William A.S. Sarjeant

Philatelistscollecting geological stamps have an ample field for their endeavours. There are study groups of geological philatelists in the United States and in Germany, both regularly producing newsletters in which new "geological stamps" are illustrated and discussed. At least on geologist - Hubert Skinner of Tulane University, New Orleans - has risen to high eminence in the philatelic world, owning an unsurpassable collection of the extremely rare New Orleans postmaster's stamps of the Civil War period and being the senior co-author of a standard work on early U.S. postal cancellations (Skinner and Eno, 1980). Already there are whole catalogues, beautifully illustrated in colour, devoted to minerals and dinosaurs on stamps (Autissier, 1987; Baldwin and Halstead, 1991), while catalogues featuring philatelic depictions of fossils of other sorts, of geologists on stamps and of stamps depicting scenes of geological interest are likely to be forthcoming in due course.

For micropalaeontologists, however, there have been extremely few philatelic joys. A recent Polish stamp honouring Roman Kozlowski, principally an invertebrate palaeotologist but also a major contributor to the understanding of chitinozoans and other Palaeozoic organic-walled microfossils, is probably the only philatelic portrait to date of a palynologist (Text-fig. 1). Among the many stamps that have honoured medical investigators, I have discovered only one actually depicting the micro-organisms which some of them studied - a Chilean stamp of 1982, illustrating a microscope and the tuberculosis bacillus. The four stamps issued by the United Kingdom

Fig. 1, Polish stamp featuring Prof. Roman Kozlowski

in 1989, to commemorate the centenary of the Royal Microscopical Society, might well have featured microfossils but didn't; the one apparently showing acritarchs in truth illustrates blood cells! It was not until 1991 that actual microfossils appeared on a stamp - the conodonts featured on one of the four stamps issued by Canada to illustrate our Palaeozoic fossil heritage.

The first appearance of a dinoflagellate on a stamp was an occasion that somehow slipped by unnoticed. Personally I did not become aware of it til I received that stamp recently, on a letter from Alan Partridge of Victoria, Australia; and it is also through Alan's kindness that I can furnish some of the details below. As will be seen (Text-figure 2), the stamp was issued by the Australian Antarctic Territory and illustrates Antarctic plankton, forming part of a set of six stamps illustrating the Antarctic food chain that was issued on 15th August 1973. The background colour is the grey-green of Antarctic seas, with a little yellow at top to indicate sunlight penetration. In the foreground is a krill (Euphasia superba), the minute crustacean so common in Antarctic waters and so much a staple of the diet of squids, fishes and whales; it is depicted with pink carapace and white appendages. At left is a diatom, shown in yellow; and there, prominent at upper centre in white, is our dinoflagellate, surely a Protoperidinium!

Two decades have passed this breakthrough; and, in that time, there has been little else philatelic to bring joy to a palynologists' heart. Might we hope some day for stamps featuring fossil dinoflagellates? In view of their prominence in biostratigraphy and thus in petroleum recovery, countries such as Irna, Saudi Arabia, Libya, Venezuela or the Gulf States, whose wealth depends on oil, might do so as a graceful gesture of appreciation. It would

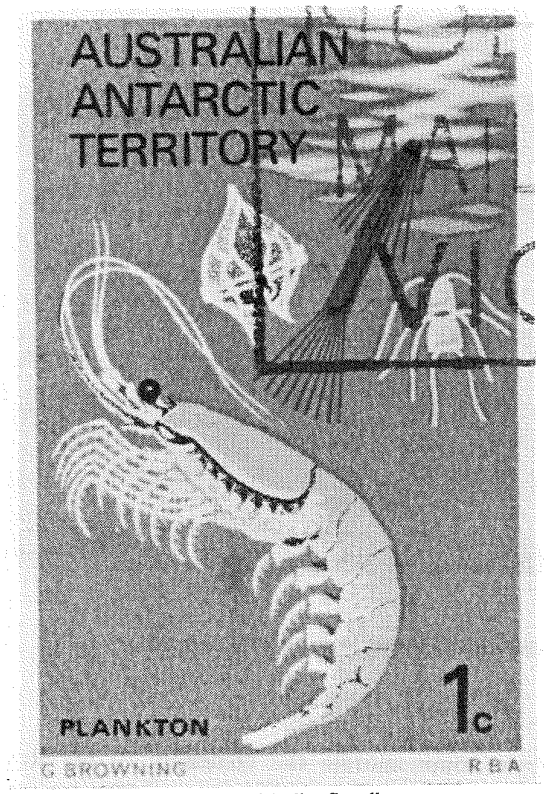


Fig. 2. Australian stamp with dinoflagellate.

make a welcome change from all those tiresome oil derricks and OPEC emblems!

References

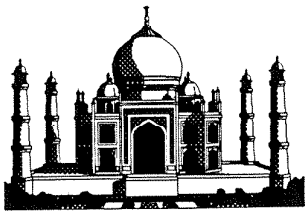
AUTISSIER, J.M., 1987. Le monde minéral vu par les timbres. / The world of minerals through postage stamps. Saint-Amand-Montrand, France: Atelier, 121 pp., 35 pls.

BALDWIN, S. and HALSTEAD, L.B., 1991. Dinosaur Stamps of the World. Silver End, Witham, Essex, England: Baldwin Books, 128 pp., many illus.

SKINNER, H.C. and ENO, A., 1980. United States cancellations 1845 - 1869. Unusual and representative markings. State college, Penn.: American Philatelic Society, with the Louisiana Heritage Press of New Orleans, 362 pp.

BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY, LUCKNOW

PROFESSOR BIRBAL SAHNI BIRTH CENTENARY CELEBRATIONS



A REPORT

The Birbal Sahni Institute of Palaeobotany concluded the year long Birth Centenary Celebrations of the Founder through a well-chalked out programme.

An exhibition **"Years of Achievement"** highlighting recent researches and achievement was inaugurated by Dr. S. Varadarajan, Chairman, Consultancy Development Centre, D.S.I.R., New Delhi. It was followed by the Founder's Day function. Welcoming the distinguished gathering, Dr. B.S.Venktachala, the Director appraised recent scientific contributions of the Institute. Professor H.Y. Mohan Ram, Chairman, Governing Body stressed on the importance of plant fossil studies in deciphering the evolutionary mechanism. Dr. S. Varadarajan emphasised the need for multidisciplinary efforts in plant fossil study. He urged the scientists to make palaeobotany utility based and lauded the approaches made by the Institute. He also recalled the contributions of Professor Sahni who explored all possible avenues to make the science of palaeobotany versatile. On the occasion Dr. Varadarajan released the following publications/works of the Institute:

1.**Plant Fossils - A Link with the Past** - by Drs. B.S.Venkatachala, Manoj Shukla and Mr. M. Sharma. An illustrated book dedicated to the Indian Children on the occasion of the Birbal Sahni Birth Centenary - Birbal Sahni Institute of Palaeobotany, pp.63.

2.**Four Decades of Indian Palaeobotany** (Proceedings of the Symposium held on November 18-19, 1991) (Edited by Dr. B.S. Venkatachala & H.P. Singh) Palaeobotanist 40: pp.545.

3.**Essays in Evolutionary Plant Biology** (Proceedings of the Symposium held on November 16-17, 1991) (Edited by Drs. B.S. Venkatachala, David L. Dilcher & H.K. Maheshwari) Palaeobotanist 41: pp.239.

4.**Archaean-Proterozoic** Computer based Literature search available with the Birbal Sahni Institute of palaeobotany Library. 1883 references are coded and indexed.

Similar programmes for other research areas are also planned.

5.**Inventory of Type & Figured specimens Part - II,** 1992 Birbal Sahni Institute of Palaeobotany, Lucknow.

Following lectures were delivered:

1.38th Sir Albert Charles Seward Memorial Lecture - **"Himalayan Earthquakes"** Dr. Harsh K. Gupta, Director, national Geophysical Research Institute, Hyderabad.

2. 22nd Professor Birbal Sahni Memorial Lectu **"Palaeozoic Biostratigraphy of Himalaya - a re-**

evaluation of Palaeoecology & Palaeogeography" Professor S.K. Shah, Head, Department of Geology, University of Jammu.

As a sequel to the symposium on **Four Decades of Indian Palaeobotany** held in November, 1991 a two day **Group Discussion** on the **'Thrust Areas in Palaeobotany"** was also held in October, 1992. Several Thrust Areas have been identified for future research programming.

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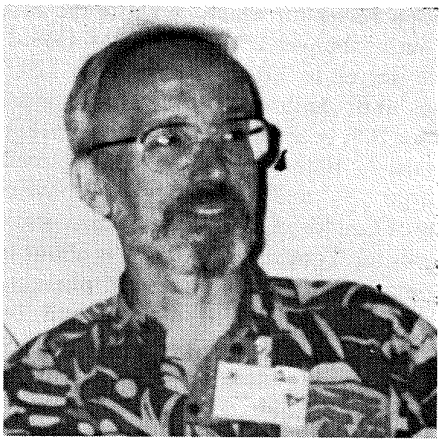
AASP CENTER FOR EXCELLENCE IN PALYNOLOGY

NEW DIRECTOR ANNOUNCED

Professor Joe Hazel, Chairman of the Department of Geology and Geophysics at Louisiana State University has announced that a faculty member has been hired who will be the director of the AASP Center for Excellence in Palynology (CENEX). Dr. John H. Wrenn, formerly of Amoco Oil Company, joined the faculty in January.



Dr. John H. Wrenn, Director
AASP Center for Excellence in Palynology

CENEX resides in the Department of Geology and Geophysics which is one of the academic units within the College of Basic Sciences. CENEX has attracted considerable interest on campus and will have affiliate members from Botany, the Quaternary Palynology of the Department of Geography and Anthropology, and probably others as CENEX grows.

John is still getting his office and collections organized, but is finding time to help Joe Hazel in teaching a graduate course in biostratigraphy this semester.

A large amount of equipment in support of CENEX has arrived on campus. The department is grateful for the efforts of AASP members in locating these many items - mostly from "downsizing" industry laboratories - and seeing to it that the equipment was sent to LSU.

According to Joe Hazel LSU is very pleased to be the home of the AASP Center for Excellence in Palynology with John Wrenn as the director.

WHERE ARE THEY NOW

25 YEARS LATER

Many members of the AASP recognize the names of most of the founding members of AASP from the literature and may be curious about what they are doing now and what they look like now. Each of the founding members of the AASP has been invited to send a photograph and write a short discourse on their current life styles - 25 years post-Tulsa. During our 25 year celebration, last year - the "Where are they now" column featured the founding members. We will continue to run this column until all of our founders have been heard from.

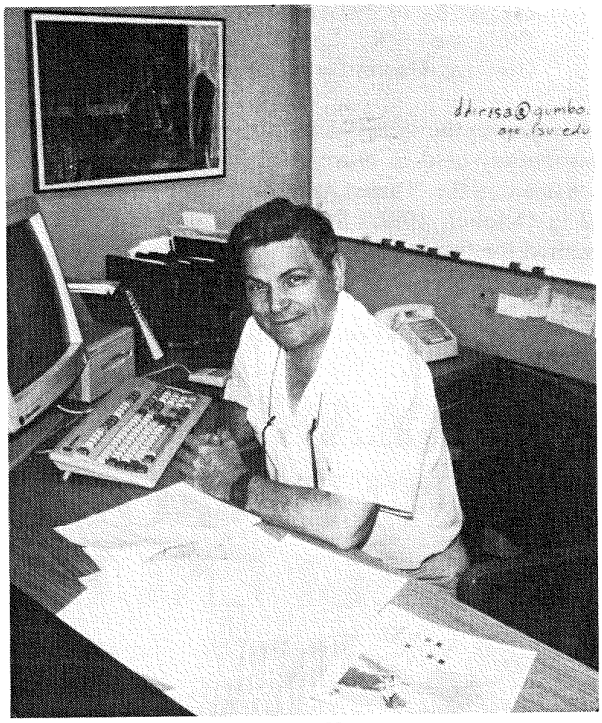
GEORGE FREDERICK HART was an Associate Professor of Geology and Palynology, at Louisiana State University, Baton Rouge when the AASP was formed. He had arrived there, via Moscow and Johannesburg, from Sheffield, England (where he was a student of Leslie R. Moore) and a contemporary of Herbert Sullivan, Roger Neves, John Richardson, Bill Sarjeant and Dave Wall. He was a British Council Fellow in Germany for a short while with Robert Potonie and Hilda Grebe. Between Sheffield and Baton Rouge he spent a post-doctoral year at Moscow State University studying under Alex Bogdarnow (Professor Tectonic Geology) and Sofia Nikolaiva Naumova at the Academy of Sciences of the USSR, with temporary assignments with A.A. Luber and Waltz in Leningrad, Five more years on NATO and Anglo-American post-doctoral

fellowships at the University of the Witwatersrand, South Africa followed, where he worked with Edna Plumstead the palaeobotanist, and for a short time with Raymond Dart the Palaeoanatomist. In 1966, George, his wife Clare, and their three sons Vaughan, James and Antony emigrated to the United States to take up the position at LSU. George spent an additional year in the Soviet Union in 1973, when he worked with Sergei Meyen (Sergei and George had been classmates in 1960-61 at the Academy. At that time Sergei worked with Neuberg at the same time George worked Naumova).

The main theme of the palynology group at LSU during the past 25 years was **Problems in Biostratigraphy** and this resulted in a succession of students, in palynology and related areas, starting with Jim Darrell (miospores) and Ray Christopher (Miospores and followed by Bob Pierce (coccoliths), John Jendrzejewski (diatoms), Howard Harper (coccoliths), Bill Harrison (Organic geochemistry), Ron Neal (Ostracoda), Diana Guttiierz (bivalvia), Steve Robichaud (miospores), Gene Coates (lignite), Mark Purcell (lignite), J.D. Rogers (lignite), Bill Ross (palynology/tectonics), Rick Ericson (gastropoda), John Wren (dinocysts), Scott Beckman (macerals), Dusty Hogenson(lignites), Tom Pavlik (miospores), John Bair (miospores), Gregg Smith (palynology), Jason Darby (macerals), Anne Lenoir (dinocysts, Larry Sienkovich (dipmeters), Bill Gregory (macerals, miospores, and dinocysts), Paul Lawless (sequence stratigraphy), Mark Pasley (macerals), John Grace (economics), and Bill Evans (parallel computing). Currently George has one student Renee Thibadeaux, who will be his last. Renee is working on cores off the Louisiana Slope.

During much of the late 70's and early 80's George was Director of the Museum of Geoscience at LSU and very much involved with the development of the LSU Field Camp in Colorado, where he was occasionally Director. In 1982-83 he spent 15 months working for Texaco in New Orleans where he was involved in both exploration and production, adding substantially to Texaco's reserves by drilling 5 wildcats all of which were successful producers. Upon returning to LSU George changed his position from that of Professor of Palynology, to that of Professor of Petroleum Geology, although he continued to train students in Palynology. The relationship with Texaco flourished as did the Petroleum Geology program at LSU. As a result of these interests George and a colleague (Tom Whelan) started a Geochemical Exploration company in 1974 (Carbon Systems Inc.). Eventually George sold out to Tom and created his won company, Hartax International Inc.

During the late 1980's and early 1990's George visited India twice through UNESCO and later the Smithsonian Institute. He became Director of Research of the Louisiana Geological Survey, a position from which he resigned in 1990 to return to full time teaching and research in the Department of Geology and Geophysics. Currently his interests include all aspects of subsurface geology with emphasis on detrital systems; data base

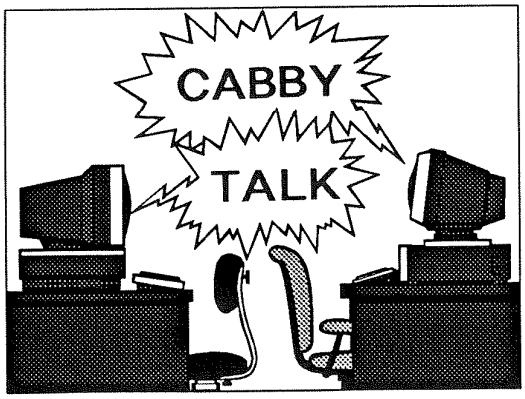


Dr. George Hart, at his desk at LSU.

construction and analysis; GIS for natural resource and environmental management; and, 3D sub-surface correlation using computers.

George organized and hosted the first AAS meeting in Baton Rouge and has been responsible for the organization of the 1993 meeting. Together with Bob Perkins he initiated **Geoscience and Man** as AASP's journal and was responsible for the establishment of the **AASP Contribution Series** for which he wrote the first volume.

During the past 25 years Clare obtained he Master of Science degree in **Ethnic Dance** from LSU's Physical Education and Anthropology Departments, Vaughan obtained his B.S. in biochemistry and is currently working as a chemist in Baton Rouge, James obtained a B.S. in geology from LSU and an M.Sc. in Geophysics from the University of London, England and is currently working on 3-D seismics for Texaco, and Antony is about to complete a B.A. in marketing with the intent of pursuing an MBA. They still have boxer dogs (the third) and Toyota Land Cruisers (the second about to be third). Clare and George are currently making plans to retire from LSU in May, 1994 and move to Colorado, where they own 35 acres of Boulder Mountain. From there who knows? It is said that on a clear night you can see half of the visible universe from the mountain top.



COMPUTERS IN PALYNOLOGY

Dr. Warren Kovach has been a member of the AASP Computer Applications in Biostratigraphy (CAB) Committee since its inception. Unfortunately, his name was not mentioned in the first announcement of the Committee.

We urge the AASP membership to submit news and articles on computer application in biostratigraphy to our Newsletter. We are still interested in compiling a database on biostratigraphic software. Please contact any of the Committee members (Michael Farabee, Massoud Jameosanaie, Warren Kovach, Judith Lentin, or Pierre Zippi) if you like to share such information with your colleagues. We are looking forward to hearing from you!

StrataBugs

BIOSTRATIGRAPHIC DATABASE SYSTEM

by

John Athersuch and Paul D. Britton

INTRODUCTION:

Recent trends in geoscience computing away from mainframe based systems to powerful networked desktop machines have promoted the development by mainstream vendors of sophisticated and integrated geoscience software packages.

However, biostratigraphic applications have not been included in any of these development. **StrataBugs**, the first fully featured Unix biostratigraphic workstation system is currently under development by **StrataData Ltd.** a UK-based company specializing in biostratigraphic data management and software development. Its functionality is based on the BUGS system developed by BP, but it has been greatly enhanced by the addition of a number of useful applications. **StrataBugs** runs in a windowed workstation environment and is controlled via pull down menus and lists for maximum user-friendliness. Data currently held in Halliburton's STRATS system or BUGS will be compatible with **StrataBugs** and there are facilities for transferring data to and from other systems. To cater for companies who prefer a PC platform, a version os **StrataBugs** is being developed to run under Microsoft Windows and possibly also Windows NT. **StrataBugs** is being designed and implemented by Paul Britton and Hamish Strang who have previously been responsible for the development of BUGS and STRATS, respectively.

CAPABILITIES:

Logging is via a touch-sensitive concept keypad and user-defined overlay menus. At the heart of the system is a taxonomic database which helps to protect the integrity of data and provides a sound basis for other application. There is provision for synonyms and preferred names as well as taxon codes. Hardcopy graphical output design is very flexible; plots are user-defined and device independent (laser printer, large format colour plotter, workstation screen or other device). To help with specimen identifications an integral image display application provides the facility of an on screen library of fossil types. The library can be populated by the user or by **StrataData** as required. A data entry module will be available for PC's running MS-DOS 3.3 or higher. This will offer a low budget solution for off-site and well-site data acquisition and will allow users to load data directly to corporate systems.

SOFTWARE:

StrataBugs is written in C and Fortran with a Motif graphical user interface and embedded third party database management and graphics sub-systems.

HARDWARE:

For the full set of applications a Unix workstation running the X-windows system is required. A number of different platforms will be supported, primarily SUN Sparc and IBM RS6000. PC's could be used as standalone data entry systems, networked X-window terminals, or PC workstations accessing a shared database.

PLANNED APPLICATIONS:

In addition, a number of optional applications are planned; these include a quantitative biostratigraphy data manager for RASC, graphic correlation and other statistical techniques, an expert system for fossil identification and a stratigraphic sequence prediction tool. A chart plotting facility for geochemical and sedimentological data is also planned. All of these applications will be available as future enhancements to the basic system.

LINKS TO OTHER SYSTEMS:

StrataBugs will be capable of digital data acquisition from a number of other software packages such as STRATS and CHECKLIST. Customised links to other proprietary systems such as Stratlog and Palcat can be provided.

AVAILABILITY:

The first release of **StrataBugs,** scheduled for mid 1993 will be available on SUN SPARC and IBM RS6000 workstations, and is likely to include the ORACLE database management system. Subsequent releases will make the system available on the PC platform.

StrataData plan to use the new system to enhance the other services they provide, such as the coding and transcription of data, transfer of data between databases such as Checklist, Strats, etc., loading of non-digital datasets and validation of data. **StrataData** recognise that a deficiency of many available biostratigraphic database packages is the poor quality of the hardcopy output and plan to use **StrataBugs** to provide a plotting service for large format black & white and colour displays from user-supplied data files.

FURTHER INFORMATION:
For further information about **StrataBugs** please call or fax John or Paul at **StrataData** at 44-932-873033

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Software police easy to alert

SEATTLE: One call to the Piracy Hotline is all it takes for the "software police" to come knocking at a firm's computers in the United States.

Parametrix Inc. of Seattle found that out last year when the software police - also known as the Software Publishers Association - showed up with a search warrant and a U.S. marshal to audit their computers.

The search turned up dozens of copies of unauthorized software programs and meant a penalty of $350,000 US for Parametrix.

The SPA says too many companies "softlift" - buying one copy of a program and making copies for as many computers as they have.

It seems so easy; and it's just as easy to get caught. It only takes one phone call to an 800-number in the U.S. to get the ball rolling.

"Anyone taking that chance is living on borrowed time," says Peter Beruk, litigation manage for the Washington D.C.-based SPA. "You can run, but you can't hide."

And the stakes get higher. Former President George Bush signed a bill before leaving office which elevates commercial software piracy from a misdemeanor to a felony.

American law imposes prison terms up to five years and fines of up to $250,000 for anyone convicted for stealing at least 10 copies of a program, or more than $2,500 worth of software.

TECHNICAL NOTES

Application of Palynology to Establish the Provenance and Travel History of Illicit Drugs

Edward A. Stanley
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New York City, New York 10003

Keywords: Pollens, controlled substances, illicit drugs, palynology, cocaine, heroin, forensic science.

ABSTRACT

Palynology (the study of pollen and spores) is a relatively young science. Since its first practical application in 1916, palynology's usefulness has been widely accepted in many diverse scientific fields. Recently, a preliminary study has shown that pollen and spore contamination of illicit drugs can be used to establish the drugs provenance, estimate the time of year that the drugs were processed or diluted and provide some information on the drugs travel history. This information is important to enforcement agencies if illicit drug interdiction is to be successful. The application of pollen and spores to this area of the forensic sciences opens up an entirely new field within palynology. However, this application must be used by workers trained in th field of palynology if the derived data are to be of value.

INTRODUCTION

The study of pollen and spores (palynology) and its application to other fields is a relatively young science. It was in 1916 that the Swedish botanist Lennart von Post (1) st used the variations in the abundance of pollen and spores from a Swedish bog to interpret the post-glacial climatic history of northern Europe. Since that time, other disciplines in the biological, physical and medical sciences such as Botany, Ecology, Geology, Archaeology, Climatology, Honey Analysis, Allergy Studies and the Forensic Sciences all have benefitted from palynological studies.

The application of palynology to the forensic sciences is a relatively new approach. The use of palynology as a tool for establishing the provenance of illicit contraband, including drugs has recently been reviewed in detail (2,3). Erdtman reported two cases in which pollen and spore evidence proved crucial in the solving of criminal cases. One of these cases is most unusual in that both modern (extant) and fossil (extinct) pollen helped solve the case. A person was missing amid suspicion of foul play; however, no body was found. Modern and fossil pollen, recovered from the mud on a suspect's shoes, pointed to a unique location within the surrounding region where both of these pollen types occur together. The suspect was taken to this location and told that this was where the homicide had been committed. Confronted with this information, he confessed and pointed out that the exact site where the body lay (4). More recently, Mildenhall (5,6) used pollen and spore data to help solve several New Zealand criminal cases. One of these cases was an attempt to determine the provenance of seized marijuana.

BACKGROUND

The New York City Police Department Crime Laboratory is probably the largest such facility in the world, based on the combination of staff and case-load. Approximately 1/2 of the 200 professional and support personnel are chemists employed full-time solely in the analysis of controlled substances (illicit drugs). The laboratory averages about 100,000 drug cases each year. For example, in 1991, the laboratory received for analysis almost 100 pounds of heroin, approximately 2,000 pounds of cocaine and more than 5,000 pounds of marijuana. Cocaine accounted for 66% of the total number of cases received whereas heroin comprised 18% and marijuana 10%, respectively. The drugs confiscated in New York City by the police during an arrest, or other types of seizures, are sent to the Police Crime Laboratory where they are analyzed. However, none of the analyses provides any information as to where the drugs are coming from (their provenance) or where they are being "cut" (diluted) for street sale.

Serious crime, especially the sale and use of illicit drugs, is a growth industry not just in the United States, but in all advanced countries. In past years, the use of cocaine and heroin was confined primarily to the United States whereas the most common drug of abuse in Europe was marijuana. However, this picture has changed. A recent issue of the MICRO-GRAM (7) reported that both heroin and cocaine hydrochloride are on the increase in Bolzano, northern Italy. The problems associated with the use and abuse of illicit drugs in Zurich's "Needle Park" are well known via the printed press and television.

Cocaine comes from northern South America. Colombia and its drug cartels are most often cited as the source. What is not widely known, however, is that Peru's Huallaga Valley grow 65% of the world's coca. The coca leaf (*Erythroxylum coca*) from this region is processed into a raw cocaine called "pasta basica", which then is sold to the Columbian cartels for refinement and export. The cocaine from South America frequently is shipped to an intermediate country such as one of the Caribbean Islands, Central America frequently is shipped to an intermediate country such as one of the Caribbean Islands, Central America, Mexico, or some other locale, before being sent on to the United States for street sale.

Heroin, derived from the opium poppy (*Papaver somniferum*) was, until very recently, primarily grown in Southwest Asia (Afghanistan, Pakistan, and India), the Middle East (Iran, Syria and Lebanon's Bekka Valley) or Southwest Asia (Burma, Thailand, Laos, the so-called "Golden Triangle"). There are some new data indicating that the opium poppy is now being grown in some of the former Soviet Union Central Asian Republics (8). In the Western Hemisphere Mexico has been, and continues to be, a major producer of opium with two types of heroin being produced - a brown heroin and a black tar heroin. The latter type is a crudely processed drug but with high purity. Drug enforcement intelligence data indicate that the Columbian cocaine cartels have diversified within the last year. Poppies, through the cartel's financial support, are now grown in Columbia for the direct production of heroin via opium and morphine. From its place of origin and refinement, the heroin is transported into Europe and North America through various surreptitious routes.

The processing steps required to produce heroin normally take about three days. Currently, drug enforcement agencies examine the manner in which the drugs were processed in an effort to determine their origin. For example, there are at least four traditional processes that have been identified for the production of heroin. Each one of these is distinctive. If a processing procedure common to Southeast Asia is used, it is assumed by drug enforcement agencies that the heroin originated in Southeast Asia even though, in reality, it may have originated elsewhere.

Several years ago, I realized that the pollen and spore contaminants of drugs could provide valuable information on their source (provenance), the time of the year these drugs were processed, their route of travel and where they were "cut" (2). When the coca leaves are being processed to make cocaine, the vat in which the batch is prepared is subject to contamination from the local

vegetation. Conversely, the local vegetation, reflected through the contaminating pollen and spores, subsequently can identify both the locale and the time of year the processing took place. If the cocaine packaging is opened anywhere between the initial wrapping and its sale on the street, it also is subject to contamination from the local vegetation. For example, if drugs were "cut" in Mexico, then the pollen and spore contamination would be different than if they were "cut" in the Caribbean inasmuch as the vegetation of these two areas is markedly different.

CURRENT STUDY

One-hundred and twenty-four grams of seized cocaine hydrochloride, destined for destruction (burning), were obtained from the Laboratory vault. This cocaine was put into solution in 400 mL of methanol, which was then centrifuged and decanted. The residue was stained with "safranine-O" and mounted on microscope slides. Examination of the residue revealed three distinct assemblages of pollen and spores.

The first assemblage contains pollen tetrads and single grains, that presently are not identified, together with *Lycopodium* spores. All of these grains accept stain differentially. That is, the endexine (the inner portion of the pollen wall) readily takes up the stain whereas the ektexine (the outer potion of the pollen wall) does not (9). Furthermore, none of these grains contained protoplasm (the genetic material inside the grain which decomposes within the relatively short time).

The chief pollen types in the second group are pine and Canada hemlock (*Tsuga canadensis*). The ektexine of these grains also did not accept stain; however, each of these pollen types still contained protoplasm. Normally, it is not possible to identify pine pollen to the species level. However, there is one exception and that is jack pine (*Pinus backsiana*). The identifying feature of this pollen grain, that readily separates it from the other species of the genus *Pinus*, is its small size.

The third category consists of grass, birch, oak, goosefoot and composite pollen grains. All of the pollen in this third assemblage still contained protoplasm and both the endexine and ektexine accepted safranine stain is a normal manner; that is, they each took up the safranine stain.

INTERPRETATION OF THE DATA

The pollen and spores of the first category are interpreted as grains that contaminated the cocaine during its processing in South America. The processing of the coca leaves into cocaine takes a minimum of four days; the process is carried out in vats located in remote areas, usually in the open air or, in sheds that are open. The dried coca leaves are moistened with an alkaline solution, usually lime water. The moistened leaves then are soaked in kerosene, which serves to extract the cocaine. The kerosene is extracted with sulphuric acid which, in turn, is neutralized with limestone. The precipitate (cocaine) is removed by filtering. This harsh chemical treatment, especially the alkaline treatment, would tend to alter the ektexine chemistry and destroy the protoplasm of the pollen and spores that have fallen into the batch during the processing. Inasmuch as the pollen grains recovered from the cocaine are not identified, nothing can be said at this time about the flowering time of the plants that produced these grains. However, *Lycopodium* sheds its spores in late spring (spring in South America = fall in the Northern Hemisphere).

The second assemblage is composed of scrub pine and eastern hemlock pollen. Trees of these two species are not indigenous to South America. In face, the only place where these two trees grow together in the United States is in north central United States (central and northern Michigan and Wisconsin) and northeastern regions of the country (northernmost New York, the mountains of New Hampshire and the state of Maine). The presence of these pollen grains in the cocaine, together with the reluctance of the ektexine to accept the safranine stain, suggest that it was somewhere in this relatively limited area of the United States where the cocaine was "cut". Both of these trees pollinate in the spring and therefore I also suggest that it was this time of the year that the cocaine was exposed to the atmosphere during the diluting process. The pollen grains remained in the cocaine for some time after being "cut"/ I believe that during this time the cocaine brought about a chemical change in the ektexine thereby causing it to reject the safranine stain. However, the pollen was not long enough in the cocaine for its protoplasm to decompose.

Finally, the third assemblage comprises pollen primarily of grass, birch, oak, goosefoot and Compositae. All of these grains accepted stain in the normal manner (both the ektexine and endexine take the stain) and they are contained protoplasm. Furthermore, all of these plants pollinate during the early to late summer. The interpretation here is that these grains are nothing more than contamination while the cocaine was being processed, or readied for microscopical examination during the summer in the New York City Police Laboratory.

SUMMARY AND CONCLUSIONS

Examination of the pollen and spores in the cocaine sample reported herein indicates that the cocaine was processed in South America during its spring (fall in the Northern Hemisphere). Probably during the following year (spring in the U.S.), it was diluted and/or repackaged in either one of two restricted areas in the northern portion of the country. A few weeks later, it was confiscated during an arrest on the streets of New York City.

Until now there has been no way to determine what specific country originated the illicit drugs, the time of the year they were processed, their route to distribution or where they have been diluted. This information is very important for both drug intelligence and drug enforcement

agencies if interdiction is to be successful. Examination of the pollen and spores contamination of not only illicit drugs, but many types of other evidence, may provide answers to all of these questions. The ability of palynology to provide this information opens up an entirely new application in the field. However, if meaningful results are to be obtained in this type of investigation, I cannot stress too strongly that pollen and spore studies must be made by people properly trained within the field.

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THESIS ABSTRACTS

ABSTRACT

Botanical Reflections of the Encuentro and the Contact Period in Southern Marian County, California.

by

Faith L. Duncan
Department of Anthropology and Geosciences, University of Arizona, Tucson, Arizona, December 1992. The dissertation will be available on University Microfilms, Inc., of Ann Arbor, Michigan some time in 1993.

Plant indicator species and longitudinal paleobotanical data were used as independent measures to document the human ecological record of the contact period in southern Marian County, California. These data suggest that material cultural and documentary records are insufficient for examining changes in land management and use during the contact period.

Three phases of the contact period were delineated in the study area. Prior to A.D. 1579, Western Miwok peoples had not encountered Europeans face to face. This early phase of the contact period is marked by the possible introduction of New World species through passive cultural vectors. Two brief encounters between the Miwok and Europeans between A.D. 1579 and 1775 constitute the second phase. Introduced and weedy plant species from fossil samples appear to confirm these encuentros, and confirm the material cultural evidence for intermittent and protracted contact during the third, and final phase of the contact period.

Modern and fossil pollen samples suggest that the intensity of human disturbance is geographically stratified and related to exploration, procurement, and management of specific resources. The coastal prairie, redwood forest, and San Francisco Bay salt marshes were the most affected by the second phase of the contact period.

Shifts in vegetation diversity and increases in the numbers of introduced and weedy species were compared

between ruderal and undisturbed contexts. These data were used as analogs to monitor the final phase of contact between A.D. 1775 and 1817. Hypotheses derived from ethnohistoric and ethnographic sources that suggest rapid shifts in land management practices and changes in plant representation were corroborated by some pollen data. Specifically examined were the ecological responses to the suppression of anthropogenic burning, changes in land tenure and parcelization, and the initiation of grazing and logging practices.

The cumulative impacts of introduced plants, shifts in land management from Miwok to Euroamerican-dominated resource procurement and subsistence practices, and ecological responses of plant species suggest that the contact period might better be defined on ecological terms rather than by purely material cultural or ethnographic definitions. In southern Marin County, paleobotanical data provide a measurable indication of the ecological character of the precontact landscape and the cultural processes that effectively altered its character during the contact period.

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CLIMATE, PEOPLE, and TREES:
The Little Ice Age
in
Southern Ontario, Canada

Ian D. Campbell, 1992. Department of Botany, University of Toronto. Supervisor: Dr. J.H. McAndrews

Most Southern Ontario pollen diagrams show a pronounced decline in beech, followed by a peak in oak and finally a rise in white pine, during the period AD 1450 - 1850. This sequence, recognized as pollen zone 3d, has been variously ascribed to Indian disturbance and climate cooling. This thesis uses three approaches to distinguish the two explanations. Firstly, a geographic analysis of pollen trends shows that the forest dynamics of this time do not coincide spatially with Indian occupation; while they may have been a contributing factor in some areas, they are not a sufficient explanation. Secondly, a consideration of forest ecology suggests that a cooling known as the Little Ice Age may have been sufficient to cause the observed successions. Thirdly, forest succession simulation modelling is used to distinguish probable effects of Indian disturbance and climate cooling.

The major conclusions are: (1) Indian populations were insufficient to cause significant regional forest succession; (2) the Little Ice Age was sufficient to cause significant regional forest succession; (3) small climate changes may have a pronounced effect on vegetation; (4) pollen-climate transfer functions are not applicable to this time-period in this area because the Little Ice Age caused a temporary non-equilibrium forest; (5) gap-phase simulation modelling of forest succession may help interpret non-equilibrium paleo-vegetation.

EDITOR'S NOTE: Recent graduates of either M.Sc. or Ph.D. programs are urged to submit their abstracts for publication in the AASP NEWSLETTER. Professors are urged to urge their students to submit abstracts for publication in the AASP NEWSLETTER.

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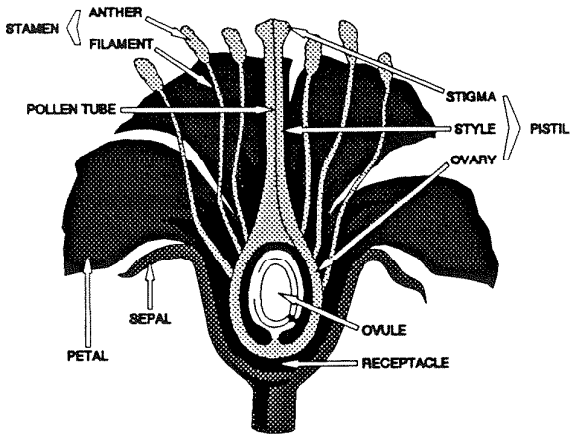


THE NCU PROPOSAL

Having been involved in a number of taxonomic and nomenclatural projects over the past few years, I've had cause to correspond with a number of experts on the ICBN During the course of this correspondence, gradually became aware of something called "Names in Current Use" (NCU), and now, after a discussion with John McNeill of the Royal Ontario Museum (Secretary of the Editorial Committee of the ICBN), I'm more fully tuned in to the NCU project. Since it is my sense that palynologists are generally unaware of what is afoot, and since the NCU project could have a major impact on the nomenclature of our fossils, I would like to give readers a brief summary of what I've found out. I emphasize that this summary is totally unofficial and also essentially neutral with regard to advocacy or non-advocacy of the NCU proposals in principle.

According to an open letter from Werner Greuter (senior co-ordinator of the 1988 ICBN):

"Names in current use are legitimate names adopted in the most recent revision (if any) of the corresponding group, or in a recent flora within whose limits a given taxon occurs, or, failing this, they are the names that one would adopt, or that other botanists would likely adopt, when referring to a given taxon. Criteria for inclusion in NCU lists must be pragmatic and flexible, and the lists must certainly allow for those alternative taxonomies that are currently employed."

"The question may also be asked the other way round: Which names are not to go on a NCU list? Th following 'negative' categories of names have been

identified: (a) names that are either completely forgotten, or that are unused because universally considered as taxonomic synonyms; (b) names that are illegitimate either as junior homonyms or as being nomenclaturally superfluous, unless they are so well established that their conservation is desirable; (c) names that cannot be typified or whose type cannot be interpreted, unless, again, their present widespread use warrants their being retypified; and (d) names that have been used in a wrong sense and have become meaningless or misleading, and that qualify for rejection under Art. 69 of the Code, unless their conservation in the wrong but traditional sense offers a better solution."

Again according to Werner Greuter, to formalize these principles, a new Article 15bis is to be proposed, the core of which is as follows:

"15bis.1. In order to protect names in current use from being threatened or displaced by names that are no longer in use, and in order to eliminate uncertainties regarding their application, spelling, gender, and date and place of valid publication, published lists of names can, upon recommendation by the General Committee, be approved by an International Botanical Congress. Such lists, once approved, are enumerated in Appendix V."

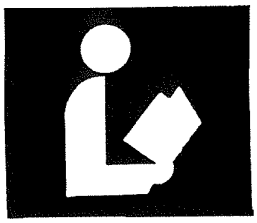
"15bis.2. Subject to specified restrictions and exceptions (Art. 15.3), all names on lists enumerated in Appendix V, together with their autonyms, are protected. (a) A protected name (nomen protectum) is treated as if conserved against earlier homonyms and unlisted competing synonyms; (b) it is accepted as validly published in the place and on the date cited in the list; (c) its type, when listed, is treated as if conserved under Art. 14.3; (d) its adopted spelling and, when specified, its gender is treated as if conserved under Art. 14.10."

Given the above, what progress has been made with regard to a palynological listing of NCU genera? Following a trail suggested by Dr. McNeill, I located a full NCU listing at the Botany Section, Canadian Museum of Nature under the auspices of Erich Haber. Thanks to his kindness in loaning me the list, I now have a copy of the paleobotanical part of the NCU listing, this part including palynomorph genera. I have shown this copy to a number of colleagues so far, and all agree with me that it is woefully incomplete, at least with regard to palynomorphs. If the list, which is admittedly provisional and was open for comment up until Spring 1992, were "entrenched" in Appendix V of the ICBN at next year's Botanical Congress, it would create nomenclatural chaos in palynology.

I next contacted Al Traverse, who is Secretary of the Committee for Fossil Plants. This committee is responsible for evaluating all proposals to amend the ICBN that affect, or might affect, names of fossil plants. Dr. Traverse assured me that the committee had no intention that the list as such would be promoted at the Botanical Congress in Tokyo next year, and indeed that no fossil plant list would be ready for Tokyo.

I know that some palynologists who are aware of the project are very opposed to ever establishing a NCU list for fossil plants (including palynomorphs). They note that, with the advent of information systems, powerful data bases and indexes, we don't really need to go to the not inconsiderable trouble of compiling an NCU list. Others see merits in the stabilizing influence of an NCU list. As for myself, I don't feel strongly either way. However, if there is to be an NCU listing of fossil plants, I agree strongly with Al Traverse, who, in his letter to me, wrote that "... it should not be a hasty nor wholesale action. I think we should adopt rather restricted, very carefully researched sub-lists piecemeal over at least a decade or so." I would add that it must be an open process, with all interested parties having a chance to influence the listing.

I will keep you posted, and would be interested in hearing members thoughts. - Dr. Rob Fensome, Geological Survey of Canada, Dartmouth, Nova Scotia.



BOOK REVIEWS

Book Review Editor - Reed Wicander
Department of Geology
Central Michigan University
Mt. Pleasant, Michigan 48859

SAMPLING AND IDENTIFYING ALLERGENIC POLLENS AND MOLDS: AN ILLUSTRATED IDENTIFICATION MANUAL FOR AIR SAMPLERS.

By: E. Grant Smith
Blewstone Press
P.O. Box 8571 Wainwright Station
San Antonio, Texas 78208
1990, 196 pages, 34 plates of pollen grains, 16 plates of fungal spores, ISBN 9-930961-02-1; $125 US.

This is not the type of palynology publication most members of AASP would ever see because most conduct research in areas that do not pertain directly to allergy research. nevertheless, this book is worth investigating and contains informative chapters that I found broadened my palynological horizons.

One-third of the book is text, and is organized into chapters with headings like: 1) Why Collect Pollen and Molds; 2) Choice and use of Equipment; 3) Problems of Identification; 4) Licensing of Allergenic Products; 5) Botany, Palynology, Aerobiology, and the Environmental Aspects of Allergy; 6) Fungal Allergens; and 7) Air Dispersed Spores of Myxomycetes. The rest of the book is devoted to photomicrographs and accompanying plate

identifications.

The text portion is full of interesting information about how and why pollen and spores cause allergic reactions in people, why some people seem to be allergic to certain types of proteins while others are not, how to test for IE antibodies found in pollen and molds, and the most reliable types of air sampling systems designed to trap pollen and spores.

The chapter on "Problems of Identification" fascinated my because I have always wondered how aerobiologists are able to distinguish so many different genera of airborne pollen types without being able to see the distinct features of a grain's ornamentation and aperture pattern that acetolysis can reveal. The key, it seems, is a precise knowledge of when local plants to find in the local air sources during various times of the year, and precise knowledge about the subtle differences one can discern, with experience, after carefully examining stained reference samples of fresh unacetolyzed pollen.

Chapter 5 was also full of tidbits of information that I had forgotten or had not seen mentioned in other standard palynology texts. For example, I did not know that an alder (*Alnus*) tree produces, and releases, an average of 7,239,3000,000 pollen grains per year. Also, during a day when the pollen count in ambient air reaches 500 grains per cubic meter, a non-active individual will inhale about 7,200 pollen grains during a 24 hour period. If the person were active, the amount of inhaled pollen could double that amount. Other interesting facts included a note saying that Salem, Oregon planted 20,000 ornamental trees in their city during 1982. All of them, it now turns out, produce airborne pollen that are allergenic. Likewise, a detailed study of the ornamental trees growing in urban areas of Ventura, California revealed that most of the identified 45,000 trees are known to be allergenic.

If you think that flowering plants, like the alder, are high producers of airborne allergens, then consider the following facts I found in the chapter on fungal spores. One, individual, bracket fungus (*Ganoderma applanatum*) can discharge 30,000,000,000 fungal spores every day beginning in early May and not ending until the end of September. This means that this one organism can discharge a total of 4,500,000,000,000 spores in one season. This is equivalent to one spore/dollar of the current national debt owed by the U.S. government.

The individual photographic plates of pollen grains and fungal spores are very good, for what they are designed to show. Each plate contains 12 individual photographs of fresh pollen or fungi. Each taxa was stained and photographed while it still contained cytoplasm and, in some cases, surface lipids. Any trained palynologist should be able to thumb through the plates and instantly recognize many of the pollen types, even though the grains do not show clear images of their characteristic surface ornamentation or exine wall structure. But, I found it nearly impossible to identify some of the tricolporate and tricolpate pollen types from looking only at the photomicrographs. Without being able to see distinguishing surface and/or pollen wall features, I found identification would be risky at best. Nevertheless, the plates of photomicrographs should be of great value to aerobiologists who may be called upon to identify fresh pollen recovered from various types of air-sampling devices. Also, the 16 plates of fungal spores represent one of the few available sources showing pictures of common fungal types found both in soil and airborne samples.

I recommend the book to those who feel they could benefit from the text data it presents and from the many photomicrographs of both fresh pollen grains and fungal spores. you should also know that a note in a flyer that was used to advertise the book offered the following warning, "due to IRS rules, we have not printed many copies and it is unlikely there will be a reprinting. We recommend you get your copy now." Aside from the price of $125 U.S., I would think that was good advice.

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An Atlas of Selected Pollen Important to Honey Bees in the Eastern United States

by Stephen B. Bambara and Nancy A. Leidy.

North Carolina State Beekeepers Association,
1403 Varsity Drive, Raleigh, North Carolina, 27606.
1991, $10.00. 38 pages.

There are a few books on the market that offer pollen keys and few that are an atlas of selected pollen types. This lack of published pollen keys presents a significant problem for new students studying Quaternary-age deposits because most of them do not yet know pollen types. Lack of published keys also hinders some experienced palynologists who want to begin pollen work in a new geographical region containing unfamiliar pollen types. Even so, published pollen keys are not the complete answer to either of these problems; but they often prove very helpful as a beginning point for learning new pollen type.

The recent pollen atlas produced by the authors of *An Atlas of Selected Pollen Important to Honey Bees* is useful, but its value as a pollen reference key is limited. The most favourable attribute of the book is that it contains 57 SEM micrographs of 37 different pollen types commonly found in honey samples from areas of the eastern United States. For the melissopalynologist, an SEM atlas, or key of pollen flora, becomes an importa

research tool for identifying unknown pollen taxa in honey samples. On the other hand, for most types of melissopalynology research light microscope keys are easier to use, even though they may lack the precision provided by an SEM level of magnification. What is most needed is pollen atlas that combines both SEM and light microscope photographs of each pollen type.

Unfortunately, this new pollen atlas suffers from having SEM pictures that are not the best quality. Some photomicrographs are better than others; however, overall I believe the quality should have been better. Also, each of the pictures lacks a linear scale which would have made quick size determinations of actual pollen grains easy. There is a note in the book's introduction indicating that most prints were made at 1500X and that at that size a line 15mm long is equal to about 10 microns. However, not all of the prints are printed at 1500X. Even so, if the reader is clever, he or she can use a ruler to get a general size estimate for most of the pollen types. In retrospect, it would have been so much easier to have a linear scale on each picture.

The authors state that the purpose of producing the book was to provide a pollen atlas to help beekeepers learn about pollen, help those interested in allergy learn what pollen looks like, and help farmers concerned about the efficiency of crop pollination to know what pollen looks like. If the book's purpose is only to show these and other people what pollen looks like, then the book has met its goal. However, for those of us working in palynology, we have come to hope that books like this can help us in our studies; and in this regard, the book is not as useful.

In spite of the problems associated with this book, it does have photographs of 37 different pollen types and its cost is only $10.00 (even though the cover of the booklet has a printed price of $8.95). At a time when most new pollen books seem to be costing over $100, the price of this one make it almost irresistible for purchase.

Reviewed:
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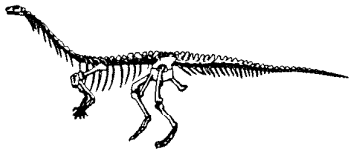
Bones of Contention



What happens to a Tyrannosaur named Sue in a tug-of-war?

Had it learned of the posthumous dispute raging over its fossilized remains, the six-ton carnivore that roamed South Dakota several million years ago might well have succumbed to a fit of saurian modesty. In any case, the largest *Tyrannosaurus rex* fossil ever found is now a bone of contention among the U.S. government, a commercial fossil dealer and a Native American tribe. Christened Sue, the 15-m theropod was discovered two years ago and excavated without permission by the dealer from land belonging to the Cheyenne River Sioux, who are taking legal steps to recover the remains. In its excellent state of preservation, Sue could easily be worth several million dollars to interested museums.

A.A.S.P.

SILVER JUBILEE

VOLUME

PALYNOLOGY AND STRATIGRAPHY

By Jan Jansonius

In 1989, Graham Williams, Rob Fensome and Bruce Tocher, returning home from Dino IV, hatched the plan for a new textbook on palynology that would address an audience of professionals and students at the graduate to postgraduate level. These plans were firmed up by a book outline, and a slate of prospective contributors was found amenable to provide chapters for the book. The idea was to let experienced palynologists write on the field of their particular expertise. Each chapter has one or two 'coordinators', who may write the chapter themselves, or are free to invite as many co-authors as they see fit to (help) write the text for that chapter. [The book was conceived as a 'Silver Jubilee Volume', a tribute to the AASP, which then yet had to mark its 25th anniversary.]

At this stage, an editor was required to oversee the actual production. When I was offered this position, I was happy to accept, but asked for one more editor to be appointed; Colin McGregor agreed to join me in this undertaking.

For the last three years, we have worked to bring this plan to realisation,and now have progressed to the point where it seems reasonable to give this project some more publicity.

Although the AASP Executive early-on was favorably inclined towards this project, and agreed to be associated with it, it was not immediately clear how, or by whom, a book of this scope was going to be produced and published. {Eds. note: the Board of Directors of the AASP voted unanimously at the 1991, mid-year meeting to fully support the project.} Also, many of our leading experts are always busy and committed to a number of projects, and the writing of the book did not progress at the pace originally hoped for. However, in the interim word processing and desktop publishing methods have improved so much, that it has become feasible for AASP to tackle the production itself. Our book is to be published by the AASP in much the same way as the recent book on Neogene dinoflagellates (by Head & Wrenn). In fact, the production process has started.

At present, we are planning to produce this book in two volumes (for ease of handling), published simultaneously, and each containing some 450-500 pages. Although the original book was organized into 21 chapters, in part subdivided into A and B parts, we are now reorganizing the book into 29-30 chapters, again with subdivision of some of these. Part I will contain mostly the systematics and principles, part II the stratigraphic and other applications.

We are still undecided on how exactly we are going to number and split the chapters up over the two volumes, and what follows may be modified (contributing authors: take note of this!). However, the approximate topics of our book will be as follows:

VOLUME I

1. **Introduction, history, etc.**, Jansonius & McGregor
2 **Nomenclature & systematics**, Traverse
3 **Techniques (processing, etc.)**, Wood
4 **Precambrian phytoplankton**, Knoll
5 **Acritarchs**, Strother
6 **Dinoflagellates**, Fensome & Riding
7 **Spores**, Dettmann & Playford
8 **Pollen**, Jarzen & Nichols
9 **Fungi**, Elsik
10 **Green algae**
10A **Zygnemataceae**, van Geel & Grenfell
10B **Prasinophytes**, Guy-Ohlson
10C **Pediastrum**, Batten
10D **Gloecapsamorpha**, Guy-Ohlson
11 **Chitinozoa**
11A **Systematics**, Miller
11B **Stratigraphy**, Paris
12 **Scolecodonts**, Szaniawski
13 **Miscellaneous**, Jansonius
13A **Cenospheres/linotolypidae**, Jansonius & Miller
13B **Dictyothylakos**, Manum
13C **Zoological cuticles**, Miller
13D **Early tubes**, Diane Edwards
13E **Melanosclerites**, Cashman
13F **Microforam linings**, Stancliffe
14 **Plant evolution**
14A **Exine ultrastructure**, Rowley
14B **In situ spores/pollen**, Taylor
14C **Early land plants**, Dianc Edwards
14D **Cretaceous angiosperms**, Friis & Pederson

VOLUME II

15 **Introduction; time scales**, Christopher & Goodman
16 **Paleozoic phytoplankton**, Molyneux
16A **Cambrian/Ordovician**, Molyneux
16B **Silurian**, Le Herisse
16C **Devonian**, Wicander
16D **Carboniferous/Permian**, Molyneux
17 **Paleozoic spores & pollen**, Higgs
17A **Early Paleozoic record**, Richardson
17B **Devonian**, Loboziak & Streel
17C **Lower Carboniferous**, Clayton
17D **Upper Carboniferous**, Owens
17E **Permian**, Warrington
17F **Megaspores**, Hemsley & Scott
18 **Mesoz./Tert. phytoplankton**, Williams & Stover, et al.
19 **Mesoz./Tert. spores/pollen**, Batten (with Warrington et al.)
20 **Quaternary phytoplankton**, Mudie et al.(with Harris)
21 **Quaternary spores/pollen**, MacDonald

22 **New directions/frontiers**, Bryant
22A **Archeology**, Holloway
22B **Underwater sites**, Weinstein
22C **Prehistoric diet**, Sobolik
22D **Melissopalynology**, Jones
22E **Entomopalynology**, Pendleton
22F **Medical palynology**, O'Rourke
22G **Forensic palynology**, Mildenhall
23 **Data and computers**, Lentin et al.
24 **Quantitative palynology**, Lucy Edwards & Gradstein
25 **Palynofacies**, Batten (et al.?)
26 **Fecal pellets**, Robbins
26A **Zooplankton pellets**, Mudie
26B **Pollen in pellets**, Head & Mudie
27C **Diatom-eating zooplankton**, Haberyan
27D **Pellets and epifluorescence**, Cuomo & Y.Y. Chen
28 **Vegetational history**, Frederiksen (et al.)
29 **History marine realm**, Goodman & Tocher

From this outline, it is clear that we have the promise of a first rate text, that will help the education of the next generation of palynologists. But the editors, who already have seen many chapters in MS, know that this is more than a promise: the text is very good, and has provided a learning experience that we would not have liked to miss. Any palynologist will find the chapters of this book engrossing and informative. Only a few chapters are not yet ready in first draft, but we know that they are all now being worked on. Bob Clarke has begun final formatting of the first three chapters, and several more are presently being cast into final draft.

Some of our authors have said that they do not like the present working title of the book: they consider it not enticing, and not reflecting the breadth of the exciting information in it, that would appeal to a wide public if only they could be encouraged to open its covers. Yet, we do like its briefness, and its reference to (the silver jubilee of) AASP, which is being honored by this book. So, if any of you have some brainwaves, and think up a more appealing title, please let me know. In the mean time, we will keep you posted on the progress during the coming year.

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237 4 Ave SW
Calgary, Canada T2P 0H6

FROM THE EDITOR'S DESK

I received a cryptic letter from someone (I couldn't read the signature) at the Botanical Institute at the Univ. of Bergen. This letter was actually a xerox copy of a short article (known as "filler" to editors) published in the AASP NEWSLETTER Vol. 23, no.2 (April 1990). To my unhappy surprise, the article was the humorous bit on the discovery of the heaviest element "Administratium". Exactly the same article, sent in by a reader to appear in the last issue of volume 25. The note at the bottom of the xeroxed page reads: "There is nothing like meeting old friends again! Till next time!". It fills me with wonder that anyone would remember such trivia. It also delights me to know that someone - out there - actually reads the NEWSLETTER.

We have recently had a long hard cold spell in Calgary with temperatures hovering in the -20°C to -30°C range. Part of that time I was in sunny, warm Jakarta. While there, I was invited to address the Indonesian Petroleum Association (IPA) monthly luncheon meeting on the topic of "The changing roll of biostratigraphy in stratigraphic correlation and analysis of environment of deposition". It was very

interesting... In cold Calgary a talk by a biostratigrapher would probably be given in an empty dining room. In Jakarta, explorationists are still interested. It was fun.

One of the examples of palyno-help given to an oil company, which I always use in this style of talk, refers to a problem in a heavy oil field in Saskatchewan. The problem involved steam flooding of sand stringers to "harvest" the oil. The problem was that the sands couldn't be correlated. Fortunately, the sedimentologist working on the project was a young university graduate who had actually taken a palynology course at the University of Calgary. He came to me to help solve the problem. (I am extremely limited in what I can write about this project because the company agreed to oral presentation of the information, but expressly forbid publication.) I was faced with Late Albian sand stringers. Most palynologists know that the ±15 million years of Albian are pretty hard to break into smaller units, even in good open marine shales. But to try to correlate sand stringers, all deposited within a one to three million year period, is a major task. I discovered if one avoids the obvious, time related, feature of palynology and concentrates on the environmental nature of palynology, that the steam flood problem could be solved. I did, and it was.

A member of the audience at the IPA luncheon approached me after my talk and introduced himself as a reservoir engineer. He was so excited! "Can you try to do this same type of study for me in Venezuela?", he asked. It turns out that this guy lives and works in Calgary and is Vice President of Research and Development for a major reservoir engineering company. In Calgary he would never have attended my talk - in Jakarta, he did. Perhaps he just wanted to have some turkey and listen to someone speak American English on Thanksgiving Day. Who cares - South America - here I come.

As long as the perception of stratigraphic palynology remains tied only to the telling of time, we as stratigraphic palynologists will be only "time keepers". There is a vast resource within our science which can be exploited - and should be. Those who wish to remain "time keepers" will all end up working for TIMEX.

Daily Exercise for the Nonathletic

Making the rounds is a calorie guide citing a recent medical association report: "Proper weight control and physical fitness cannot be attained by dieting alone. Many people who are engaged in sedentary occupations do not realize that calories can be burned by the hundred by engaging in strenuous activities that do not require physical exercise."

Here's the guide for the palynologist to calorie-burning activities and the number of calories per hour they consume:

Beating around the bush	75
Jumping to conclusions	100
Climbing the walls	150
Swallowing your pride	50
Passing the buck	25
Throwing your weight around (depending on your weight)	50-300
Dragging your heels	100
Pushing your luck	250
Making mountains out of molehills	500
Hitting the nail on the head	50
Wading through paperwork	300
Bending over backwards	75
Jumping on the bandwagon	200
Balancing the books	25
Running around in circles	350
Eating crow	225
Tooting your own horn	25
Climbing the ladder of success	750
Pulling out the stops	75
Adding fuel to the fire	150
Wrapping it up at the days end	104

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AASP CHIEF EDITOR MOVES (again!)

New address:

Dr. David K. Goodman
Arco Alaska Inc.
700 "G" Street
Anchorage, Alaska 99501
Phone: not available - yet.

American Association of Stratigraphic Palynologists
Student Scholarship

The American Association of Stratigraphic Palynologists is pleased to announce its program of Student Scholarships to support studies in palynology. Currently, two such scholarship for $300 (US) each may be awarded annually. Ordinarily the scholarships will be awarded to graduate students, but advanced undergraduate students may also apply.

Basis of Awards - The qualification of the student, the originality and imagination evident in the proposed project, and the likelihood of significant contribution to the science of palynology are factors that will be weighed in selection of award winners.

To Apply - Part A of this form is to be filled out by the student and Part B by the student's faculty supervisor. The faculty supervisor will send both forms together to the address given at the end of Part B. Scholarship applications must be received no later than March 1, and awards will be announced by March 30.

PART A - Application for A.A.S.P. Student Scholarship

Student's name:

Address:

Universities or other institutions attended (earliest listed first). Include the institution that you will be attending during tenure of the scholarship, the degree you will be seeking, and the anticipated completion date:

Institution	Degree	Beginning Date	Completion Date

What is your background in palynology?

Professional experience:

Previous awards or honors:

Summary of institutional or other support for your project (specify whether granted or applied for):

Title of proposed investigation:

Project supervisor:

Summary of the investigation (250 words or less, on an attached sheet); include objectives, why you selected this problem and its significance, and how you plan to approach and carry out the investigation.

I agree that the recommendation I am requesting from my faculty supervisor will be held in confidence by officials of my institution, and I hereby waive any rights I may have to examine it.

yes_____ no _____

Date: _____ Applicant's signature:_____

Part B - Endorsement by Faculty Supervisor

1. Ranking of the applicant versus other students you have known who are pursuing the same degree:

   lower 50% __ upper 50% __ upper 25% __ upper 10% __ upper 5% __

2 Did the idea for the project originate from student? yes__ no__

3. Can you verify the student's statements as to other awards, honors, or financial aid received or applied for? yes__ no__ Comment:

4. Please provide a brief summary (100 words or less, on an attached sheet) or your assessment of the applicant's project and his or her potential to attain the objectives. Among other traits, please comment on the student's native intellectual ability, ability to express her(him)self, perseverance, imagination and the probable creativity, and the value of the project.

Faculty supervisor's name:

Signature: _____ Date: _____

Position: _____ Institution _____

Address:

Please return Parts A and B to:

Dr. Lucy E. Edwards
U.S. Geological Survey
970 National Center
Reston, Virginia
U.S.A. 22092