The Clay Minerals Society

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THE PRESIDENT'S CORNER

The 2009 annual meeting of the CMS seems to be disappearing quickly into the past, and already I am discovering what is required of me as the President. Many tasks need to be done in the immediate aftermath of the meeting, and now that these have been completed, I can look ahead to the wider needs of the Society. But the meeting remains quite fresh in my mind as I have always found the annual meetings of CMS to be special among the conferences and meetings I have attended over the years. As I mentioned in my last President's Corner, a very friendly, almost family atmosphere prevails, and one of the reasons for this is that many society members attend with great regularity, and clearly many give the CMS annual meeting high priority in their annual schedule of meetings and conferences. The best example of this is that this year's Pioneer Lecturer, Haydn Murray, who is a founding member of the Society, has missed only one annual meeting since they began in 1963 – a remarkable record. Not only is it clear that Haydn sees the annual CMS event as a "must go" meeting, the Society is very grateful for his continual unstinting support, and long may it continue.

But time moves on, and the Society looks to the next annual meeting, which will be rather special in that it is a trilateral meeting with the Spanish and Japanese clay societies to be held in Spain on 6–11 June 2010. Plans are well advanced and include a workshop in Madrid on 6 June titled "Clays and Materials", followed the next day by a symposium on sepiolite and a field trip to sepiolite deposits. The general meeting will be in Seville on 8–11 June and will be complemented by a field trip to the Rio Tinto mine. A limited number of student grants will be available to assist with the expenses of postgraduate students and young researchers belonging to one of the organizing societies. More information can be obtained at https://cms.clays.org/meetings.

One of the highlights of all annual meetings is the presentation of awards and listening to the lectures given by the awardees, and this issue's society news is given over largely to details of the winners of these awards and brief summaries of their talks.

Andy Thomas is now the Past President, and he is a very hard act to follow. He was CMS Treasurer for several years before being President and has the interests of the Society close to his heart. He was very diligent and conscientious in all his efforts on behalf of the Society, and members are very much indebted to him for his devotion. Many thanks Andy; although I know you will continue to be involved in CMS affairs, you can relax more now, knowing that yours was a job well done.

I look forward to a challenging year as President of CMS and encourage members to contact me about any issues which they feel need to be addressed or to pass on any ideas for improving our activities.

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WHAT THE STUDENTS SAID!

The CMS has always regarded itself as a very student-oriented society. Here is what some of the students attending the CMS meeting in Montana had to say...

This was the first CMS meeting that I have attended, and I enjoyed it thoroughly. Of particular benefit were the comments I received regarding my talk – very useful.

I would absolutely recommend that other students take the time to attend the conference. Having the opportunity to talk to and interact with both students and renowned scholars on a subject that you're working on in a very intimate setting is not an opportunity that many other societies are capable of providing. In fact, I've already convinced the other graduate student in our lab group that she missed out by not coming this year, and the two of us are working on plans to go to Spain for next year's joint conference.

As a relatively small group, interaction among students, researchers and industry was excellent. It was also interesting to note how the scientific knowledge gained in universities in clay and geosciences is applied in the real world for humankind and industry. The lectures by the various award winners were quite inspiring.

I really enjoyed the meeting and would definitely recommend it to other students! It was well worth traveling to the other side of the world for. Everyone I met was really nice, helpful and enthusiastic about what they were doing, and this was really encouraging for a student new to the Society. I had a group of other students 'adopt' me, which was great since I was traveling alone and didn't know anyone. Having a whole meeting devoted to clays was fantastic and there was a great range of talks.

I really enjoyed the CMS meeting, and I will be recommending next year's meeting to some of the first-year grad students just starting their projects. This was my first CMS meeting, and right away the members seemed approachable and genuinely interested in my work. I received valuable feedback on my talk. I only have good things to say about this year's meeting.

I would strongly recommend other students in geosciences (soil, geology, archaeology, etc.) to attend such meetings as it would help re-shape their research.

I felt that the analysis portion of the meeting allowed me to meet other researchers and ask some important questions related to my own research. It also afforded me the opportunity to speak with individuals who have a vast knowledge about clay minerals and the current analysis of those minerals.

This was my first time in the U.S. and I think I will remember it very well. I consider taking part in scientific meetings as something worthwhile, and this was also the case of the CMS conference. I met some people with whom I think I will cooperate, which is in my opinion one of the reasons for going to conferences.

The meeting was like nothing I'd ever experienced before as it was my first professional conference. The sheer breadth and depth of knowledge of the participants was astounding; I felt like a very small fish! I also didn't expect listening to talks all day to be so tiring, but keeping up and changing the track my brain was on every 20 minutes really took a lot. It was very enlightening.

We won't embarrass any of them by revealing who said what, but thanks for the feedback to Natalie-Jane Reid, Bruce Pauly, Erin Hunter, Courage Bangira, Michael Bishop, Marek Szczerba, Zachary Day and Keith Morrison. We hope to see you all again soon.

THE CMS AWARDS 2009

The four awards of the CMS were presented at the annual meeting in Billings, Montana, USA, to scientists outstanding in their own sphere of clay mineralogy. The awardees were Joe Stucki, Michael Hochella, Lynda Williams and Haydn Murray.

The **Marilyn and Sturges W. Bailey Distinguished Member Award** is the highest honor bestowed by The Clay Minerals Society and is awarded solely for scientific eminence in clay mineralogy (in its broadest sense) as evidenced by the publication of outstanding original scientific research and by the impact of this research on the clay sciences. The 2009 recipient was Dr. Joseph W. Stucki of the Department of Natural Resources and Environmental Sciences at the University of Illinois. Joe's lecture at the annual meeting was entitled "Iron Redox Reactions in Smectites."

Joe Stucki (right) receives the Marilyn and Sturges W. Bailey Distinguished Member Award from outgoing President Andrew Thomas.

He affirmed that iron in the crystal structure of smectite clay minerals plays a significant role in determining the chemical and physical properties of these ubiquitous phyllosilicate minerals and indicated that the importance of Fe is attributed largely to its redox activity. The latter may be studied either synthetically under controlled conditions or in situ in soils and sediments in response to bacterial respiration or other environmental redox processes. He pointed out that many studies have examined cause-and-effect relationships between changes in Fe oxidation state and changes in clay properties and behavior and that the effects on the surrounding chemical and physical environments of the clay have also been investigated. Joe then provided an overview and analysis of these studies, including some of his own, in order to give an appreciation of the state of the science in this area and to plant seeds of curiosity that will lead others to delve further into this intriguing aspect of clay science.

The 2009 **G.W. Brindley Lecturer** was Dr. Michael F. Hochella of the Department of Geosciences at Virginia Polytechnic Institute and State University, and his topic was "Nanominerals, Mineral Nanoparticles and Earth Systems." Mike's talk was based on the fact that minerals are more complex than previously thought, because of the discovery that their chemical properties change when their size is smaller than a few to perhaps several tens of nanometers in at least one dimension. He pointed out that we now recognize that such variations in this smallest of size regimes are most likely due, at least in part, to differences in surface and near-surface atomic structure, as well as crystal shape and surface topography. This knowledge broadens and enriches our view of how minerals influence the hydrosphere, pedosphere, biosphere, and atmosphere. Mike then reviewed nanominerals, their properties as related to their size and how their physical dimensions can influence reactions. The G.W. Brindley Lecture Award recognizes an outstanding scientist, who is both a dynamic speaker and involved in innovative research, and charges the recipient to deliver a lecture that will infuse The Clay Minerals Society with new ideas. Mike met these criteria admirably.

Andrew Thomas (left) congratulates Michael F. Hochella Jr., the 2009 G. W. Brindley Lecturer.

Dr Lynda B. Williams of the School of Earth & Space Exploration, Arizona State University, was the recipient of the 2009 **Marion L. and Chrystie M. Jackson Mid-Career Clay Scientist Award**. This award recognizes a mid-career scientist for excellence in the contribution of new knowledge to clay minerals science through original and scholarly research. Lynda's presentation was entitled "Stable Isotopes of Clay Minerals Archive Organic Sources." She highlighted how the stable isotope geochemistry of clay minerals has proven useful in determining the paleofluid compositions recorded by illite and other diagenetic minerals precipitated during burial. Variations in trace element concentrations and isotope compositions as a function of clay crystal size record paleofluid chemical changes over time as crystals grow and incorporate those elements. Studies of fundamental illite particles separated by size have given insights into fluid changes during crystal growth and can allow us to make reasonable interpretations of stable isotopes and evaluate the geologic history of a sedimentary unit from a single core sample. Lynda showed how a variety of stable isotope systems of major elements (C, H, O, N, S) have been used to derive important information about how rocks exchange components with aqueous fluids and hydrocarbons during burial diagenesis. Recently, B and Li isotope systematics have been applied to geologic problems in the sedimentary environment. New analytical instruments, such as the secondary ion mass spectrometer (SIMS), have allowed studies of stable isotope systems of trace elements in clay minerals that were not possible in the past.

Lynda Williams receives the Marion L. and Chrystie M. Jackson Mid-Career Clay Scientist Award and is congratulated on her innovative idea to use her dress rather than a powerpoint slide to illustrate clay mineral structures.

The **Pioneer in Clay Science Lecture** award recognizes research contributions that have led to important new directions in clay mineral science and technology. The 2009 lecture was delivered by Dr. Haydn H. Murray of the Department of Geological Sciences, Indiana University. A founding member of The Clay Minerals Society, Haydn gave a very informative and entertaining account of his "60 years as a clay mineralogist," during which he worked in academia, industry, and state government and also as a consultant. Peppering his talk with personal anecdotes, he showed many pictures of what he considers to be some of the world's most important clay deposits. He outlined the highlights of his career chronologically, revealing a tremendous diversity of interests in clays, particularly kaolins, smectites, and palygorskites. After presenting the physical and chemical properties of clay minerals and their relation to the primary applications of clays, he discussed future trends and predicted which world-class deposits will be most utilized.

Haydn Murray (left) receives the Pioneer in Clay Science Award.