Canadian Association of Palynologists
Association Canadienne des Palynologues

NEWSLETTER

Volume 37 Number 2 December 2014

President's Message

This newsletter marks the end of my first year as President of CAP, and I am happy to be able to announce that Vera Pospelova agreed to step into the vacant position of President-Elect at our AGM in Vancouver, held in conjunction with one of the rare Annual Meetings of the Geological Society of America to be held on this side of the border. This loud (held in a crowded pub over lunch to save the huge room rental fees at the Vancouver Convention Centre!) but convivial AGM was the best-attended in my memory and will hopefully promote greater involvement of our newer members in our society as well as reinvigorating the participation of others. As part of the initiative to increase interest in and awareness of CAP (in addition to the CAP Student Award that Andrea Price received for her doctoral work) the Executive offered a registration fee waiver to encourage student/junior members to present at GSA that was awarded to Manuel Bringué of the University of Victoria.

CAP also sponsored a special session at GSA- *T108 Palynology in Geoarcheological and Environmental Studies*, which is one of the areas of strength within our membership. Unfortunately there were several similar-themed sessions at the second-best attended meeting of GSA ever, so we were just short of the necessary number of abstracts for an oral session. Nonetheless, we had a well-attended poster session that served as a hub for Canadian palynologists. Canadian palynology was certainly well-represented at the GSA meeting, with CAP members also presenting in a variety of other sessions as well-notably Terri Lacourse, Marlow Pellatt, Gail Chmura and Simon Goring.

What I find really interesting about palynology is the enormous diversity of disciplinary backgrounds among scientists encompassed within this field. This was evident in the attendance at the AGM/ pub lunch, with an ecologist with Parks Canada (Marlow Pellatt), a paleoecologist/ geoarcheologist with the Royal Alberta Museum (Alwynne Beaudoin), faculty members (and a post-doc) from a variety of departments like Geography (Gail Chmura, Konrad Gajewski, Simon

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Goring), Geography and the Environment (J. Hughes), Biology (Terri Lacourse), Earth Sciences (Francine McCarthy), Earth and Ocean Sciences (Vera Pospelova), Earth and Space Science (Jen O'Keefe)- together with grad students from a variety of departments (Geoscience- Kimberly Bell; Earth and Ocean Sciences- Manuel Bringué; and Geography- Andrea Price). This is also reflected in the makeup of our Executive, including those who could not be at our AGM- Florin Pendea (Geography) who unfortunately sustained very serious injuries while doing fieldwork this past summer but is fortunately recovering- albeit slowly- and Mary Vetter (Biology). Mary, our long-time Secretary-Treasurer, has announced her intention to step down from this position by the next AGM, as has our website manager, Alwynne Beaudoin. Although it is really hard to imagine CAP without these two steady forces on the Executive, there was (fortunately!) expression of interest from attendees in filling these positions once they become vacant- although in the interests of following our by-laws and allowing anyone who couldn't attend the AGM to run for these choice positions, we will be having an election with details to follow in our May newsletter!

We considered a variety of options for holding our next AGM but then voted unanimously to meet with the Palynological Society-AASP at the Annual Meeting of the Geological Society of America in early November 2015 in Baltimore, MD. I hope we can also have a presence at the joint AGU-CGU-GAC meeting in May, given the number of members we have within an easy drive of Montréal. Please let me know if you have ideas on special sessions CAP could propose for either meeting (or for any other meetings you are aware of) and I will bring the suggestions to the executive.

Francine McCarthy
CAP President

Editor's Notes

Thank you to all who contributed material for this edition of the *CAP Newsletter*: A. Beaudoin, S. Finkelstein, K. Gajewski, B. van Helden, S. Goring, F. McCarthy, K. Neil, M. Peros, V. Pospelova, A. Oyelami, M. Vetter. Please submit items for the next issue of the *CAP Newsletter* (Volume 38, Number 1, May 2015) by April 1, 2015.

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Invitations:

AGU-CGU-GAC-MAC

Joint Assembly in

Montréal, Québec, Canada,

May 3-7, 2015

Special session: Global change during the Holocene and Anthropocene: new methods, questions, and perspectives

Long-term records of climate and environmental change are essential to understanding how terrestrial and aquatic ecosystems will respond to ongoing global warming. The purpose of this session is to highlight recent research focused on understanding the patterns and causes of climate and environmental change during the Holocene epoch using traditional or novel methods. We welcome abstracts focused on any geographic region, and using any proxy or combination of proxies. We also solicit studies focused on broad, regional-scale investigations using paleoecological and archaeological databases (e.g., Neotoma, CARD), and climatic or geophysical modeling. Additionally, we welcome papers that consider new insights into the Anthropocene, the period of time characterized by significant human impact on earth's climate and environment. Humans have played a role in shaping landscapes and environments for thousands of years and studies that examine these questions help place modern environmental-human interactions into a long term context.

Abstracts were due January 14, 2015 (I apologise for the late distribution of the newsletter). General information about the meeting can be found here: http://ja.agu.org/2015/. Please feel free to contact Matthew Peros and Konrad Gajewski if you have any questions. Montréal is a lovely city to visit in May! We look forward to seeing you in Montréal.

Matthew Peros, Bishop's University
Konrad Gajewski, University of Ottawa

INQUA Congress

Nagoya, Japan

27 July—2 August, 2015

Special session: Peat deposits during the Quaternary: their role in the global carbon cycle and as palaeoenvironmental archives [P31]

Global peatlands store a large belowground carbon pool of ~600 Gt C that has accumulated since the Last Glacial Maximum. We know that this largest biosphere carbon pool has played a major role in the global carbon cycle dynamics during the last deglaciation and the Holocene (the present interglacial). However, we know much less about their carbon pool size and role in previous interglacials during the Quaternary. Here we invite contributions that present data and ideas on carbon cycle dynamics and palaeoenvironmental reconstructions using peat deposits during the Holocene and beyond. Contributions on all types of peat-forming ecosystems are appropriate, which include peatlands in boreal/subarctic, tropical and southern high-latitude regions, and moss peat banks in maritime Antarctica. Modeling studies are also welcome. Please contact one of the conveners below if you require further information about this session. More info at: (http://inqua2015.jp)

Zicheng Yu , Lehigh University, USA
Dan Charman, University of Exeter, UK
David Beilman, University of Hawaii, USA

2014 CAP Annual General

Meeting Minutes

GSA Annual Meeting,
Vancouver B.C.
12:00 PM, October 21, 2014

AGENDA

Meeting called to order at noon; Simon Goring agreed to take minutes.

1) Approval of agenda.
Proposed: Simon Goring Seconded: Jen O'Keefe

2) Round table introductions.
Introduction of new member Jen O'Keefe, and other members present. Simon Goring, Alwynne Beaudoin, Konrad Gajewski, Marlow Pellatt, Gail Chmura, Andrea Price, Manuel Bringuè, Vera Pospolova, Jonathan Hughes, Francine McCarthy, Kimberly Bell, Terri Lacourse (past president), Jen O'Keefe

3) Approval of the Minutes from 2013 AGM.
Moved: Vera Pospolova; Seconded: Kimberly Bell

4) ***President's Report***
Most initiatives were centered around this meeting.
Manuel was awarded the student stipend for GSA, in an effort to broaden the appeal to student members. We need to keep CAP vibrant.
Two members of the Executive have announced their intention to step down, so we will be putting together a nomination committee. We will need a Secretary/Treasurer and a Website Editor.

5) Secretary/Treasurer's Report, Mary Vetter (in absentia)
Mary will step down in the next year.
We are in good shape financially, and have been using disbursements to try to attract new student/early career members.
Moved: Marlow Pellatt, seconded Alwynne Beaudoin.

6) Auditor's Statement (awaiting statement from auditor, Sarah Finkelstein)
We do not have an auditor's statement at this point.

7) Newsletter Editor's Report
Florin is absent- condolences about his field injury and hopes for a speedy recovery. Summarizes the highlights. Reminds us that the next deadline is Nov. 15th.
Moved: Gail Chmura, seconded: Marlow Pellatt

8) Website Editor's Report
Alwynne will hand off the website at the next AGM. The Association will also need to find someone to host it; notes that there may be costs associated with an institution hosting the site. Recommends finding someone to do it because it will help find connections.
Moved: Gail Chmura; seconded: Konrad Gajewski.

9) IFPS Councillor's Report

Moved: Jonathan Hughes; seconded: Alwynne Beaudoin.

10) Review of Dues Structure

Keep fee structure same (may be revisited if moving the website costs us money).

Moved: Vera Pospolova; Seconded: Alwynne Beaudoin.

11) CAP Student Research Award

Andrea Price received the student award, cheque to be mailed to her. Congratulations Andrea!

12) Appointment of Nomination Committee

We would like to form a slate of young candidates for the CAP Executive:

A) President-Elect Position (currently vacant)

B) Secretary/ Treasurer Position

C) Website Editor Position.

Vera Pospolova is willing to stand as President-Elect, filling the year-long vacancy.

Website editor: Gail Chmura has nominated one of her tech-savvy students (not yet a member) to run for the position of website editor; she will approach him and offered to cover his CAP dues.

Secretary Treasurer: Kimberly Bell has agreed to run for the position.

Moved: Marlow Pellatt; Seconded: Jonathan Hughes; carried.

13) Discussion on Priorities and Goals for CAP in the coming year

A) Incorporation

Changes to Canadian law mean that there are changes to the charity structure et cetera. Because CAP is a non-profit organization, it is a relatively simple process to re-incorporate- Mary and Francine will tackle this by the end of October and circulate to the Executive.

B) By-Laws

By-law changes needed are relatively small to meet the regulations, but the changes needed to move the association forward are potentially more complicated and will be discussed at next year's AGM (drafts of ideas to be forwarded to the membership ahead of the meeting).

Motion to go forward as a non-profit association:

Moved: Terri Lacourse; Seconded: Jonathan Hughes; carried.

C) Motion to change the by-laws to be in compliance with non-profit status. Francine will send out the new by-laws to review.

Moved: Jonathan Hughes; Marlow Pellatt; carried.

D) Motion by Alwynne Beaudoin to review the by-law changes at the next CAP AGM, with a broader view to move the association forward.

Moved: Alwynne Beaudoin; Seconded: Terri Lacourse; carried

14) Location for 2015 AGM

Gail Chmura proposes that the next AGM be held with GSA and AASP in Baltimore.

AGU with GAC/MAC in May in Montreal. There is an agreement (by vote) to meet with

AASP and GSA in early November in Baltimore, MD

15) CAP Sessions at Future Conferences

16. Other Business

Jonathan has provided an updated/ high resolution version of the logo in Illustrator and offered to make it available on the website.

17. Adjournment

Motion to Adjourn, 12:55 PM: Francine McCarthy; seconded: Alwynne Beaudoin. Carried.

Letters from members:
13th International Swiss Climate Summer School

The 13th International Swiss Climate Summer School was held this year between August 31st-September 5th, 2014, in Grindelwald, Switzerland. Among the 70 participants chosen to attend were two members from the Laboratory for Paleoclimatology and Climatology, University of Ottawa. The topic of the summer school was "Linking Land Use, Land Cover, and Climate"; the programme, a list of keynote speakers, and a list of participants, can be found at: http://www.oeschger.unibe.ch/education/summer_school/2014/index_en.html

Karen Neil
University of Ottawa

PALYNFO
Graduate Student opportunities

Currently, there are several research projects available for graduate students at both M.Sc. and Ph.D. levels at the University of Victoria, BC under the supervision of Dr. Vera Pospelova. The research projects involve applications of marine palynology (studies of dinoflagellate cysts, foraminiferal organic linings, spores and pollen) and geochemistry for paleoclimatic and paleoenvironmental reconstructions. Interested students should contact Dr. Pospelova, E-mail:

Potential projects:

A) Reconstruction of environmental conditions in the late Quaternary using dinoflagellate cyst records from several cores in the Pacific and the Arctic Oceans.
B) Applications of dinoflagellate cysts in environmental studies of estuarine systems.
C) Human impact on coastal waters and the distribution of toxic species
D) Jurassic-Cretaceous dinoflagellate biochronology and biostratigraphy.

For more information please visit:
http://web.uvic.ca/~vpospe/Student%20opportunities.html

Letters from members:

Continuing developments in paleoecoinformatics

The tools we use to process and analyze data in paleoecology have been around for years. Software like Tilia and C2 have been important components of the pollen analyst's toolbox for a decade or more, and with R packages such as MATTOOLS (Sawada, 2012), analogue (Simpson & Oksanen, 2014) rioja (Juggins 2012) and the clam/bacon age modelling code (Blaauw, 2010; Blaauw & Christen, 2011) there has been a clear need to integrate data generation, analysis and submission. This is highlighted by the continued development of centralized databases for paleoecological data, the North American Modern Pollen Database (Whitmore et al., 2005; version 1.7.3), the European Pollen Database and Neotoma. As well as the Global Charcoal Database (with the addition of the paleofire R package: Blarquez et al., 2014). Continued development of these databases makes it is possible to develop new tools, and to modify old tools to take advantage of new information as it is entered.

I have been involved with Neotoma in some capacity for four years now, and this past year has seen significant advances in the website, the data and the software applications. The informatics side of Neotoma has seen the release of a new version of the Neotoma Explorer that allows multiple overlays, provides a cleaner display, and has increased functionality, including the ability to print directly from the map viewer. The Neotoma database has also increased in size. New records and new proxy data are being added to the database at a faster rate, and are accessible through the Neotoma Explorer, and through the neotoma R package. The R package has seen considerable development since the last time I wrote about it in the CAP Newsletter and is now the subject of an accepted publication in the new open access journal Open Quaternary (Goring et al, accepted). Lastly, as some CAP members may know from workshops at the CAP/AASP/CIMP/Dino10/NAMS meeting in San Francisco and elsewhere, the software package Tilia has also been undergoing significant development.
Tilia has seen a number of new, incremental releases over the past year. I have had the opportunity to use some of its new functionality and it is an incredible change. Data can now be downloaded directly from Neotoma, with a map interface and a number of search tools. Neotoma Data Stewards will be able to use Tilia to upload datasets directly to Neotoma, and to correct errors in existing Neotoma datasets. Because Neotoma is now linked directly to Tilia, and to the web through an API direct upload of a dataset means that it is immediately available online, either through the web interface, Tilia or through the R package. The current version of Tilia (v2.0-33) is available in five different distributions, with various licenses. The Student version will have full functionality and a three year free license, while the Professional version will cost money, provide full functionality but never expire. Because the development of Tilia required license agreements with other software developers it isn't possible to provide free access to all users, but paying for a license will help the ongoing development of Tilia for the near future.

Continuing developments in paleoecoinformatics will allow us to cross-reference more data, and do it faster, more thoroughly, and integrate it more effectively into our research, but potential hazards exist and great care needs to be exercised in using these large datasets. Great strides have been made in the geosciences and in ecological research using large datasets and more will be made in the future as efforts like EarthCube, DataOne, PANGEA, IEDA and other projects take off.

References:

Blaauw, M., 2010. Quaternary Geochronology 5, 512–518.

Blaauw, M., Christen, J.A., 2011. Bayesian Analysis 6, 457–474.

Blarquez, O., Vannière, B., Marlon, J.R., Daniau, A.-L., Power, M.J., Brewer, S., Bartlein, P.J., 2014. Computers & Geosciences 72, 255–261

Juggins, S. (2012) (http://cran.r-project.org/package=rioja).

Simpson, G.L. and Oksanen, J. (18 Nov 2014). (http://cran.r-project.org/package=analogue).

Sawada M. (2012). http://CRAN.R-project.org/package=MATTOOLS

Simon Goring
University of Wisconsin-Madison

Featured article:

Dinoflagellates are Funky Things

Francine McCarthy
Brock University

I got my first insights into how strange dinoflagellates are when Graham Williams gave a guest lecture at Dalhousie in 1983 and I never cease to be amazed at how outlandish they really are. The Phylum/Division Dinoflagellata Bütschli is an odd, presumably early, offshoot of the Domain Eukaryota with a large, unusual nucleus called a dinokaryon that contains the bright red pigment that produces "red tides" during algal blooms (see Fig. 1). They are unusual in having fibrillar chromosomes that are more or less continuously condensed and the nuclear envelope does not break down during mitosis (Fensome et al., 1993).

This "closed mitosis" is evident in the photo below (Fig. 2A) from Crawford Lake sediments that contained viable resting cysts that germinated – some from varves deposited nearly 200 years ago (Krueger, 2012; Krueger and McCarthy, submitted), where anoxic bottom waters appear to have even promoted greater longevity than that reported by Ribeiro et al. (2011)! The lifestyle of most dinoflagellates consists of a motile (vegetative) stage in which armored thecae composed of several cellulosic plates (Fig. 2B) whirl through the water column using their two flagellae and at least one nonflagellated benthic stage (cyst– Fig. 2C) (Bravo and Figueroa 2014). Fossilizable resting cysts of dinosporin (a complex biomacromolecular substance composed of phenolic, alcoholic and/or carboxylic hydroxides, fatty acids with tocopherols and sterols– Kokinos et al. 1998; Versteegh et al. 2012) are known for only about 20% of species (Head 1996; Mertens et al. 2012). Since the relationship between "hystrichospheres" and peridiniacean dinoflagellates became known (Evitt, 1961) dinocysts in palynological preparations have been used as biostratigraphic markers and paleoenvironmental proxies in many studies, particularly in marine environments.

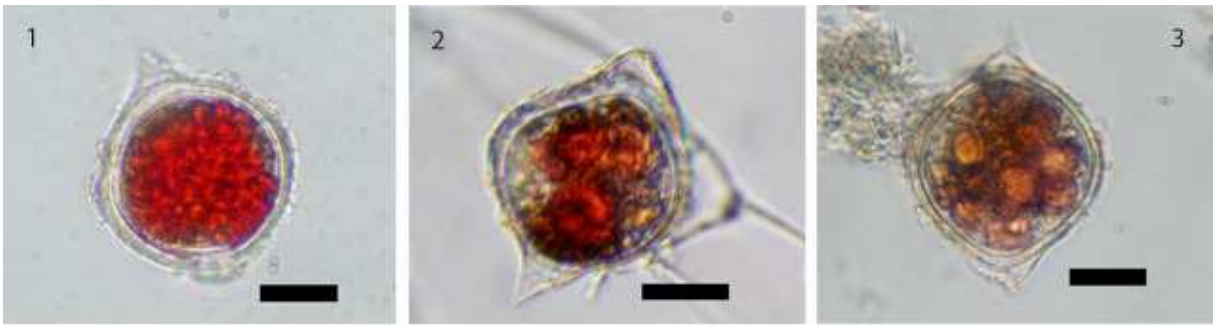


Figure 1. Cysts of *Peridinium wisconsinense* Eddy from first incubation with bright red bodies indicating the viability to germinate; scale bars are 20 μm (modified from McCarthy et al., 2011). This endemic North American taxon (that may have to be assigned to a new genus based on recent DNA analysis; McCarthy et al., 2013) is one of the dinoflagellate species that descended from taxa that transitioned to freshwater environments (Logares et al., 2007). It may date back to the Miocene based on nearly identical cysts described from the nonmarine Miocene sediments in Alaska as *Geiselodinium tyonekensis sp. nov*. by Engelhardt (1976).

Many people are surprised to hear that there are freshwater dinoflagellates, but dinoflagellates are, in fact, a common component of the phytoplankton in lakes (Carty 2014), with approximately 350 species inhabiting freshwater environments (Mertens et al. 2012). Unfortunately, the affinities of relatively few species have been confirmed through culturing (e.g., Wall and Dale, 1968; McCarthy et al., 2011), limiting the usefulness of freshwater dinocysts in paleolimnological studies.

Most fossilized freshwater dinocysts are monospecific or very low diversity assemblages from sites exhibiting exceptional preservation, such as varved lacustrine deposits of the Miocene Clarkia lake succession in Northern Idaho (Batten et al. 1999) or the the Upper Oligocene *lagerstätte* Enspel in the Westerwald area of Germany (Kohler and Clausing 2000), and even Holocene records tend to be nearly monospecific- e.g., rapidly deposited sediments from the alpine Lake Nero di Cornisello, Italy (Tardio et al., 2006) and microlaminated sediments from Lake Xiaolongwan in northeastern China (Chu et al. 2008). Slightly higher dinocyst species diversity has been reported in recent sediments from North American lakes, e.g. Norris and McAndrews (1970) and Zippi et al. (1990). Danesh et al. (2013) found relatively high species diversity in Lake Simcoe, where dinoflagellates were useful in assessing anthropogenic impact together with non-pollen palynomorphs, and Drljepan (2014) found an exceptionally diverse dinocyst record from the deep basin of a meromictic lake in Massachusetts (Photoplate 1, A-H).

Dinocysts from the deep, anoxic basin of the meromictic Sluice Pond provided important insights into climatic and paleolimnological change (Drljepan et al., 2014; Hubeny et al., in press), recording episodes of natural and cultural eutrophication during the dry mid-Holocene "hemlock minimum" when low

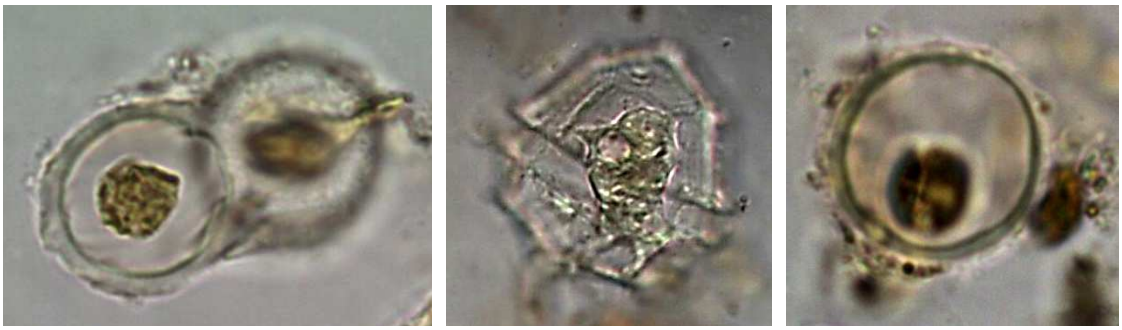
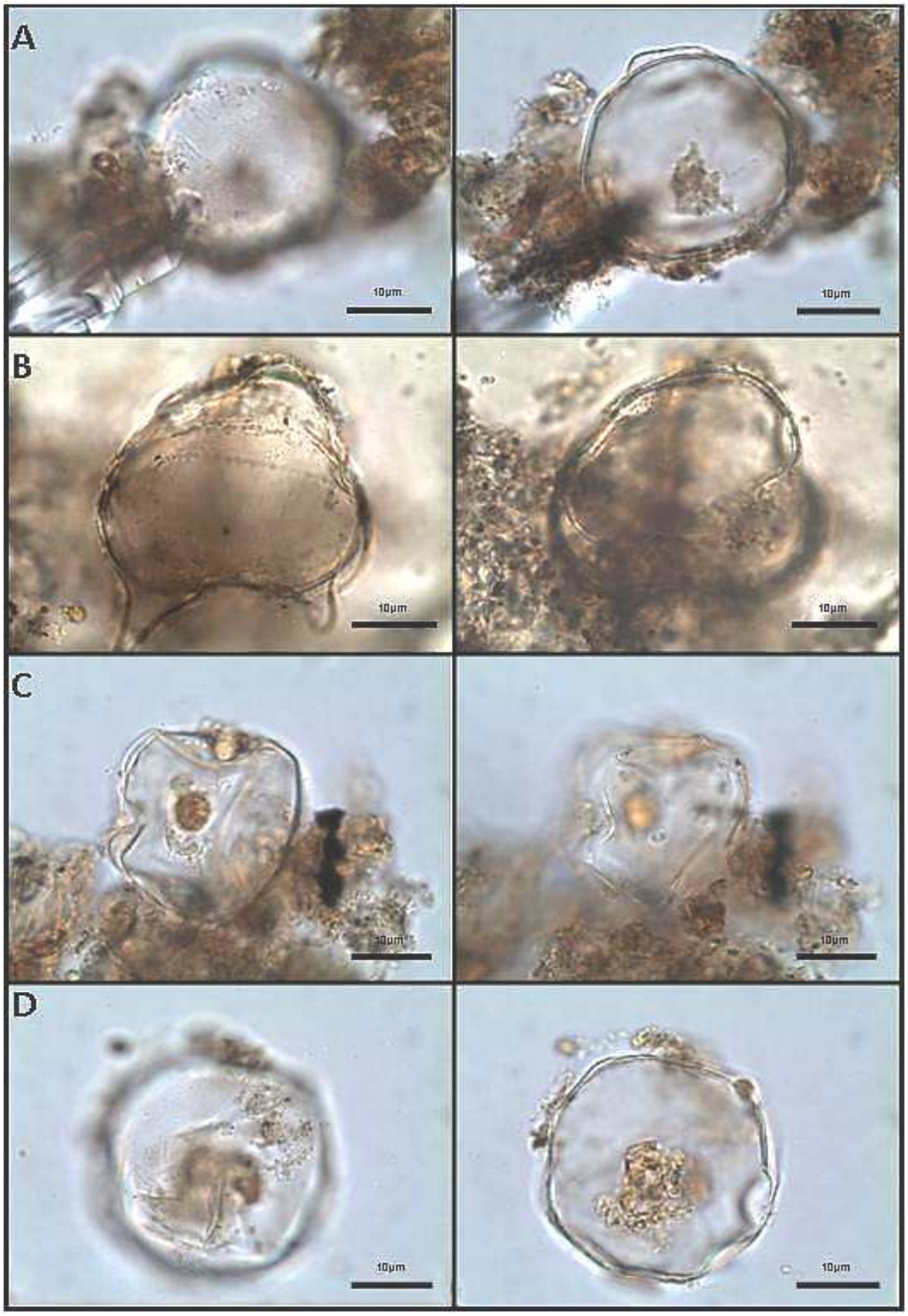


Figure 2. *Parvodinium inconspicuum* (Lemmermann) Carty from Crawford Lake (Krueger, 2012). A- Characteristic "peanut-shaped" cell (described in Pfiester et al., 1984) exhibiting closed mitosis in cysts that germinated from varves deposited as long ago as the 1820's in Crawford Lake. B- Theca showing cellulosic plates and a marked cingulum ("belt") and large dinokaryon C- tiny (16–20 μm) unornamented spherical cysts that are very different from those attributed to *P. inconspicuum* by Chu et al. (2008) that are probably cysts of *Parvodinium* umbonatum (Stein) Carty (McCarthy and Krueger, 2013).

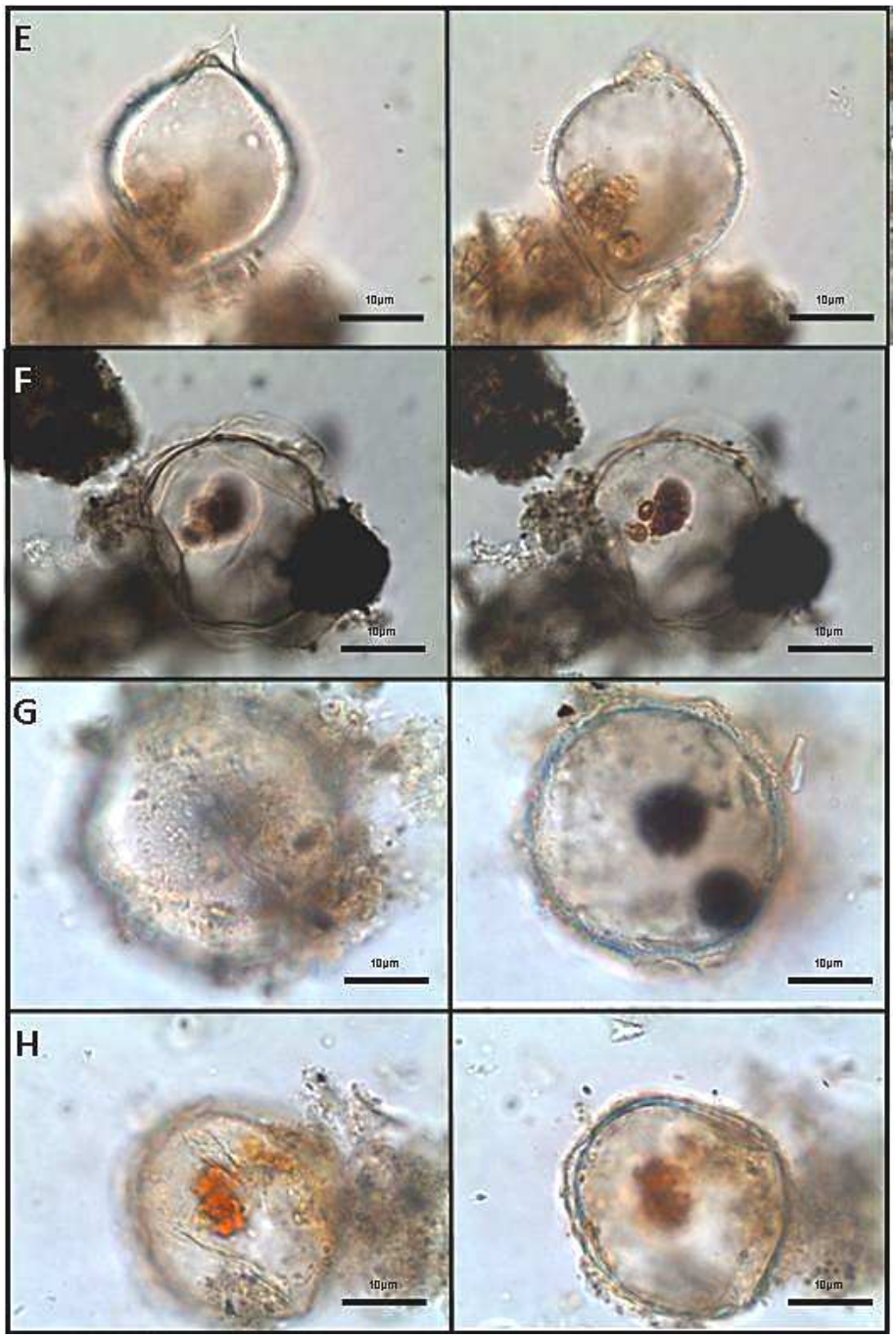


Photoplate I: Holocene sediments from the deep basin of Sluice Pond, a small meromictic lake in Lynn, MA contain an exceptionally diverse dinocyst assemblage:

A) *Peridinium gatunense* Nygaard showing a large (longitudinal length: 40 to 45-µm), cavate, proximate cysts with commonly visible ectophragm. B) *Peridinium limbatum* (Stokes) Lemmerman displays a large (50-55-µm), cavate, proximate cyst with visible paracingulum and paratabulation. This cyst possesses one apical and to antapical horns.

C) *Peridinium volzii* Lemmerman is a medium sized (longitudinal length: ~38-45-µm), cavate, proximate cyst, similar to *Peridinium willei* Huitfeld-Kaas, however it is smaller in size.

D) *Peridinium willei* Huitfeld-Kaas is a rounded, cavate, proximate cyst with a slightly invaginated outer layer in the sulcal area that forms two distinct shoulders. This cyst is larger (longitudinal length: ~50-60-µm) than *Peridinium volzii* Lemmerman.



Photoplate I cont':

E) *Peridinium wisconsinense* Eddy is easily identified from the rounded cysts of *Peridinium volzii* Lemmerman and *Peridinium willei* Huitfeld-Kaas by its sometimes birfurcated apical horn and single, sharply pointed antapical horn (longitudinal length: ~60-µm).

F) Cyst type G is a medium sized (~30-µm), cavate proximate cyst, easily identified by its rounded shape, and thin, continuous ectophragm.

G) Cyst type J is a large (longitudinal length: ~40-45-µm), cavate, proximate cyst with a visible paracingulum, thick and continuous ectrophragm and dark-brown colouration,

H) Cyst type K is smaller (longitudinal length: ~25-µm) than Cyst type J, however, it displays a similar appear-

lake levels are recorded throughout New England (Webb et al., 2004), and over the last four centuries in response to anthropogenic impact (Fig. 3). The very different dinocyst record in the two cores that are just over 100 m apart in Sluice Pond (Figs. 3, 4) was attributed to taphonomic differences. Until historic eutrophication depleted bottom water oxygen at Site SP07 through sediment oxygen demand (SOD- Walker and Snodgrass, 1986) and increased sedimentation rates through siltation, low dinocyst concentrations record relatively high rates of decay on the lakebed.

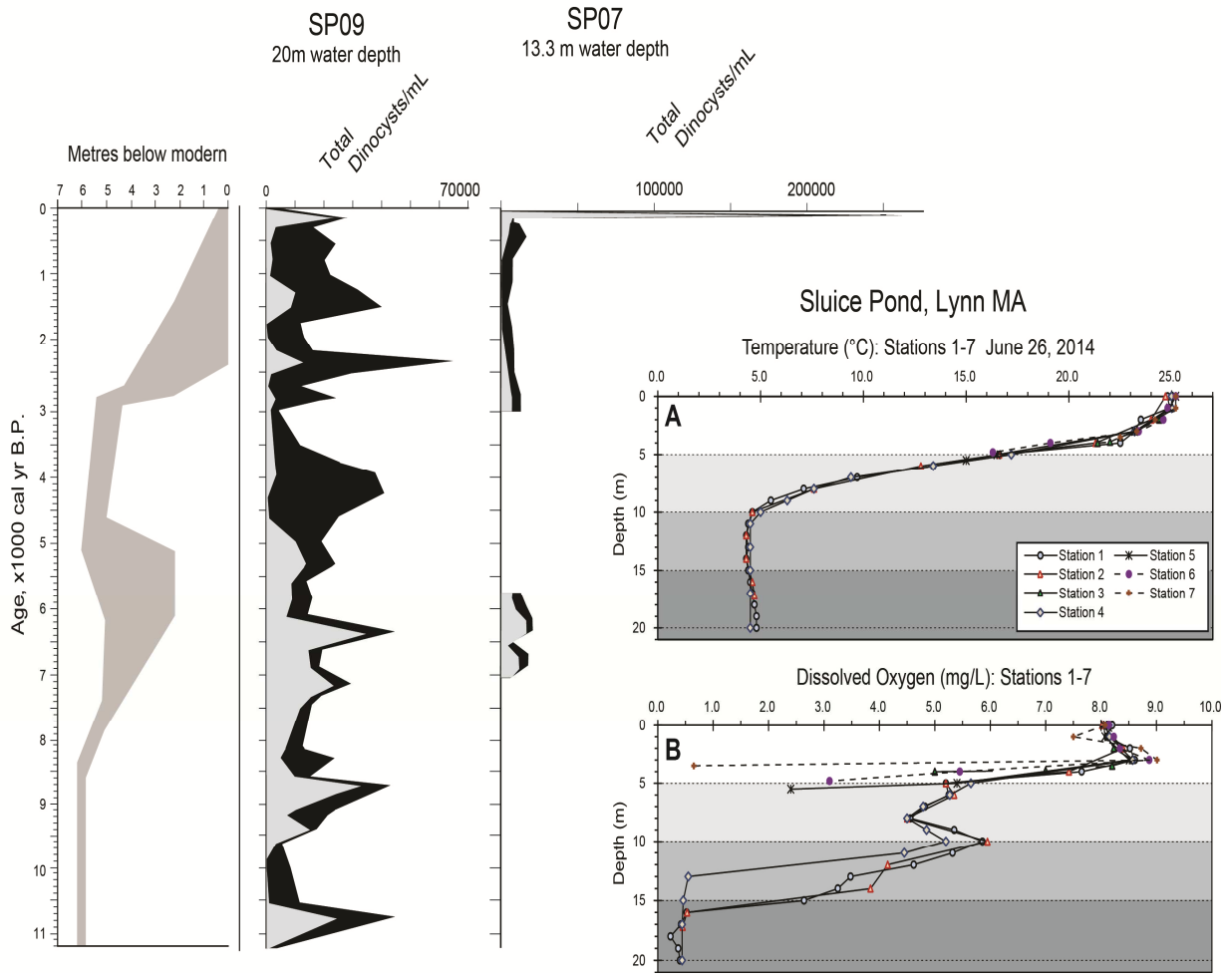


Figure 3. Natural eutrophication ca. 4.5 ka in Sluice Pond is evident in the change in dinocyst assemblages from *Peridinium wisconsinensis*-dominated assemblages recording oligotrophic conditions though most of the early through mid-Holocene to more diverse assemblages rich in cysts attributed to *Peridinium gatunense* during the mid -Holocene "hemlock decline" in core SP09 (Drljepan et al., 2014; Hubeny et al., in press). The exceptional preservation of dinocysts in core SP09 is attributed to the anoxia measured in the water column in the lower 5-7 m of the deep basin of Sluice Pond (McCarthy et al., in prep.). Site SP07, in contrast, was non-depositional through the *Tsuga* minimum, when lake levels were low throughout New England (Webb et al., 2004) and cyst concentrations were much lower.

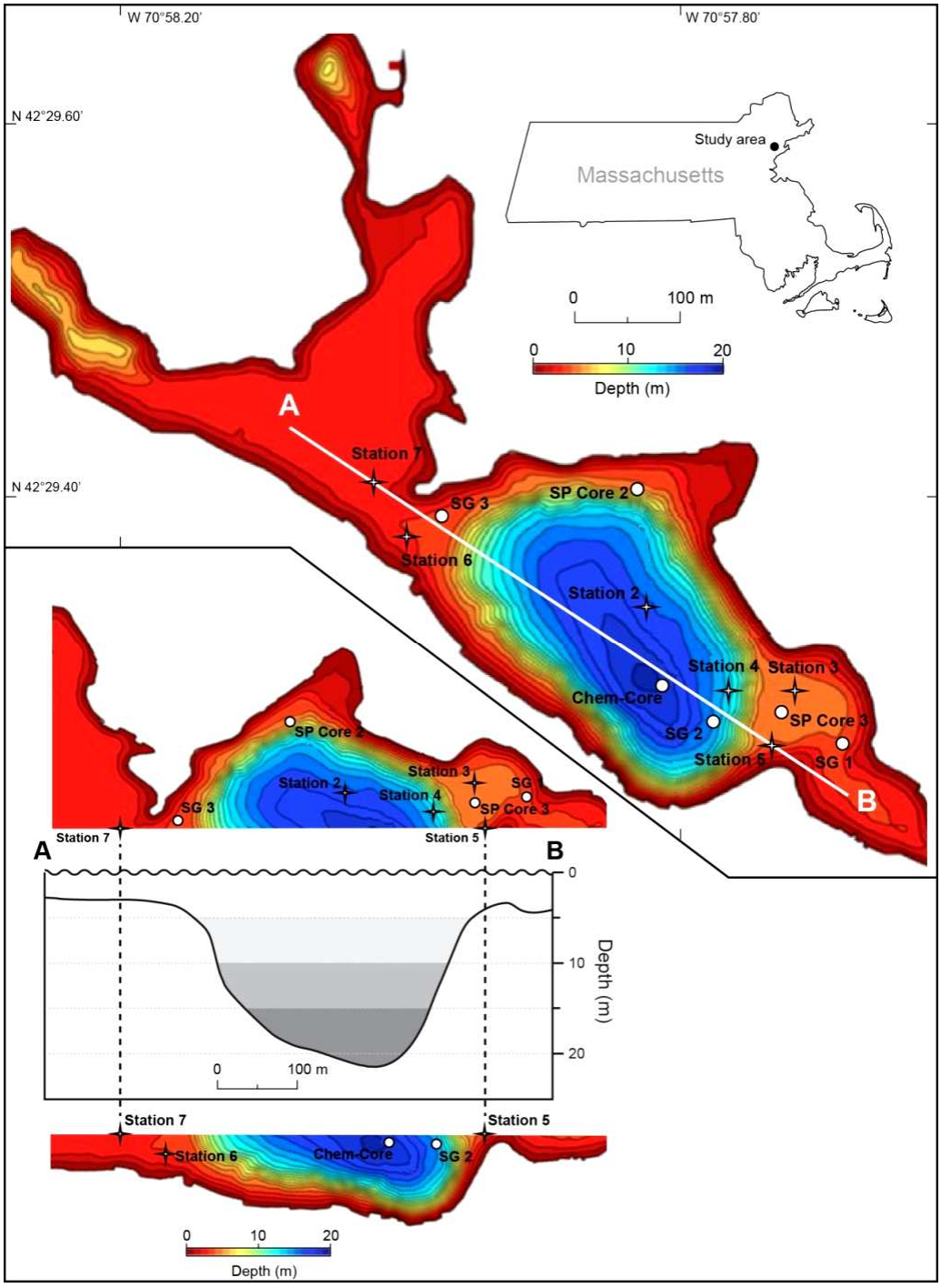


Figure 4. Microfossils were analyzed from lakebed samples ranging from shallow sites above the seasonal thermocline that are highly oxygenated (unshaded in the water profiles in Fig. 3) except just above the organic-rich sediments that produce SOD (see physicochemical properties measured across transect A – A' on June 26, 2014 using a YSI multiprobe in Fig. 3) to deep basin sites below the chemocline where stratified waters are anoxic. More abundant and diverse dinocyst assemblages are found in deep-basin samples, but benthic protozoans are almost absent from these anoxic sites, whereas abundant and diverse thecamoebian assemblages are found at the shallow sites (Drljepan et al., 2014)

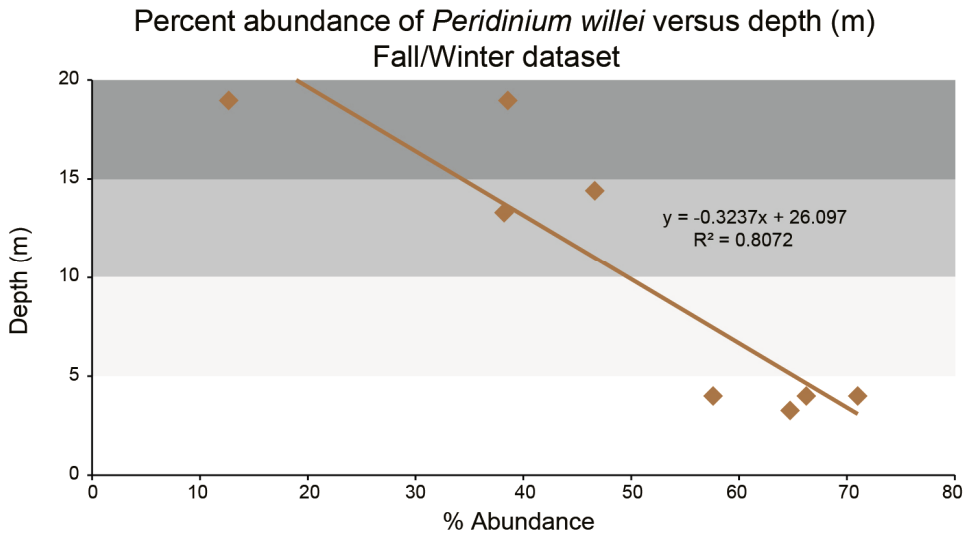


Figure 5. The very good inverse correlation between the relative abundance of cysts of *Peridinium willei* Huitfeld-Kaas (Plate I, D) and water depth in Sluice Pond is attributed to the effects of taphonomy on the dinocyst record – notably oxidation leading to selective destruction of most other dinocysts. Shallow water sites exposed to highly oxygenated water (unshaded) are strongly dominated by the ubiquitous cysts of *P. willei*, whereas anoxic deep-basin sites (dark grey) in this stratified lake contain more diverse dinocyst assemblages.

The importance of bottom water oxygen on dinocyst assemblages is obvious in Figure 5. Sites below the chemocline (c.13 m) in Sluice Pond contain more diverse assemblages whereas samples processed from shallow sites exposed to highly oxygenated bottom waters are dominated by the large, relatively nondescript thick-walled cysts of *P. willei* that have been reported from many lacustrine sediments in North America (Norris and McAndrews, 1970; Burden et al., 1986; Zippi et al., 1990; McCarthy et al., 2011; McCarthy and Krueger, 2013; Danesh et al., 2013). Core SP09 thus contains abundant and diverse dinocysts, whereas low dinocyst concentrations record relatively high rates of decay on the lakebed at Site SP07 until historic eutrophication depleted bottom water oxygen through sediment oxygen demand (SOD- Walker and Snodgrass, 1986) and increased sedimentation rates through siltation. Much still needs to be understood about cyst-theca relationships and the influence of taphonomy vs. ecology on assemblages of freshwater dinocysts before their paleolimnological potential can be fully realized, but their preservation in sediments where even common microfossils are absent or very poorly preserved, such as in the deep basin of Lake Simcoe (B. Cumming, pers. comm., October 2014) is a strong argument for making the effort (Volik, 2014; Volik and McCarthy, in revision).

References cited

Batten, D.J., Gray, J., and Harland, R., 1999, Palaeoenvironmental significance of a monospecific assemblage of dinoflagellate cysts from the Miocene Clarkia beds, Idaho, USA: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 153, p. 161-177.

Bravo, I. and Figueroa, R.I., 2014, Towards an ecological understanding of dinoflagellate cyst functions: *Microorganisms*, v. 2, p. 11-32; doi:10.3390/ microorganisms2010011

Burden, E.T., McAndrews, J.H., Norris, G.,1986, Palynology of Indian and European forest clearance and farming in lake sediment cores from Awenda Provincial Park, Ontario, Canada: *Canadian Journal of Earth Science* v. 23 (1), p. 43-54

Carty, S., 2014. *Freshwater Dinoflagellates of North America*. Cornell University Press, 272 p.

Chu, G., Sun, Q., Rioual, P., Boltovskoy, A., Liu, Q., Sun, P., Han, J., Liu, J., 2008, Distinct microlaminations and freshwater "red tides" recorded in Lake Xiaolongwan, northeastern China: *Journal of Paleolimnology* v. 39(3), p. 319–333.

Danesh, D.C., McCarthy, F.M.G., Volik, O., Drljepan, M., 2013, Non-pollen palynomorphs as indicators of water quality in Lake Simcoe, Ontario, Canada: *Palynology* v. 37(2), p. 231-245

Drljepan, M., 2014, *Algal and protozoan response to natural and environmental change in Sluice Pond, MA through the Holocene*: MSc thesis, Brock University, Canada

Drljepan, M., McCarthy, F.M.G., Hubeny, J.B., 2014, Natural and cultural eutrophication of Sluice Pond, MA recorded by algal and protozoan microfossils: *The Holocene*, v. 24(12), p. 1731 – 1742

Engelhardt, D.W., 1976, *Geiselodinium tyonekensis* sp. nov., a dinoflagellate cyst from the non-marine Teriary (Miocene) of Alaska*: Geology and Man* v. XV, p. 121-124.

Evitt, W.R., 1961, Observations on fossil dinoflagellates: Micropaleontology, v. 7, p. 385-420

Fensome, R.A.; Taylor, F.J.R.; Norris, G.; Sarjeant, W.A.S.; Wharton, D.I.; Williams, G.L.,1993, *A Classification of Living and Fossil Dinoflagellates*. Micropaleontology Special Publication 7: Hanover PA, Sheridan Press.

Hubeny, J.B., McCarthy, F.M.G., Lewis, J., Drljepan, M., Morissette, J., King, J.W., Cantwell, M., Ritch, N.M., Crispo, M.L., in press, The paleohydrology of Sluice Pond, NE Massachusetts, and its regional significance: *Journal of Paleolimnology*.

Logares, R., Shalchian-Tabrizi. K., Boltovskoy, A., and Rengefors, K.,2007, Extensive dinoflagellate phylogenies indicate infrequent marine–freshwater transitions: *Molecular Phylogenetics and Evolution,* v.45, p. 887–903

Kohler, J. and Clausing, A., 2000, Taxonomy and palaeoecology of dinoflagellate cysts from Upper Oligocene freshwater sediments of Lake Enspel, Westerwald area, Germany: *Review of Palaeobotany and Palynology*, v. 112, p. 39-49.

Kokinos, J.P., Eglinton, T.I., Goni, M.A., Boon, J.J., Martoglio, P.A. and Anderson, D.M., 1998, Characterisation of a highly resistant biomacromolecular material in the cell wall of a marine dinoflagellate resting cyst: *Organic Geochemistry*, v. 28(5), p. 265 -288

Krueger, A.M., 2012, *Freshwater Dinoflag-*

ellates as Proxies of Cultural Eutrophication: a Case Study from Crawford Lake, Ontario: Unpublished M.S. thesis, Department of Earth Sciences, Brock University, St. Catharines, Ontario, 96 p.

McCarthy, F.M.G. and Krueger, A.M., 2013, Freshwater dinoflagellates in paleolimnological studies: *Peridinium* cysts as proxies of cultural eutrophication in the southeastern Great Lakes region of Ontario, Canada, in Lewis, J.M., Marret, F. & Bradley, L., eds., *Biological and Geological Perspectives of Dinoflagellates*: The Micropalaeontological Society, Special Publications. Geological Society, London, p. 133-139

McCarthy, F.M.G., Mertens, K.N., Ellegaard, M., Sherman, K., Pospelova, V., Ribeiro, S., Blasco, S., Vercauteren, D., 2011, Resting cysts of freshwater dinoflagellates in southeastern Georgian Bay (Lake Huron) as proxies of cultural eutrophication: *Review of Palaeobotany and Palynology*, v. 166, p. 46-62

Mertens, K.N, Rengefors, K., Moestrup, O., Ellegaard, M., 2012, A review of recent freshwater dinoflagellate cysts: taxonomy, phylogeny, ecology and palaeocology: *Phycologia*, v. 51, p. 612-619

Norris G. and McAndrews J.H., 1970, Dinoflagellate cysts from post-glacial lake muds, Minnesota (U.S.A.): *Review of Palaeobotany and Palynology* v. 10(2), p. 131–156

Versteegh, G.J.M., Blokker, P., Bogus, K.A., Harding, I.C., Lewis, J., Oltmanns, S., Rochon, A., Zonneveld, K.A.F., 2012, Infrared spectroscopy, flash pyrolysis, thermally assisted hydrolysis and methylation (THM) in the presence of tetramethylammonium hydroxide (TMAH) of cultured and sediment derived *Lingulodinium polyedrum* (Dinoflagellata) cyst walls: *Organic Geochemistry*, v. 43, p.92-102

Volik O., 2014, *Non-pollen Palynomorphs and Thecamoebians as Proxies of Environmental and Anthropogenic change: a Case Study from Lake Simcoe, Ontario Canada.* MSc thesis. Brock University, St Catharines, ON

Volik, O. and McCarthy, F.M.G, in revision, Late glacial to recent evolution of Lake Simcoe: insights from pollen, non-pollen palynomorphs and thecamoebians, *J. Paleolimnology*

Walker, R.R. and Snodgrass, J.R., 1986, Model for sediment oxygen demand in lakes: *Journal of Environmental Engineering*, v. 112(1), p. 25-43

Wall, D. and Dale, B., 1968, Modern dinoflagellate cysts and evolution of Peridiniales: *Micropaleontology*, v. 14, p. 265-304

Webb T. III, Shuman B., Williams J.W., 2004, Climatically forced vegetation dynamics in eastern North America during the late Quaternary Period: In Gillespie AR, Porter SC, Atwater BF (ed) *The Quaternary Period in the United States. Developments in Quaternary Science I. Amsterdam: Elsevier, p. 459–478*

Zippi P., Yung Y.T., McAndrews J.H., Stokes P., Norris G.,1990, An investigation of the potential of zygnematacean zygospores, *Peridinium*, and *Pediastrum* as paleo - indicators of recent lake acidification: In *Environmental Research & Technology Transfer Conference, Toronto, Proceedings, vol. 1. Ontario Ministry of the Environment,*

Recent Publications

Bringué, Manuel, *Vera Pospelova, and David B. Field (2014) High resolution sedimentary record of dinoflagellate cysts reflects decadal variability and 20th century warming in the Santa Barbara Basin. *Quaternary Science Reviews* 105: 86-101.

Chaput, Michelle A., and *Konrad Gajewski (2014) Analysis of Daily Air Temperatures across a Topographically Complex Alpine Region of Southwestern Yukon, Canada." *Arctic* 67 (4): 537-553.

Czarnecki, Joanna M., Shahin E. Dashtgard, *Vera Pospelova, *Rolf W. Mathewes, and James A. MacEachern (2014) Palynology and geochemistry of channel-margin sediments across the tidal–fluvial transition, lower Fraser River, Canada: Implications for the rock record. *Marine and Petroleum Geology* 51: 152-166.

*Garneau, Michelle, Simon van Bellen, Gabriel Magnan, Véronique Beaulieu-Audy, Alexandre Lamarre, and Hans Asnong (2014) Holocene carbon dynamics of boreal and subarctic peatlands from Québec, Canada. *The Holocene* 24(9):1043-1053.

Heikkilä, Maija, *Vera Pospelova, Klaus P. Hochheim, Zou Zou A. Kuzyk, Gary A. Stern, David G. Barber, and Robie W. Macdonald (2014) Surface sediment dinoflagellate cysts from the Hudson Bay system and their relation to freshwater and nutrient cycling. *Marine Micropaleontology* 106: 79-109.

Loisel, Julie, Zicheng Yu, David W. Beilman, Philip Camill, Jukka Alm, Matthew J. Amesbury, David Anderson, Sofia Andersson, Christopher Bochicchio, Keith Barber, Lisa R. Belyea, Joan Bunbury, Frank M. Chambers, Daniel J. Charman, François De Vleeschouwer, Barbara Fiałkiewicz-Kozieł, *Sarah A. Finkelstein, Mariusz Gałka, *Michelle Garneau, Dan Hammarlund, William Hinchcliffe, James Holmquist, Paul Hughes, Miriam C. Jones, Eric S. Klein, Ulla Kokfelt, Atte Korhola, Peter Kuhry, Alexandre Lamarre, Mariusz Lamentowicz, David Large, Martin Lavoie, Glen MacDonald, Gabriel Magnan, Markku Mäkilä, Gunnar Mallon, Paul Mathijssen, Dmitri Mauquoy, Julia McCarroll, Tim R. Moore, Jonathan Nichols, Benjamin O'Reilly, Pirita Oksanen, Maara Packalen, Dorothy Peteet, *Pierre J. H. Richard, Stephen Robinson, Tiina Ronkainen, Mats Rundgren, A. Britta K. Sannel, Charles Tarnocai, Tim Thom, Eeva-Stiina Tuittila, Merritt Turetsky, Minna Väliranta, Marjolein van der Linden, Bas van Geel, Simon van Bellen, Dale Vitt, Yan Zhao, and Weijian Zhou (2014) A database and synthesis of northern peatland soil properties and Holocene carbon and nitrogen accumulation. *The Holocene* 24 (9):1028-1042.

Magnan, Gabriel, and *Michelle Garneau (2014) Climatic and autogenic control on Holocene carbon sequestration in ombrotrophic peatlands of maritime Quebec, eastern Canada. *The Holocene* 24(9): 1054-1062.

McCune, Jenny L., Mark Vellend, and *Marlow G. Pellatt. (in press) Combining phytolith analysis with historical ecology to reveal the long-term, local-scale dynamics within a savannah-forest landscape mosaic." *Biodiversity and Conservation*: 1-18. DOI 10.1007/s10531-014-0840-1.

Packalen, Maara S. and *Sarah A. Finkelstein (2014) Quantifying Holocene variability in carbon uptake and release since peat initiation in the Hudson Bay Lowlands, Canada. *The Holocene* 24(9):1063-1074.

*Pellatt, Marlow G., and Ze'ev Gedalof (2014) Environmental change in Garry oak (*Quercus garryana*) ecosystems: the evolution of an eco-cultural landscape. *Biodiversity and Conservation* 23(8): 1-15.

*Price, Andrea Michelle, and Vera Pospelova (2014) *Spiniferites multisphaerus*, a new dinoflagellate cyst from the Late Quaternary of the Guaymas Basin, Gulf of California, Mexico. *Palynology* 38(1): 101-116.

Zonneveld, K.F. and *Vera Pospelova A determination key for modern dinoflagellate cysts. *Palynology*, https://www.marum.de/species_list_modern_dinoflagellate_cysts.html

* *denotes a CAP Member*
Compiled by
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2014 REPORTS OF CAP EXECUTIVE DIRECTORS

CAP PRESIDENT'S REPORT

I'd like to begin my report by recognizing the outstanding efforts of my fellow Executive members, most notably our long-term pillars of the organization – Alwynne Beaudoin (Royal Alberta Museum) who has mamanaged our website for as long as I can remember and Mary Vetter (U Regina) who has been our Secretary/Treasurer for almost that long. I also want to acknowledge the great work of Florin Pendea (Lakehead U) in producing the newsletters – particularly in light of injuries sustained in the field that continue to plague him, and Simon Goring (U Wisconsin) who is the steward of our international presence in the International Federation of Palynological Societies- IFPS.

Most of my energies pertaining to CAP have centered around the *Geological Society of America Annual Meeting* held in Vancouver, B.C. October, 2014, where we chose to have our AGM- in part due to the timing, and in part due to the relatively multidisciplinary and international gathering there. I was very pleased to run into so many palynologists at this meeting, and to see so many palynologically-related presentations ans so many CAP members presenting in a variety of sessions. Special Session T108: *Palynology in Geoarchaeological and Environmental Studies* that was just shy of the number of abstracts needed for an oral session at his meeting that exceeded expectations and thus put pressure on meeting rooms. Nonetheless, we have a vibrant poster session tomorrow and hope that there are still plenty of people on the last afternoon of the meeting to attend! Presenters include this year's CAP Student Award recipient – Andrea Price (McGill U) – and Manuel Bringuè (U Victoria), who was awarded a registration fee waiver from CAP to attend this Meeting. This latter initiative was undertaken to provide greater support to students and young professionals- the next generation of palynologists- because it was seen as an excellent use of funds. CAP remains in good shape financially (under the longtime stewardship of Mary Vetter) because we have very few costs in this electronic age.

We have a low but relatively stable membership base that we hope to increase through initiatives like the CAP Student Prize and occasional fee waivers to relevant conferences, but CAP needs to remain relevant, and therefore to have more younger members join Florin Pendea (Lakehead U) and Simon Goring (U Wisconsin) on the Executive in order to ensure that CAP fulfills the needs of the palynological community. This is particularly pressing in light of the impending retirements of Mary Vetter as Secretary/Treasurer and Alwynne as Website Editor by next year – when my term as President also ends. One of the key outcomes of our current (antiquated) by-laws is to nominate the following year's Executive – or ideally, a slate of candidates for election to these positions) – so I hope we can accomplish that today.

The most pressing issue facing CAP, and to be spearheaded by the current Executive (hopefully with support from the entire organization) is to revisit our by-laws in light of a changing political landscape around incorporation and *not for profit* organizations, to be discussed today.

Respectfully submitted,
Francine McCarthy
CAP President
October 21, 2014

CAP NEWSLETTER EDITOR'S REPORT, 2014

Since my last report, two issues of the CAP Newsletter have been produced. The December 2013 Newsletter (Vol. 36, No. 2) had 26 pages and was distributed to CAP members on December 28, 2013. Most notably, the December 2013 newsletter featured an article on non pollen palynomorphs by F. McCarthy and notes from two scientific venues where CAP had a significant presence: the AASP-CAPNAMS-CIMP-Dino10 meeting in San Francisco and the CANQUA meeting in Edmonton. As per CAP Bylaws, this issue also included minutes of the 2013 CAP Annual General Meeting.

The May 2014 Newsletter (Vol. 37, No. 1) was distributed to members on May 28, 2014. It consisted of 19 pages and included an article on the history of palynology at GSC Calgary as well as a comprehensive address from the Canadian Federation of Earth Sciences regarding their role in promoting Canadian earth sciences research. The President's Message, New Labs, Recent Publications, and Palynfo sections brought up-to-date information to the Canadian palynological community. This issue also featured a beautiful piece by Alwynne Beaudoin in our traditional PalynoLit series on Brian Doyle's "Mink River".

I would like to remind our members that our past Newsletters are available in electronic format on the CAP website. Contributions for the next issue of the Newsletter will be accepted until November 15, 2014.

Respectfully submitted,
Florin Pendea
October 19, 2014

CAP WEBSITE EDITOR'S REPORT, 2014

I have continued to maintain the website since the last AGM. The presentation provides various resources and information about CAP to the palynological community. I update time-sensitive sections, such as the conference listing and various announcements as needed. Information about the CAP Student Research Award and the application process, as well as a year-to-year record of the Award recipients, is also included. Back issues of recent *CAP Newsletters* (though not the latest issue) are archived, making them available to members over the long-term. I have maintained the author listing and index to past *CAP Newsletter* issues.

I would be happy to include more CAP-related material in the web presentation, especially more images. I would be pleased to receive suggestions or content for new components to broaden its appeal.

This report also brings the AGM my intention to step down as CAP's Website editor. In 2015 it will be twenty years that I have held this position and I feel it is definitely time for fresh eyes and a fresh approach to the website. I would like to give another CAP member the opportunity to shape this important outreach tool to suit CAP's current and future needs. I ask, therefore, that a search committee be struck to solicit candidates to take on this position. CAP will also need to find a new hosting venue for the website. I will, of course, help with transferring files and redirecting users to the new location.

In order to make a smooth transition, I am

prepared to stay on in this position until the 2015 AGM, if the members approve.

Respectfully submitted
Alwynne B. Beaudoin
October 14 2014

IFPS Representative's Report, 2014

I don't have much to report at this time. CAP remains one of the 25 affiliated international societies of the International Federation of Palynological Societies. The next issue of *Palynos* should arrive in December of this year. I plan on submitting an article about the Canadian Association of Palynologists for that issue. If anyone has anything they'd like to see included please let me know. The next International Palynological Congress will be held in 2016 in Salvador, Brazil.

Respectfully submitted,
Simon Goring
October, 2014

Statement by Appointed Auditor

I have reviewed the financial statements for CAP and it is my opinion that the documents and report submitted represent a full and fair account of the financial affairs of the Canadian Association of Palynologists for the period October 2013 to October 2014. I consider the financial affairs of CAP to be in good order.

Yours sincerely,

Sarah A Finkelstein
Email: finkelstein@es.utoronto.ca

CAP Secretary/Treasurer's Report, 2014

1) Membership Report
As of 8 October 2014, CAP has 59 members in good standing who have paid dues for 2014 or who have received a free membership as a result of winning a CAP Student Award. The chart below shows our membership over the past eleven years.

Year	Members
2004	43
2005	36
2006	47
2007	51
2008	58
2009	66
2010	64
2011	66
2012	65
2013	65
2014	59

I would like to extend a special welcome to our new member in 2014: Anna Agosta G'meiner, McGill University

This membership report is somewhat worrying, as we are losing members to retirement, completion of graduate studies, or career changes faster than we are gaining new members.

2) Financial Report
For the period ending 8 October 2014, the balance in the CAP account is $7,234.10 (compared to $6,843.83 at the 2013 AGM). Of this amount, $590 represents

pre-paid memberships for future years. IFPS dues ($1.50 USD per member) have not yet been paid for 2014 as I am awaiting an invoice; the dues amount owing is $88.50 USD. As well, the CAP Student Award ($300) for 2014 has issued been issued but has not yet cleared. In general, membership receipts during the year balance expenditures.

3) Recommendations: CAP's financial position allows us to continue to support, in a modest way, outreach initiatives at conferences (*e.g.* coffee breaks), sponsor sessions, and other initiatives.

Financial Statement for the period 4 October 2013 – 8 October 2014

The closing balance includes 59 prepaid annual memberships in the amount of $590.00 for the years 2015-2021. This will affect the income from this source for the years indicated.

As of 31 May 2014, the Bank of Montreal is no longer paying interest on Community Accounts. This has a negligible impact on CAP as our interest receipts were around $0.06 per month.

As of 31 May 2014, the Bank of Montreal is charging a monthly administration fee of $2.50; however, accounts with a minimum monthly balance of $5,000 receive a waiver on this fee. CAP has therefore not been charged the new monthly administration fee to date.

2014 IFPS membership dues will be paid as soon as the invoice is received (the Treasurer is away for an extended period). The dues are $1.50 USD per member, for a total owing for 2014 of $88.50 USD.

The cheque for the CAP Student Award will be presented in person at the AGM.

Respectfully submitted by

Mary Vetter
CAP Secretary/Treasurer
8 October 2014

Annual Statement 4 October 2013 – 8 October 2014			
	Income	Expenses	Balance
Opening balance			$6,843.83
Bank interest	$0.41		
Memberships	$504.86		
2014 IFPS membership dues		Waiting for invoice from IFPS ($88.50 USD)	
2014 CAP Student Award		To be presented at the AGM ($300.00)	
Reimburse students registration fees for GSA 2014		$115.00	
Closing balance	Total $505.27	Total $115.00	$7,234.10

Letters from members:

The Palynological Association of Nigeria A conference report

The Palynological Association of Nigeria (PAN) is an association of palynologists in various fields, both in the academia and other relevant industries, particularly petroleum exploration and geology, for the advancement of the profession in Nigeria.

The Palynological Association of Nigeria (PAN) held its 7th International Conference/ Exhibition between May 4th and 7th, 2014, for the second time in three years, at the Julius Berger Hall, University of Lagos, Akoka, Lagos. The theme of the conference was "Palynomorphs: Microscopic Links of Humankind – Past, Present and Future" with three sub-themes:

- Imprints from the Past.
- Signals of the Present and the Future.
- The Future and Development of Palynology in the Oil and Gas Industry.

Palynologists and other stakeholders from the academia, service and E and P industries in the country attended the conference. This much was attested to by the high profile qualitative abstracts submitted for presentation. The conference offered opportunity for members to cross-fertilize ideas and discuss topics of mutual interests.

In her welcome address at the opening ceremony which was held on the second day of the conference, May 6th, 2014, the president of PAN, Professor M. Adebisi Sowunmi, noted that this was the second time the PAN Conference was being hosted by the University of Lagos in four years. She thanked all members of the Local Organizing Committee for their "resourcefulness, initiative, diligence and high sense of commitment" toward the success of the conference. She also acknowledged the "ready assistance and support" of the university authority.

She acknowledged the presence of the Chairperson of the opening ceremony, Mrs. Adedoja Ojelabi who incidentally is the first lady to chair the opening ceremony of PAN Conference and the first female President of the Nigerian Association of Petroleum Explorationists (NAPE). Prof Sowunmi congratulated her on her well-deserved election as the current President of NAPE and wished her a very "successful and record breaking tenure".

The president expressed her appreciation with the active participation of colleagues from the oil and gas industry and looked forward to greater and mutually beneficial collaboration from them.

She reiterated the need for the association to tackle three challenges previously highlighted in her address two years earlier. These are: (i) popularizing palynology through the appropriate dissemination of information about it and its applications, (ii) close/closer collaboration with government agencies and NGOs, such as NAFDAC, Nigerian Meterological Agency (NIMET), Nigeria Conservation Foundation (NCF), National Institute for Oceanographic and Marine Research (NIOMR), Niger Delta Development Commission (NDDC), The Nigeria Police, Criminal Investigation Department and Federal and State Ministries of Environment and Health and (iii) the training of more palynologists.

The Vice Chancellor of the University of Lagos, Professor Rahamon A. Bello, who was unavoidably absent but represented by Prof. Olusoji B. Ilori, remarked that PAN Conference was able to achieve a spectacular landmark cherished by the University of Lagos: bringing together members of the academia and industry experts seriously needed by Nigeria in actualizing her much desired technological breakthrough.

In her address, the chairperson of the occasion, Mrs Adedoja Ojelabi, acknowledged the various inputs of palynologists to the past, present and future of mankind. She commended palynologists for their contributions to the Nigerian economy most especially in the oil and gas industry and in nation building through research and educational pursuits.

The conference started officially on Monday, May 5, 2014 with a lead paper presented by Prof. (Mrs) Uju Umeji of the University of Nigeria entitled *Palynomorphs: Microscopic Links of Humankind, Signals of the Present and the Future*.

In a graphic presentation, Prof. Umeji, who attracted the attention of participants for almost two hours, gave an appraisal of the present state of affairs of the discipline, highlighting the achievements of palynologists as well as the problems they encounter in their profession.

She concluded by acknowledging the great strides palynologists and palaeopalynologists have made and the increase in the number of palynology students in the country, even though many universities still do not offer it as course of study.

While observing that more still have to be done, she hinted that there was need for "cooperation among the workers as well as corporate bodies", suggesting that the discipline needs to be repackaged to stay relevant in both the commercial and academic market.

In the second lead paper of the opening day, Dr. James Edet, who started as a palynologist but is now the Manager Corporate Research & Development, Total E & P Nigeria Limited, provided an introduction of the 'highly versatile subject', Palynology and its applications.

He averred that the traditional study methods and approaches of palynology to stratigraphy, though successful, are time consuming and can provide inconclusive, inconsistent and unsatisfactory results. He also suggested need for improvement in the traditional palynological study methods in order to provide an accurate, efficient and cost effective tool for biostratigraphic correlations. He called for improvements in the following aspects:

- More integration with other major microfossil groups in a single study.
- Production of clear strewn concentrations of palynomorphs slides.
- Standardization and consistency in the definition and interpretation of palynofacies to allow effective application of the tool in sequence stratigraphy.

Sixteen oral papers were presented; these made good representation of the scope of the theme of the conference. These papers touched on wide relevant topics generated lively discussions during the sessions and in the coffee breaks.

Three of the presentations were adjudged the best; awards were presented to the winners at the dinner organized on the last day of the conference. The award winning presentations are:

2nd Runner-up: *Ogundipe, O. T. and Ezike, D. N: Allergenicity study of Oreodoxa oleracea (Jacq.) pollen in Swiss Albino mice.*

1st Runner-up: *Yikarebogha, Y. and Soronnadi-Ononiwu, G. C.: Sequence Stratigraphy of the Upper Cretaceous sediments of the Bornu Basin – A palynology approach.*

Best Paper:
Bakare A. O., Adeonipekun P. A., Adeniyi T. A. and Olusanya, O. J.: Palynological, Biochemical and Antifungal studies of honey samples from Lagos State.

At the business session of the association, it was resolved that a Book of Proceedings should be produced for the association and published. The first edition is expected to cover all the previous conferences held in the recent years. Also, a newsletter of the association, which will serve as means of disseminating information to members, is expected to be produced and circulated to all members.

The 2015 conference is scheduled to be hosted by the University of Ibadan, Ibadan, Oyo State in May. Preparations toward this conference are already underway with eminent palynologists from within and outside the country expected to participate. Please endeavor to participate fully at UI, 2015. God keep us till then.

Ayobami Oyelami
Publicity Secretary, PAN

Attendees at the PAN business session at the University of Lagos, May 2014. From left to right: M. Akasoro, O. Adeboye, U. Umeji (Prof), P. Ukeri, A. Adeonipekun, F. Ojenabor, M. Sowunmi (Prof), A. Oyelami, O. Alebiosu, D. Ezike and E. Orijemie

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 or US funds payable at the beginning of the year. Lapsed members are removed from the mailing list after one year, following a reminder Members may, if they wish, pay for up to three years in advance. To join, please fill out the the membership form, by hand or in Adobe Reader®, and send it with a cheque (drawn on a Canadian or US bank) 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:_____

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