Canadian Association of Palynologists
Association Canadienne des Palynologues

# NEWSLETTER

Volume 30 Number 2 December 2007

## President's Message

Thank you to all CAP members who attended our AGM in Ottawa in early June 2007. It was wonderful to see such great attendance at the CAP meeting, and such good representation of palynological research at the CANQUA conference where the meeting was held. It was particularly encouraging to see multiple generations of palynologists participate in our AGM discussions of new priorities for CAP. We look forward to the continued active involvement of many CAP members in our association.

My term as CAP President ends 31 December 2007; I would like to thank CAP members for giving me the opportunity to serve as President. It has been a fantastic experience – and I recommend it to all of you! I have particularly enjoyed meeting and corresponding with palynologists from across the country and internationally. I would like to extend a special thank you to the members of the Executive with whom I have worked closely for the past two years. Mary Vetter, Alwynne Beaudoin and Jean Nicolas Haas have been long-serving Executive members who bring great enthusiasm to CAP and have tirelessly worked to keep CAP running smoothly. I know I am speaking on behalf of all CAP members when I say that your efforts are tremendously appreciated. Many CAP activities are carried out through the Newsletter – we are therefore very fortunate to have such dedicated Editors, Terri Lacourse and Francine McCarthy, for newsletter production. I would also like to thank Konrad Gajewski for serving on the CAP nominating committee, and Rolf Mathewes for serving as our Auditor. I would also like to welcome our new CAP Executive members. Elisabeth Levac from Bishops University will take over for a two-year term as President in January 2008. Elisabeth brings research expertise in paleooceanography, paleoclimatology, and the analysis of pollen and dinoflagellates. Matthew Peros has been elected to the position of President-Elect also for a two-year term. Matthew is a post-doc at the University of Ottawa and brings to CAP research experiences in palynology that have taken him from coastal Cuba to the Arctic tundra. I have every confidence that the new CAP Executive will bring valuable new perspectives and new ideas to the association. Please continue to send us your ideas and watch for new CAP initiatives in the coming months. I hope many of you are able to attend the 2008

### CAP EXECUTIVE 2007

*President*: Sarah Finkelstein
*Secretary-Treasurer*: Mary Vetter
*Newsletter Editor*: Terri Lacourse
*Website Editor*: Alwynne Beaudoin
*Councillor to IFPS*: Jean Nicolas Haas

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CAP Annual General Meeting at the Geological Association of Canada conference in Québec City May 26-28, 2008.

With best wishes,

**Sarah Finkelstein**
CAP President, 2006-2007
Finkelstein@geog.utoronto.ca

## CAP STUDENT RESEARCH AWARD

The Executive Committee of the Canadian Association of Palynologists (CAP) plans to announce an annual research award for student members. Applications will be open to all undergraduate and graduate students whose research contains a palynological component and is consistent with the objectives of the society. The adjudication of the award will be based on the student's research record and potential. A proposal outlining the specifics of the award has been developed by the CAP Executive, and we are very interested in receiving feedback on the proposal from CAP members. We will email the proposal to all members in the new year and vote on the document during the CAP AGM in May 2008. If ratified, the first competition will take place in spring 2009. CAP members can contact the incoming President-Elect, Matthew Peros (mperos@uottawa.ca) for more information.

## Editor's Notes

Thank you to all who contributed material for this edition of the *CAP Newsletter*: Rob Fensome, Konrad Gajewski, Jennifer Galloway, J.H. (Jock) McAndrews, Matthew Peros, Dorothy Peteet, Niels Poulsen, Taoufik Radi and André Rochon.

## Deadline for Next CAP Newsletter

Please submit items for the next issue of the *CAP Newsletter* (Volume 31, Number 1, May 2008) by April 15, 2008. Conference reports, announcements, field trip reports, notices of new books, book reviews, news, and essays on topics relevant to Canadian palynology are all welcome. Please send contributions as a text file to:

Terri Lacourse
*CAP Newsletter* Editor
tlacours@uvic.ca

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# CALVIN J. HEUSSER 1924-2006

*Calvin J. Heusser in the Olympic Mountains, Washington, USA — 1955.*

Explorer and pioneer, scientific researcher and professor, Calvin J. Heusser, spent much of his life in the coastal montane beauty of the western hemisphere. From the Alaskan alpine zone to the windswept bogs of southern Chile, he thrived in retrieving peatland cores from the glaciated sites, identifying pollen and spores and piecing together the patterns of vegetation and climate change that characterize both hemispheres. His passion was in understanding the synchrony and asynchrony of climate shifts in the high latitudes across the equator. A parallel passion reverberated throughout his life as with perfect pitch he sought a knowledge of all classical music.

Calvin J. Heusser was born in 1924, and spent his youth in the New York-New Jersey region. After serving in World War II, wounded in the Battle of the Bulge, he returned to Rutgers University where he received his Masters degree in 1949 examining the buried remains of Atlantic white cedar trees (*Chamaecyparis thyoides*) of the Hackensack Meadowlands under the tutelage of the plant ecologist Murray Buell. Through his field trips with Buell, he became intrigued by fossil pollen and conducted his dissertation with forest ecologist Henry Hansen at Oregon State from 1950-1952 on the paleoecology of Alaskan muskegs.

The 1950s was the decade that Heusser began his affiliation with the Juneau Ice Field Research Project (JIRP). His final published book (*Juneau Icefield Research Project (1949-1958) - A Retrospective*) catalogued the remarkable efforts of early research on Alaskan glaciers before the modern assessment techniques in the satellite era. Throughout this decade Heusser collected both modern and fossil pollen from a transect of North Pacific sites ranging throughout the Alaskan arc. His pioneering collection of pollen profiles culminated in the 1960 publication by the American Geographical Society entitled *Late Pleistocene Environments of North Pacific North America*. This volume remains an outstanding resource for coastal peatland sites, providing a reference for anyone interested in the regional vegetational history of coastal Alaska.

The l960s revealed Heusser's interest and foray into the Olympic Peninsula, where his analysis of terrestrial peat sections along the coastal cliffs remains today the oldest North American Quaternary sequence which can be compared with offshore marine isotopic changes through the last glacial cycle. At the same time, Heusser began his exploration into the botanical treasures of the southern hemisphere with Carlos Muñoz, where he identified and photographed pollen of 700 species of plants in his volume of the *Pollen and Spores of Chile*. Establishment of the pollen types gave him the background to pursue his interest in the timing of vegetation and climatic shifts from northern to southern hemisphere, and he began coring peatland sites with geologists Richard Foster Flint and Stephen Porter. The late l970s found him working in Argentina as well as Chile.

*Calvin J. Heusser in the Canadian Rockies — 1953.*

In l974, Calvin Heusser began his affiliation with New York University, where he taught classes in plant ecology, plant taxonomy, palynology, and special seminars in palynological readings through 1991. Graduate students under his tutelage analyzed morphology of modern pollen and spores, differences in modern forest and fen communities in various geological settings, and fossil pollen stratigraphy from marine deposits, lakes, and wetlands. His students often met together with Cal and his wife and colleague Linda Heusser on weekends at their home or on memorable hikes in the Hudson Highlands to share critiques of palynology papers and the latest paleoclimate hypothesis. As an advisor, he was always supportive, accessible, and challenging, and encouraged all of his students through his example of field and laboratory diligence coupled with extensive academic literature review and polished publications.

In l982, Cal Heusser led a memorable AMQUA field trip to the Olympic Peninsula, spent much of his time on the classic extensive Tagua Tagua site in Chile, and 1985 became a Fellow of Clare Hall in Cambridge, England. He continued working in Argentina and the Queen Charlotte Islands, British Columbia. In l987, he received the American Geographical Society David Livingstone Centenary Medal.

The turn of the 20th century recorded Heusser continuing his exploration of the comparisons of the hemispheres through continued research in Tierra del Fuego and Taiquemo, and a landmark publication in 2006 co-authored with Linda Heusser correlated Chilean and Southeast Pacific Ocean paleoclimate variations during the last glacial cycle. A 2006 Geological Society of America Special Session held in Washington was dedicated to Calvin J. Heusser. Those of us who knew Calvin Heusser carry with us the memory of a keen observer of botany, a dedicated and tireless paleoecologist, someone who loved music and the wilderness, and a most valued gentleman and friend.

**Dorothy Peteet**
NASA / Lamont Doherty Earth Observatory

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Commentary

# A Unifying Comet Theory for What Happened at the Younger Dryas Boundary

Sixty-five million years ago an asteroid impact caused the extinction of the dinosaurs and many other species. Now there is evidence that a comet, which hit the Laurentide ice cap 12,900 years ago, did much the same thing to mastodon and other large North American mammals (Firestone et al. 2007). The comet event terminated the big game hunting Clovis culture and initiated the millennium-long Younger Dryas cold period. Among the 50 or so sites that show evidence of comet impact, three are in Alberta and one is in Manitoba. We palynologists have the skills and sites to test this theory.

Stratigraphic and microscopic evidence of the exploding comet include:

1. Magnetic grains (with iridium) of 1-500 µm diameter. This "star dust" can be confused with magnetite weathered from rocks.
2. Magnetic microspherules of 10-250 µm diameter and ≤2,100 per kg. Beware: the microsphere in figure 6.4 of Firestone et al. (2006) is a dead-ringer for fossil sclerotia of *Cenococcum geophilum*, a mycorrhizal fungus on roots.
3. Charcoal of various sizes that can be quantified during pollen analysis.
4. Soot. These 1 µm carbon particles are condensed from gas; we made a reference slide from candle smoke.
5. Glass-like carbon particles like those shown in Figures 10.6 and 10.7 of Firestone et al. (2006).

Firestone et al. (2006) use simple tests for magnetic grains that allegedly mark the impact: big magnets on soil profiles and little magnets on museum tusks. To try out these tests, I spent $25 on rare earth magnets, a big one for sections of the Hiscock Site, New York, and a little one for magnetic grains imbedded in museum tusks. So far all I can report is a charcoal layer in the predicted horizon at the Hiscock Site.

In the comet impact scenario, mega herbivores were hurt in two ways: sickened by penetration of magnetic grains into their flesh and fried by the heat of burning vegetation. Freezing followed when the sun was dimmed by all the soot and water vapor in the atmosphere. Further, the impact destabilized the ice cap causing outburst floods and the draining of proglacial lakes into the North Atlantic where the freshwater shut down thermohaline circulation to produce the Younger Dryas. This subglacial flooding formed drumlins in the manner advocated by John Shaw. And to top this off, the comet supplied radioactive carbon to produce the "radiocarbon plateau" that bedevils our dating.

The easily-read and well-illustrated book goes on about how there is oral tradition about the impact and how a supernova started it all. Despite weaknesses and "howlers", in the end they may have a unified theory.

**J.H. (Jock) McAndrews**
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Research Update

# GSC Atlantic Bedford Institute of Oceanography Dartmouth, Nova Scotia

The two veteran paleopalynologists at GSC Atlantic are thriving, but paleopalynology is taking a back seat. This is because Rob Fensome and Graham Williams are part of a team leading an effort to produce a popular book on the geology of Canada, projected as a principle Canadian product in celebration of International Year of Planet Earth (2008). Quebec palynologist Aïcha Achab is also on the book's Editorial Board. The book, probably to be entitled *Four Billion Years and Counting: Canada's Geological Heritage*, will be multi-authored, richly illustrated, and provide the latest word on the geological evolution of Canada. There will be three main parts to the volume:

*Foundations* - in which basics such as plate tectonics, geological time, and evolution of life are outlined (from as much of a Canadian perspective as possible);

*Evolution of Canada* - in which the reader will be led from Archean beginnings to the peopling of Canada (the last being a chapter by CAP member Alwynne Beaudoin); and,

*Wealth and Health* - expositions on how geology has influenced and continues to influence our society, including chapters on mining, energy, hazards and the environment.

More about the project can be discovered by going to http://cfes-fcst.ca/fby/index.html

At the same time as working on the book, Rob and Graham are trying to finish several significant palynological contributions. A large monograph on the taxonomy of the Scotian Margin (by Rob, Graham and Andrew MacRae) has been accepted for publication in *Systematic Palaeontology*, pending revisions, to be followed by an event biostratigraphic framework for the Late Cretaceous and Cenozoic of the Scotian Margin, the latter largely written but not yet submitted. It is the intent that these papers will contribute to a larger re-interpretation of aspects of Scotian Margin geology, an area of increased interest at the moment as the Nova Scotia Department of Energy and others attempt to encourage greater offshore exploration. Added to these are several new GSC Open Files on Grand Banks and Northern Margin palynology by Graham and new work is ongoing using palynology to refine the interpretation of northwestern Atlantic seaways (Labrador Sea, Davis Strait and Baffin Bay) by Graham, Rob, and Henrik Nøhr-Hansen of GEUS in Copenhagen. A couple of taxonomic manuscripts, on the *Wetzeliella* group and *Spindinium* and related dinoflagellates, are also in long-term preparation mode, and Graham and Rob are collaborating with Raquel Guerstein of Universidad del Sur in Argentina on examination of Cenozoic assemblages from Tierra del Fuego. And last but not least, Deborah Skilliter is undertaking a Ph.D., part-time through Dalhousie University, on the biostratigraphy and paleoecology of the Grand Banks as revealed through analysis of a series of shallow core holes drilled in the 1960s but never studied palynologically in detail.

**Rob Fensome**
GSC Atlantic

# MINUTES OF THE 2007 CAP ANNUAL GENERAL MEETING

Venue: CANQUA 2007, Carleton University, Ottawa, ON, 4th June 2007

Present: Sarah Finkelstein (chair), Matthew Peros (recording secretary), Gail Chmura, Michelle Garneau, Martin Head, Elisabeth Levac, Francine McCarthy, Ann Miller, Bob Mott, Florin Pendea, Mike Pisaric, Jeannine St. Jacques. Quorum achieved.

1. Welcome, approval of agenda. Gail moved to approve agenda, Sarah seconded motion. All were in favour.

2. Review and acceptance of minutes from the 2006 AGM. Gail moved to accept minutes, Sarah seconded motion. All were in favour.

3. President's Report (S. Finkelstein)
Sarah reviewed the activities of CAP over the last year and noted how busy its members have been, making specific reference to the CANQUA meeting and the initiation of a digital newsletter, among other activities. (See below for motion).

4. Financial Report (M. Vetter)
Financial picture is excellent, few expenses, lots of revenue. (See below for motion)

5. Auditor's Report (R. Mathewes)
Reports that financial statement by Secretary-Treasurer is a full and fair account of the state of CAP's financial status. (See below for motion)

6. Newsletter Editor's Report (T. Lacourse)
T. Lacourse took over from F. McCarthy. The CAP newsletter also went digital. (See below for motion)

7. Website Editor's Report (A. Beaudoin)
Alwynne offered to continue to manage the website for another year. Members of the meeting noted how well organized and insightful the website is. However, Alwynne noted that new additions to the site have been minimal due to a lack of submissions. (See below for motion)

8. IFPS News (J. N. Haas)
No report was provided this year since there was no activity. An announcement was made about the upcoming International Palynological Congress in Bonn, Germany, Aug. 30 - September 5, 2008. CAP members are encouraged to participate. At this time, however, we have no plans to propose a symposium.

All members were given a few minutes to review the reports on their own. There was unanimous approval for the acceptance of all reports.

9. Elections for CAP Executive for 2008.
Ann motioned to close nominations. Gail seconded. Francine motioned to accept the slate of candidates (no position had more than one candidate). Elisabeth seconded. New officers are as follows:

- *President* (2008-2010): Elisabeth Levac (elevac@ubishops.ca)
- *President-elect* (2008-2010): Matthew Peros (mperos@uottawa.ca)
- *Secretary-Treasurer* (2008-2009): Mary Vetter (mary.vetter@uregina.ca)
- *Web site Editor* (2008-2009): Alwynne Beaudoin (abeaudoi@gpu.srv.ualberta.ca)
- *Newsletter Editor* (2008-2009): Terri Lacourse (tlacours@uvic.ca)
- *IFPS Councillor*: Jean Nicolas Haas continues to serve until the IPC in Bonn in 2008. (Jean-Nicolas.Haas@uibk.ac.at)

10. Location for 2008 AGM
The location of the 2008 AGM will be Québec City at the GAC meeting, May 26-28, 2008. Sarah asked how CAP and its members would like to be involved. Francine suggested a Palynology in Canada poster. Ann suggested a special session be hosted in honour of a famous Canadian palynologist. Does this person need to be retired? Should the session be chaired by former students? Martin asked if this is limited to Canadian-based Palynologists or any palynologist with significant research interests in Canada. Michelle suggested hosting a short-course on a technical matter. After the discussion, all were in favour of organizing our special session at the GAC meeting in honour of Dr Pierre Richard (Université de Montréal), who has made outstanding contributions to Canadian palynology.

11. Use of CAP Funds
Report by Mary Vetter indicated that there was lots of revenue and limited expenses. We held a discussion on sponsoring a student grant or scholarship, supported by membership dues. Ann asked what level of student would be eligible and should it be specifically for travel to a foreign conference. The IPC meeting was raised as a possible destination, but it found little favour given the overall costs of the trip. Francine suggested the award be decided on the basis of submitted abstracts. Martin suggested the awarding of a CAP medal to raise the profile of the organization. Sarah asked whether the money should be for fieldwork or other research expenses, what deadline should be imposed, and which members should be in charge of this. It was suggested that the President-Elect should lead the student prize committee. Francine noted that it would be good training for the position. Finally, Julie motioned that CAP sponsor a student prize. This was seconded by Ann. Sarah agreed to work with the CAP Executive on details. Those present at the meeting agreed that the student prize would be best organized as an award of $200, which students can apply for on a yearly basis. They will be asked to submit applications detailing use of funds (conferences, field work, anything in support of their research), and will be asked to provide a CV. The criteria for awarding the prize should be the merit of the applicant (their academic record) as well as the merit of the proposed use of funds in terms of furthering palynological research and training of new palynologists. Assuming CAP maintains a membership base of 50 members, our revenues will be $500 per year. By allocating $200 to the student prize, $300 will remain for special initiatives. One such special initiative is the symposium in honour of Pierre Richard. CAP funds could be used to support Pierre's travel and registration at the meeting. Another initiative that could also benefit from the use of CAP funds was digitizing Pierre Richard's pollen key (1970: Atlas pollinique des arbres at de quelques arbustes indigènes du Québec. *Le Naturaliste canadien* 97: 1-34, 97-161, 241-306). This publication, now out of print, contains some excellent pictures and descriptions. Making this available via the CAP website will enhance the content available online. Jeannine agreed to take the lead on this initiative.

12. Priorities & Goals for CAP
The priorities for CAP in the upcoming year will be introducing a student prize and establishing a precedent for honouring leading palynologists with symposia.

13. Any other business? No other business raised.

14. Adjournment. Motion for adjournment made by Elisabeth, seconded by Sarah.

## CAP President's Report, 2007

It's been a busy year for CAP. After the May 2006 AGM in Montréal, the Executive placed renewed effort in strengthening the CAP membership numbers. Our numbers are back up after a decline, and we continue to work to expand membership in CAP by encouraging undergraduate, graduate students and post-docs to join our association. I thank all the Executive members for their successful efforts in this area.

CAP has been active in conference presentations this year. We were well represented at the GAC meeting in Montréal in 2006, and we are sponsoring a session at CANQUA 2007 in Ottawa. This session, titled "Quaternary Climate and Environmental Change", has attracted a large number of participants for both talks and posters, including many CAP members. Congratulations to Mike Pisaric and Mike Sawada for convening a successful session. We also increased our visibility at the CANQUA meeting through a CAP-sponsored coffee break. In 2008, CAP will be sponsoring a special session at GAC in Québec City, showcasing current palynological research in Canada. Our proposal was recently accepted by the organizing committee.

CAP also made a major transition this year from a paper to a digital newsletter. We are very pleased with the inaugural issue. CAP remains mostly a newsletter based organization with members widely dispersed throughout Canada and the world. Therefore, an enhanced newsletter offers us more opportunities to communicate, collaborate and share ideas. Francine McCarthy has stepped down after many years of service editing the CAP Newsletter. We thank her for the fantastic job she did during her term, and welcome Terri Lacourse as the new Editor.

I have also created a CAP President's binder, containing our by-laws, administrative schedules, and other information, to ensure continuity when new members of the Executive take office. I thank Mary Vetter, Alwynne Beaudoin, Terri Lacourse and Jean Nicolas Haas for volunteering their time and effort during 2007 to run CAP. Thank you also to Konrad Gajewski for serving on our nominating committee and to Rolf Mathewes who has served as Auditor for many years. I also welcome all new CAP members and wish the next President of CAP a great first year, beginning in January 2008. I'm also pleased to report that we have new candidates standing for President and President-Elect and I thank them very much for their desire to become involved with our small but vital organization!

Respectfully submitted,

**Sarah Finkelstein**
CAP President 2006-2007

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## CAP Secretary-Treasurer's Report, 2007

**Membership Report**
As of May 1, 2007, CAP has 51 members in good standing who have paid dues for 2007. This is a good recovery from our low point in 2005 when we had just 36 members and is close to maximum number of members we have had in recent years.

| Year | Members |
|---|---|
| 2002 | 53 |
| 2003 | 54 |
| 2004 | 43 |
| 2005 | 36 |
| 2006 | 47 |
| 2007 | 51 |

**Financial Report**
For the period ending May 8, 2006, the balance in the CAP account is $4580.03. IFPS dues for 2005, 2006, and 2007 have been paid (some 2007 dues are still owing due to recent memberships received). The bank balance has remained healthy over the years in large part because most of the newsletter production and mailing costs have been borne by the institutions of those producing, photocopying, and mailing the newsletter. Now that CAP has decided to produce the newsletter digitally, the only ongoing costs will be annual IFPS dues ($1.50 USD per member) and the annual corporation renewal fee ($25).

The closing balance includes 43 prepaid annual memberships in the amount of $430.00 for the years 2008-2011. This will affect the income from this source for the years indicated.

Recommendations: CAP may want eventually to consider investing some of the funds and sponsoring a scholarship or regular symposia from the interest earned. Since it is generally assumed that about 5% interest can be earned, CAP may wish to wait until it can invest a larger amount.

Respectfully submitted,

**Mary Vetter**
CAP Secretary/Treasurer

**Statement by Appointed Auditor:**

It is my opinion that the above financial statement represents a full and fair account of the financial affairs of the Canadian Association of Palynologists for the period indicated.

**Rolf Mathewes**
Auditor for CAP
May 18, 2007

## CAP Annual Financial Statement
### 9 May 2006—1 May 2007

| | | |
|---|---|---|
| **Opening Balance** | | **$3,830.08** |
| Revenue | membership dues | $1029.00 |
| | interest earned | $1.95 |
| Expenses | bank fees | $0.00 |
| | corporation renewal | -$25.00 |
| | IFPS dues<br>2005: 36 members<br>2006: 47 members<br>2007: 47 members | -$231.00 |
| | wire transfer fees | -$25.00 |
| **Closing Balance** | | **$4580.03** |

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## CAP Newsletter Editor's Report, 2007

In 2006, I joined the CAP Executive as Newsletter Co-Editor. Francine McCarthy and I co-edited the May 2006 and December 2006 editions of the Newsletter. We shared the various activities involved in producing the Newsletter: gathering materials, copy-editing, formatting, printing, and mailing. The May 2006 Newsletter was a large edition (24 pages) and included, among other items, an essay on Gunnar Erdtman by J. McAndrews and an interview with Carlos Avendaño, a Guatemalan palynologist at the University of Toronto. The December 2006 Newsletter consisted of 17 pages, including an essay on the use of heavy-liquid in pollen preparations from members of the Laboratory for Paleoclimatology and Climatology at the University of Ottawa and a book review of *Haida Gwaii*, published by UBC Press and edited by Daryl Fedje and Rolf Mathewes. UBC Press requested a copy of this book review for their files. Francine was responsible for finalizing and distributing the December 2006 Newsletter, but ran into a

series of problems related to its production. Ultimately, she was forced to print the Newsletter without pagination. Francine stepped down from her position as Newsletter Co-Editor in December 2006.

After spirited debate between members of the Executive and consultation with CAP members, the Executive decided in April 2007 to produce and distribute the Newsletter in a digital format. A digital format allows CAP to save funds on printing, packaging, and mailing and to reduce CAP's environmental "footprint". It also allows us to include colour images and hyperlinks in the Newsletter.

The May 2007 Newsletter was produced in a digital format and distributed to CAP members on April 18, 2007. Two paper copies were sent to members for whom we did not have email addresses and six paper copies were sent to the various libraries accessioning the Newsletter. The May 2007 Newsletter included an essay on starch by V. Bryant accompanied by two colour photographs as well as many hyperlinks and a form-fillable membership form. So far, the response from CAP members has been very positive.

I am currently accepting material for the December 2007 Newsletter, which I plan to distribute to members by mid-December.

Respectfully submitted,

**Terri Lacourse**
CAP Newsletter Editor

## CAP Website Editor's Report, 2007

I have continued as Editor for the CAP website since the last AGM. The presentation is located at http://www.scirpus.ca/cap/cap.shtml, under my own domain (www.scirpus.ca). There are no costs to CAP associated with this hosting. Accesses to the presentation have remained steady, averaging around 800 each month. The presentation provides various resources and information about CAP to the palynological community. I have continued to update time-sensitive sections of the presentation, such as the conference listing, although little new material has been added during the past year, largely because there have been no contributions or requests for additions. With the CAP Newsletter now going to an electronic format, I expect to begin archiving back issues on the website, making them available to members over the long-term. I would welcome more CAP-related material to the website and would appreciate suggestions for new components to broaden its appeal.

If CAP members are agreeable, I am prepared to continue as the association's Website Editor for another year.

Respectfully submitted,

**Alwynne B. Beaudoin**
CAP Website Editor

### New CAP Member

**Karla Stouffer**, B.Sc. student at Brandon University, Manitoba. Research interests: palaeobotany, palaeoclimates.

Conference Report

# American Association of Stratigraphic Palynologists 40th Meeting Panama City, Panama September 9-12, 2007

Amid 32ºC temperatures and tropical thunderstorms, palynologists from around the world gathered at the Smithsonian Tropical Research Institute (STRI) in Panama City to partake in the AASP's Annual Meeting. The conference, presided over by Dr. Carlos Jaramillo of STRI, highlighted a wide-range of palynolgical topics and applications, and provided an excellent opportunity to see and experience Panama and interact with palynological researchers and students from around the world.

The meeting began with an address by Dr. Al Traverse (an attendee at the first AASP meeting in 1967), who spoke about the inaugural meeting and how the field of palynology has since evolved. The presentations and posters tended to have a tropical focus, and included themes such as pollen morphology and phylogeny, biostratigraphic correlation, archaeopalynology, paleoecology and paleoclimatology, and analytical techniques. The presentations covered timescales from the Permian to the Holocene to the present day.

In addition to the conference sessions, there were a number of fieldtrips. These included excursions to Barro Colorado Island, an island in the Panama Canal managed by STRI that has become a leading centre for tropical biological and ecological research, to the Miraflores locks of the Panama Canal, where we watched several cargo ships proceed through the canal to the Pacific Ocean, and to rainforest on the edge of Panama City, where we were hoisted atop a 42m-tall construction crane to view the forest canopy and its squirrel monkey, toucan and three-toed sloth inhabitants.

Canadian-based palynologists were fairly well represented at the meeting, and included Francine McCarthy and Manuel Paez (Brock University), Jancis Ford and Bert van Helden (Biostratigraphic Services, Calgary), Jock McAndrews (University of Toronto), Jim White (Geological Survey of Canada), and Matthew Peros (University of Ottawa). The meeting also marked the inauguration of Francine as the new AASP President.

The 40th AASP Meeting was superbly organized and was a tremendous learning experience. Thanks to the organizers and STRI for putting on such a wonderful event.

**Matthew Peros**
Department of Geography
University of Ottawa

## 2008 CAP Annual General Meeting

The next Annual General Meeting of the Canadian Association of Palynologists will be held in conjunction with the Geological Association of Canada meeting in Québec City, May 26-28, 2008. The exact date, time and location of the CAP AGM will be announced in the spring. All CAP members are encouraged to attend the AGM. Those in the Québec City area, but not attending the GAC meeting, may also attend.

## Forthcoming in Journal of Paleolimnology

### TESTING THE RELIABILITY OF POLLEN-BASED DIVERSITY ESTIMATES

Rarefaction analysis is a common technique for estimating pollen richness. Using modern and fossil pollen data from the Canadian Arctic and Greenland, we examine the effects of pollen concentration (grains/cc) and evenness (the distribution of species abundances) on palynological richness estimates. Our results show that pollen richness and concentration exhibit a strong negative correlation at low pollen concentrations. There is a positive correlation between pollen evenness and richness, although the strength of this relationship is difficult to determine. Rarefaction analysis on samples of low concentration or high evenness is likely to lead to pollen richness being less underestimated than on samples of high concentration or low evenness. In short, much of the variability seen in many rarefaction-based "paleodiversity" estimates may be due to changing concentration and evenness levels, rather than any actual change in floristic richness at the landscape-scale. Our findings corroborate theoretical research on these issues (e.g., Weng et al. 2006; Odgaard 2001).

**Matthew Peros & Konrad Gajewski**
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**References**

Odgaard, B.V. 2001. Palaeoecological perspectives on pattern and process in plant diversity and distribution adjustments: a comment on recent developments. *Diversity and Distributions* 7: 197-201.

Weng, C., Hooghiemstra, H. and Duivenvoorden, J.F. 2006. Challenges in estimating past plant diversity from fossil pollen data: statistical assessment, problems, and possible solutions. *Diversity and Distributions* 12: 310-318.

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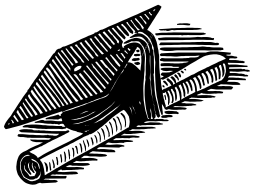

## Dissertation Abstract

**Galloway, Jennifer M. 2006.** *Post-glacial climate and vegetation change in the Seymour-Belize Inlet Complex, central coastal British Columbia, Canada.* **Ph.D. Dissertation. Department of Earth Sciences, Carleton University. 157 p.**

*Supervised by R. Timothy Patterson (Carleton University) and Helen M. Roe (Queen's University, Belfast)*

Pollen and spores preserved in the radiocarbon dated sediments of Two Frog Lake and Tiny Lake, two freshwater isolation basins within the Seymour-Belize Inlet Complex of the central mainland British Columbia coast, document post-glacial changes in regional climate and vegetation. In addition, a high-resolution (26-year) palynological record from Frederick Sound, an anoxic marine fjord located at the southeastern end of the inlet complex, reveals that the late Holocene climate of this region has been variable. De-

glaciation of the Seymour-Belize Inlet Complex occurred prior to 11, 040 ± 50 (13,030 cal. yr BP), and possibly as early as ca. 12,500 yr BP (ca. 15,000 cal. yr BP). Following ice-retreat, an open *Pinus contorta* woodland developed under a cool and dry early Late-Glacial climate. At ca. 12,000 yr BP (ca. 14,000 cal. yr BP) climate amelioration resulted in the replacement of these woodlands by a forest dominated by *Picea*. Peaks of *Tsuga mertensiana* and *Chamaecyparis nootkatensis* at 11,040 ± 50 (13,030 cal. yr BP) and the persistence of *Alnus* for 1000 years at Two Frog Lake may be indicative of a Younger Dryas-like climate reversal. A similar climate event may be registered at Tiny Lake as a reversal in successional trends towards *Tsuga heterophylla* forests. Early Holocene warming ca. 10,500 yr BP (ca. 12,000 cal. yr BP) resulted in a forest mosaic of *T. heterophylla*, *Picea*, *Pseudotsuga menziesii* and *Alnus* at Two Frog Lake. At Tiny Lake, *P. menziesii* did not occur in early Holocene forests where conditions may have been too wet or because this taxon never reached this more northerly site. At ca. 8500 yr BP (ca. 10,000 cal. yr BP) a transition to a moister climate facilitated the development of *Thuja plicata* dominated forests at Two Frog Lake and *T. heterophylla-T. plicata* forests at Tiny Lake. *Thuja plicata* continued to increase and had achieved near mono-specific dominance at Two Frog Lake by ca. 6000 yr BP (6500 cal. yr BP), which was sustained throughout the remainder of the late Holocene. At Tiny Lake, a more gradual rise in *T. plicata* occurred and *T. heterophylla* was not completely replaced in coastal forests. The dominance of this species at both sites suggests that climate was an important control on its late Holocene distribution in the Seymour-Belize Inlet Complex but the persistence of *T. heterophylla* at Tiny Lake indicates that late Holocene forest histories can be site-specific in this region. The initial expansion of *T. plicata* and the onset of a moister climate at ca. 8500 yr BP (ca. 10,000 cal. yr BP) at Tiny Lake and Two Frog Lake predates these events in coastal British Columbia and Washington by at least 1000 years, but is consistent with the onset of climate moistening at more northerly sites. This suggests that the central and northern mainland coast of British Columbia is climatically distinct from more southerly regions. The Frederick Sound record spans from ca. 3800 yr BP (ca. 4200 cal. yr BP) until ca. 1200 yr BP (ca. 1000 cal. yr BP). *Thuja plicata* was the dominant arboreal taxon throughout this interval but a decline in abundance occurred between ca. 2700-1900 yr BP (ca. 2600-1900 cal. yr BP) in response to the development of a cooler and drier climate that punctuated the otherwise wet conditions of the late Holocene in this region. It is postulated that climate change was the ultimate cause of vegetation change at this site, but the role of biotic factors, such as a pathogen attack and/or selective human felling, cannot be ruled out. Comparison with a proxy reconstruction of the relative position and/or intensity of the Aleutian Low pressure system suggests that millennial scale atmospheric variability has affected the climate and vegetation of the Seymour-Belize Inlet Complex throughout most of the late Holocene. Most other records from coastal British Columbia do not document a mid-late Holocene dry interval or a *T. plicata* decline. It is probable that the low-resolution quality of previous work, including in the SBIC, failed to document this event. This study therefore validates use of high-resolution palynology in paleoecological and paleoclimate research.

# A Note on Livingstone Sediment Corers

The recent paper by Glaser and Griffith (2007: *Journal of Paleolimnology* 38: 459-466) reminded me of a simple innovation to the Livingstone piston that was invented by someone in the shop of our Physics Department. Glaser and Griffith show the standard way of attaching the piston to the cable; using a cable clamp. However, there is an easier way, shown in the photos. Simply drill a hole through the end plate at right angles to the axis of the piston (Fig. 1). Then, thread the cable through the hole (Fig. 2) and tighten the screw as far as possible into its hole in the end-plate, and this attaches the cable and holds it in place.

**Konrad Gajewski**
Department of Geography
University of Ottawa
www.lpc.uottawa.ca

Figure 1. Livingstone piston with hole drilled through end plate.

Figure 2. Cable threaded through the piston.

## M.Sc. Student Opportunities

The research Centre ISMER-UQAR is currently seeking applications for two M.Sc. students:

1. The first M.Sc. project is focused on developing a protocol for a new palynological preparation technique using a focused microwave system.

2. The second project consists of palynological analysis (pollen, spores and dinoflagellate cysts) of a sediment core from the Canadian Arctic as part of the IPY project: International Polar Year: Natural Climate Variability and Forcings in Canadian Arctic and Arctic Ocean.

Please note that the M.Sc. program in Oceanography at ISMER involves classes in French, therefore, a knowledge of French is required. Interested candidates should send their CV, two letters of reference and grades to prof. André Rochon ISMER-UQAR, 310 allées des Ursulines, Rimouski QC, Canada, G5L 3A1, tel. 418-723-1986, ext. 1742, andre_rochon@uqar.qc.ca

## Recent Publications —23

Arsenault, T.A. Clague, J.J. and *Mathewes, R.W. 2007. Late Holocene vegetation and climate change at Moraine Bog, Tiedemann Glacier, southern Coast Mountains, British Columbia. *Canadian Journal of Earth Sciences* 44: 707-719.

Bunbury, J. and *Gajewski, K. 2007. Does a one point sample adequately characterize the lake environment for paleoenvironmental calibration studies? *Journal of Paleolimnology*. doi 10.1007/s10933-007-9127-9

Cordova, C.E., Harrison, S.P., *Mudie, P.J., Riehl, S., Leroy, S.A.G. and Ortiz, N. 2007. Pollen, plant macrofossil and charcoal records for palaeovegetation reconstruction in the Mediterranean-Black Sea Corridor since the Last Glacial Maximum. *Quaternary International* doi:10.1016/j.quaint.2007.06.015

*Finkelstein, S.A. and *Gajewski, K. 2007. A paleolimnological record of diatom-community dynamics and late-Holocene climatic changes from Prescott Island, Nunavut, central Canadian Arctic. *The Holocene* 17: 803-812.

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Holmes, J., Jones, R., *Haas, J.N, McDermott, F., Molloy, K. and O'Connell, M. 2007. Multi-proxy evidence for Holocene lake-level and salinity changes at An Loch Mór, a coastal lake on the Aran Islands, Western Ireland. *Quaternary Science Reviews* 26: 2438-2462.

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Marret, F. *Mudie, P., Aksu, A. and Hiscott, R.N. 2007. A Holocene dinocyst record of a two-step transformation of the Neoeuxinian brackish water lake into the Black Sea. *Quaternary International* doi:10.1016/j.quaint.2007.01.010

*Mudie, P.J., Marret, F., Aksu, A.E., Hiscott, R.N. and Gillespie, H. 2007. Palynological evidence for climate change, anthropogenic activity and outflow of Black Sea water during the late Pleistocene and Holocene: Centennial– to decadal-scale records from the Black and Marmara Seas. *Quaternary International* 167-168: 73-90.

*Peros, M. and *Gajewski, K. 2007. Testing the reliability of pollen-based diversity estimates. *Journal of Paleolimnology* doi:10.1007s10933-007-9166-2

*Peros, M. and *Gajewski, K. 2007. Holocene climate and vegetation change on Victoria Island, western Canadian Arctic. *Quaternary Science Reviews* doi:10.1016/j.quascirev.2007.09.002.

Piot, A. 2007. *Simulation de l'influence de la bioturbation exercée par les Annélides Nepthys caeca (Fabricius) et Nereis virens (Sars) sur la répartition des kystes de dinoflagellés à l'aide de luminophores.* M.Sc. Thesis. Université du Québec à Rimouski, 61 p.

Podritskie, B. and *Gajewski, K. 2007. Diatom community response to multiple scales of Holocene climate variability in a small lake on Victoria Island, NWT, Canada. *Quaternary Science Reviews.* doi: 10.1016/j.quascirev.2007.06.009.

Richard, M.J. 2007. *Pollen analysis of a sediment core from Kelly Lake, Sudbury, Canada*. M.Sc. Thesis. Laurentian University, Sudbury, Ontario, 122 p.

Richerol, T. 2007. *Distribution spatiale des assemblages de dinokystes dans les sédiments de surface et évolution des conditions paléocéanographies récentes dans la fosse du Mackenzie, mer de Beaufort (Canada).* M.Sc. Thesis. Université du Québec à Rimouski, 108 p.

Richerol, T., *Rochon, A., Blasco, S., Scott, D.B., Schell, T.M. and Bennett, R.J. 2007. Distribution of dinoflagellate cysts in surface sediments of the Mackenzie Shelf and Amundsen Gulf, Beaufort Sea (Canada). *Journal of Marine Systems* doi: 10.1016/j.jmarsys.2007.11.003

Roulet, N.T., Lafleur, P.M., *Richard, P.J.H., Moore, T.R., Humphreys, E.R. and Bubier, J. 2007. Contemporary carbon balance and late Holocene carbon accumulation in a northern peatland. *Global Change Biology* 13: 397-411.

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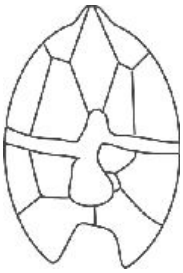
* denotes a CAP Member

More information about the Canadian Association of Palynologists and other material relevant to Canadian palynology can be found on the CAP website:

www.scirpus.ca/cap/cap.shtml



# DINOQUA

At the workshops on dinoflagellates and their cysts: their ecology and databases for palaeoenvironmental reconstructions in 2005 (Liverpool) and 2006 (Copenhagen), the participants discussed how to establish a more formal group. The outcome became an association called "the Quaternary Dinoflagellate Cyst Association (DINOQUA)."

The Association focuses on the science of Quaternary dinoflagellates and their cysts. Today DINOQUA consists of about 30 world-wide members. DINOQUA will be run by an executive comprising an elected Board. DINOQUA welcomes new individuals as members who are interested in the science of Quaternary dinoflagellates and their cysts.

DINOQUA communicates primarily through e-mails and a website. The DINOQUA website is intended as a resource for DINOQUA members and anyone else interested in Quaternary dinoflagellates and their cysts.

The DINOQUA website is founded by GEUS (www.geus.dk) and can be found at: www.dinoqua.org

**Niels Poulsen**
GEUS
nep@geus.dk

## CALL FOR PAPERS

## A GAC/MAC 2008 Special Session in Honour of Dr. Pierre Richard

## *Palynology: stratigraphic and paleoenvironmental applications*

The Canadian Association of Palynologists is sponsoring a special session in honour of Pierre Richard at the next Annual GAC/MAC meeting. The conference will take place in Québec City from May 26 to 28, 2008.

To showcase the range of palynological work done in Canada and elsewhere, this special session (SS10) will address the application of pollen and other palynomorphs to both stratigraphic and paleoenvironmental problems. New techniques, approaches to data handling and the integration of palynolgical records with other micropaleontological and geological data into multi-proxy studies will be emphasized.

We invite you to submit abstracts before January 20th, 2008. More details about the conference and about abstract submission can be obtain from: http://quebec2008.net/

Organizers are Elisabeth Levac at Bishop's University (elevac@ubishops.ca) and Michelle Garneau at Université du Québec à Montréal (garneau.michelle@uqam.ca)

# Conference Calendar

## 2008

May 20-24: **Canadian Association of Geographers (CAG) Annual Meeting**
Québec City, Québec
www.cagquebec2008.org/

May 26-28: **GAC/MAC Meeting**
Québec City, Québec
http://quebec2008.net/

June 5-7: **AMQUA Biennial Meeting**
Theme: Quaternary Ice Sheet-Ocean Interactions and Landscape Responses
Pennsylvania, PA
www.amqua.org/news/meetings/

August 6-14: **33rd International Geological Congress (IGC)**
Oslo, Norway
www.33igc.org/

August 12-16: **4th European Symposium on Aerobiology**
Turku, Finland
www.sci.utu.fi/projects/biologia/aerobiologia/4ESA2008/

August 30-Sept. 5: **XII International Palynological Congress (IPC)**
Bonn, Germany
First announcement:
www.geo.arizona.edu/palynology/2ndCallSymposia.pdf

August 30-Sept. 5: **AASP 41st Annual Meeting**
Bonn, Germany
(Held in conjunction with XII IPC)
Organizer: Owen Davis
www.palynology.org/meetings.html

Oct. 5-9: **GSA 120th Annual Meeting**
Houston, Texas, USA
www.acsmeetings.org/2008/

## 2009

May 4-10: **DINO8: Eighth International Conference on Modern and Fossil Dinoflagellates**
Montréal, Québec
www.dino8.uqam.ca/

May 24-27: **GAC/MAC Meeting**
Toronto, Ontario
www.gac.ca/activities/

June 21-27: **North American Paleontological Convention**
University of Cincinnati
Cincinnati, Ohio, USA
www.paleosoc.org/NAConv2005-2009.html

July 26-30: **Botany 2008**
Joint Meeting of Canadian Botanical Association, American Fern Society, American Society of Plant Taxonomists, Botanical Society of America
University of British Columbia
Vancouver, British Columbia
www.botanyconference.org/

October 18-21: **GSA 121st Annual Meeting**
Portland, Oregon, USA
www.geosociety.org/meetings/

Date TBA: **CANQUA 2009**
Simon Fraser University
Vancouver, British Columbia
www.mun.ca/canqua/

# CAP MEMBERSHIP FORM

Canadian Association of Palynologists / Association Canadienne des Palynologues (CAP) membership is open to all members of the palynological community in Canada and others with an interest in Canadian palynology. The Association is dedicated to the advancement and encouragement of all aspects of palynology in Canada and the promotion of co-operation between palynologists and those engaged in related fields of study. Membership dues include two issues a year of the *CAP Newsletter*, to which all members are invited to contribute. CAP is affiliated with the International Federation of Palynological Societies (IFPS) and members receive two issues of the IFPS newsletter (*PALYNOS*) each year.

CAP membership dues are $10 per year in Canadian funds payable at the beginning of the year. Lapsed members are removed from the mailing list after one year, following a reminder notice. Members may, if they wish, pay for up to three years in advance. To join, please fill out the membership form, by hand or in Adobe Reader®, and send it with a cheque or money order payable to CAP to:

Dr. Mary Vetter, CAP Secretary-Treasurer, Luther College, University of Regina, Regina, Saskatchewan, S4S 0A2 CANADA

Name:_____

Affiliation:_____

Address:_____

_____

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Tel:_____ FAX:_____

E-mail:_____

Web page URL:_____

Research interests:_____

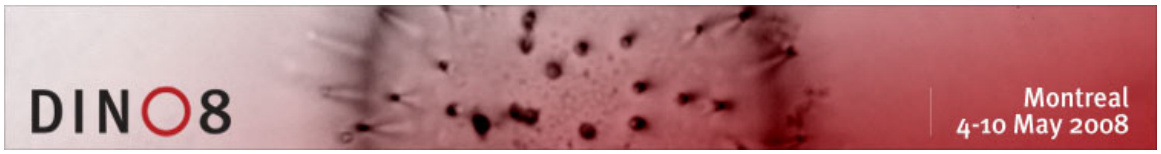
_____

_____

New membership ☑ Renewal ☐ Amount enclosed:_____

May we include your name/address/research interests in the on-line "Directory of Palynologists" in the CAP World Wide Web page? Yes ☑ No ☐

## Meeting announcement




# DINO8: Eighth International Conference on Modern and Fossil Dinoflagellates

### Montréal, Canada

### 4-10 May 2008

The Eighth International Conference on Modern and Fossil Dinoflagellates (DINO8: http://www.dino8.uqam.ca) is being organized by the Geochemistry and Geodynamics Research Centre (GEOTOP; http://www.geotop.uqam.ca/) and will be held at UQAM in Montreal from May 4 to10, 2008. The conference will cover various fields of research relevant to the study of dinoflagellates including molecular biology, ecology, taxonomy, biostratigraphy, limnology, oceanography, paleoclimatology and paleoceanography.

Workshops are planned to provide hands-on knowledge on the taxonomy of Neogene and Quaternary dinoflagellate cysts, *in vitro* culture techniques, techniques of preparation and analyses, and quantitative data treatments for paleoceanographic purposes.

The preliminary program and information concerning registration are available on the internet at: http://www.dino8.uqam.ca

The organizing committee warmly welcomes students, researchers and professionals to attend DINO8.

Organizing committee:

Anne de Vernal (GEOTOP-UQAM)
André Rochon (GEOTOP and ISMER)

Contact: Taoufik Radi at: dino8@uqam.ca

**INFORMATION ON SPORE TABLETS**

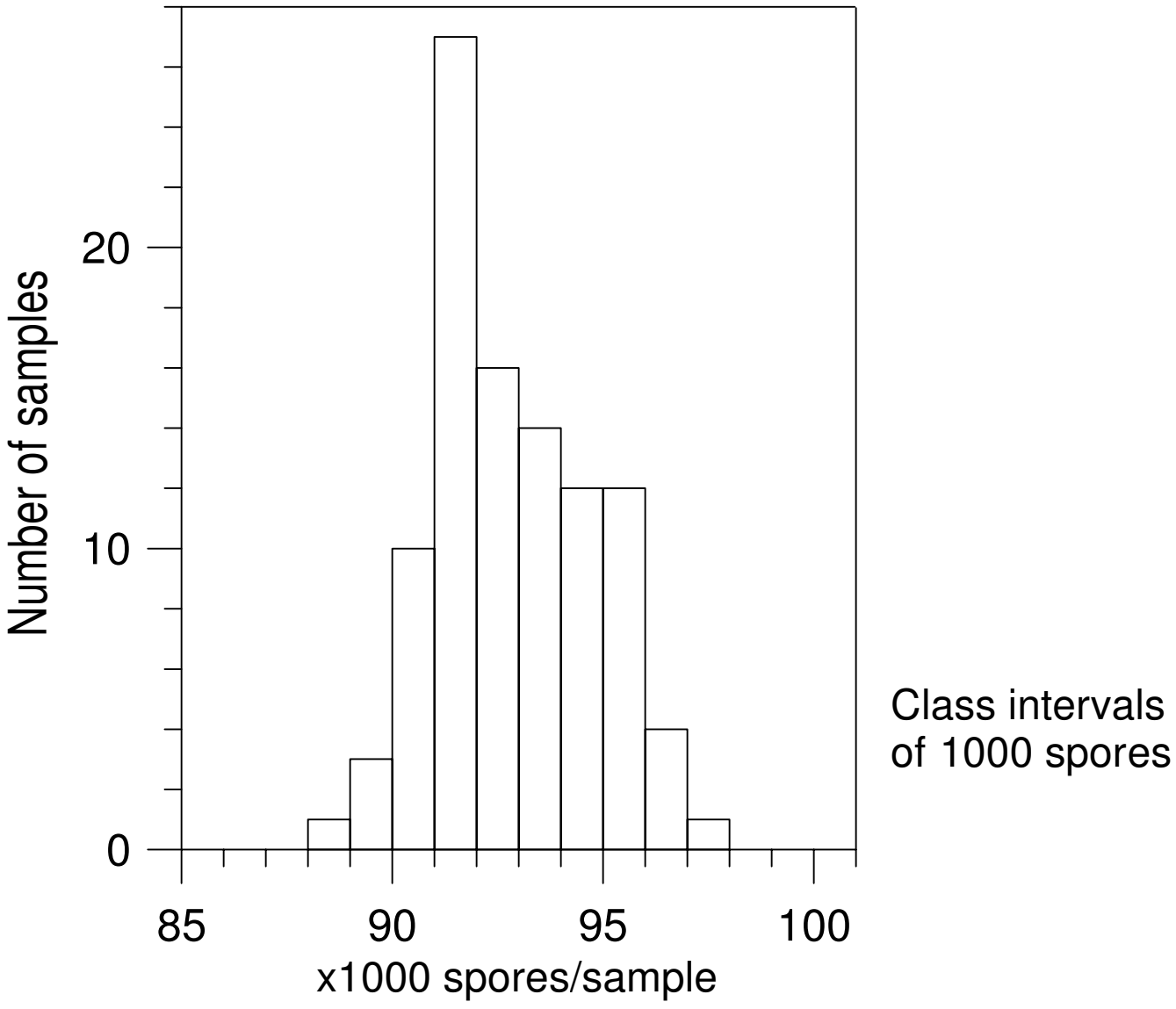
**Lycopodium spore tablets (batch 177745)** (October 2007)

Lycopodium spore tablets can be dissolved in water or in HCl, but not in NaOH. They have been prepared in a slightly different way compared to that described by Stockmarr (1971, 1973). The tablets are thus based mainly on sodium bicarbonate together with polyvinylpyrilidon and polyethyleneglycol, which must be carefully washed away with water and finally with diluted HCl before further treatment. The spores are acetolysed.
The spore concentration has been determined with an electronic particle counter, Coulter Counter ZB (cf. Stockmarr 1973), tube size 140 µm. 100 samples of five tablets each taken from different places in the batch were prepared by dissolving the tablets in Isoton II NaCl solution in 100 ml flasks. 20 counts each of 0.5 ml were made on each sample.

Result of the calibration (5 tablets): X = 92918 s = ± 1853 V = ± 2.0 %

**For one tablet: X = 18584**

The distribution of the samples is shown in the figure below.



Production

Spore tablets for calibration of pollen analyses have earlier been produced and distributed by dr Jens Stockmarr, Copenhagen. In October 1980 this business was taken over by the Department of Quaternary Geology in Lund. It is performed as an official commission approved by the University of Lund. A new batch, No. 177745, is now produced and tablets are available. The tablets were prepared in Sweden, pressed in Denmark, and calibrated in Sweden.

Distribution and price

Lycopodium tablets will be distributed in plastic bottles with 500 tablets per bottle. The price is in Euro, EUR 60 per bottle (=500 tablets), plus post & package.
Post & package (parcel post): Within Europe - EUR 30, countries outside Europe - EUR 40.
Within EU, The European Union, please state your VAT number when ordering.

Payment

An invoice will be sent together with the tablets. Do not pay until the tablets and the invoice have arrived. **Customers within the EU:** Please pay via SEB, SE-106 40 Stockholm, Sweden, BIC: ESSESESS and IBAN SE55 5000 0000 0543 9103 1116. **Customers outside the EU:** Please pay via the Swedish bank SEB, SE-106 40 Stockholm, Sweden, BIC: ESSESESS Account number: 5439-10 311 16.
You may also pay by cheque (bank draft) payable to Lund University, addressed to Quaternary Sciences, Sölvegatan 12, SE-223 62 LUND, Sweden. Payment by private cheque or credit card can not be handled.
**The invoice No. must always be quoted with your payment.**

Please note that production and distribution of tablets is done at cost price, which makes it necessary to reduce administration to a minimum. Therefore, the machinery of payment must be as simple as possible - so, please, follow our instructions and try not to impose too many administrative duties on us, which will only result in delayed deliveries.

Björn Berglund Thomas Persson

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E-mail: Thomas.Persson@geol.lu.se

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To: Lund University,
Department of Geology,
Quaternary Sciences,
Sölvegatan 12,
SE-223 62 LUND,
Sweden

FAX +46-46-2224830

Date .....

We order .....bottle(s) of Lycopodium spore tablets, batch no. 177745

Name .....

Address .....

.....

.....

**VAT (value-added tax) number** .....