

# ANNUAL REPORT OF THE SOCIETY FOR 2013

## DIRECTOR'S REPORT, SOCIETY AWARDS AND AUDITED FINANCIAL REPORT (2012)

### Director's Report

#### SEPM Annual meeting and GSA Meeting Activities

SEPM held its Annual Meeting in Pittsburgh, PA, jointly with A.A.P.G. Outgoing President David Budd turned the gavel over to the new President, Evan Franseen. Under the leadership of SEPM ACE Vice-Chair Bosiljka Glumac and her committee, SEPM's sole and jointly sponsored sessions accounted for about 40% of the technical program. The SEPM Research Symposium for 2013 was "*Depositional Systems and Sedimentology of Shale and Tight-Sand Reservoirs*". At the business luncheon, Isabel Montanez gave attendees the latest updates on our climate system in her presentation "*Earth's Deep-Time Insight into Our Climate System*". Then at the outgoing President's Reception David honored the society's 2013 medalists and the outstanding journal papers, and student awardees. This year SEPM awarded three cash prizes to the 2013 top SEPM Student Posters. SEPM again offered a balanced selection of courses and trips in 2013. Additionally, SEPM sponsored multiple technical sessions at the Geological Society of America's Annual Meeting in Denver, CO under the leadership of Neil Tabor (SMU). SEPM also cosponsored the Seds & Suds Town Hall covering discussions on EarthCubed and STEPPE. Along with the Sedimentary Geology Division of GSA and the Limnology Division, SEPM sponsored a Tuesday evening reception for sedimentary geologists.

#### SEPM Annual Meeting Committee

- Bosiljka Glumac - SEPM Vice-Chair
- Rick Abegg & Bill Zempolich - SEPM Short Course Co-Chairs
- Lee Avery - SEPM Field Trip Chair
- Antun Husinec - SEPM Awards Chair
- Howard Harper - SEPM Sponsorship Chair

#### Short Courses & Field Trips

##### Annual Meeting (AAPG – Pittsburgh, PA)

- SEPM Short Course: Sequence Stratigraphy for Graduate Students
- SEPM Short Course: Analogs for Carbonate Deposition in Early Rift Settings
- SEPM Short Course: Seismic Geomorphology and Seismic Stratigraphy
- SEPM Short Course: Sequence Stratigraphy Analysis of Shales: Key to Paleoclimate Archives, Subsurface Fluid Flow, and Hydrocarbon Source
- SEPM Trip: Stratigraphy, Stratal Packaging, and Sedimentology of Devonian Shales in Ohio and Kentucky
- SEPM Trip: Sequence Stratigraphy and Paleoenvironments of the Upper Ordovician Strata of the Cincinnati Arch (Kentucky-Indiana-Ohio Tristate Area): Shell Beds, Storms, Sediment Starvation, and Cycles

- SEPM Trip: Sequence Stratigraphy, Reservoir Architecture of a Coal-Bearing Fluvial Deltaic Sedimentary Succession: the Middle Pennsylvanian Upper Breathitt Group, Eastern Kentucky

##### International Meeting (AAPG ICE- Cartagena, Columbia)

- SEPM Short Course: Sequence Stratigraphy for Graduate Students

#### Journals

Both of our technical journals continued having great years. The Impact Factors for both journals continue to be highly ranked. The *Journal of Sedimentary Research* continues publishing top-quality papers under the guidance of the co-editors, Gene Rankey (University of Kansas) and James MacEachern (Simon Fraser University). *PALAIOS* under the continuing editorship of JP Zonneveld (University of Alberta) and the transition from Steve Hasiotis (University of Kansas) to Tom Olszewski. *PALAIOS* continued to publish more pages with decreased turn-around time. With online science journal access being the preferred mode by many scientists and students, SEPM and its journals continued to play an important role, as a founder and current board member of the geoscience online journal aggregate, GeoScienceWorld (GSW), which continues to thrive. *JSR* is part of the GSW and AAPG-Datapages, while *PALAIOS* is part of GSW, BioOne and JSTOR online aggregates. Both of the journals as well as an SEPM Book Archive are within SEPM's independent online publications site [www.sepmonline.org](http://www.sepmonline.org).

*The Sedimentary Record*, the full color member magazine, is now in its 11th year, continued under the new editorship team of Isabel Montanez and Peter Isaacson. The SedRec has continued publishing a current, interesting science article as well as giving SEPM members up to date information concerning the world of sedimentary geology. The Sedimentary Geology Division of GSA, continues to publish its newsletter section twice a year as part of this magazine in the March and September issues to better communicate to the wider sedimentary geology community. The online version often contains additional content.

#### Special Publications

Under the continued co-editorship of Gary Nichols and Brian Ricketts, the special publications of SEPM continue to produce top of the line products. In 2013, a total of three new books were published. The pipeline of future books continues to look for new proposals. SEPM's online submission and review process similar to the journals is now functioning well. This helps to reduce the time needed to take a book from idea to publication. Additionally, in 2014 SEPM will introduce Online First, where new Special Publications will be published chapter by chapter online at the [www.sepm.org](http://www.sepm.org) as each chapter is finalized. After the last chapter is finalized the book will be compiled

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- **SP # 103- Analyzing Thermal Histories of Sedimentary Basins: Methods and Case Studies.** Edited by: Nicholas B. Harris and Kenneth E. Peters.
- **SP # 104- New Frontiers in Paleopedology and Terrestrial Paleoclimatology: Paleosols and Soil Surface Analog Systems.** Edited by: Steven G. Driese and Lee C. Nordt, with assistance by Paul J. McCarthy.
- **CSP # 11- Phanerozoic Paleoclimate: An Atlas of Lithologic Indicators of Climate.** By Arthur Boucot, Chen Xu and Christopher Scotese with contributions by Robert

The first SEPM Online Book Archive was launched late in 2010 and has been gaining both library and member subscribers. Books in the Special Publications, Concepts, Short Course Notes and Core Workshop Notes Series were uploaded to the archive either when they go out of print, are 5 years old or if they are sponsored to be free access such as SP #99. SEPM is making more changes for 2014. There will be two Book Archives (I & II). Archive I will contain books from 1929-2009 and Archive II will contain books from 2010-2014. SEPM will be publishing new books online as well as in print and CD/DVD as they are finalized.

### Research Conferences

There were no SEPM Research Conferences in 2013. Two are planned for 2014.

Additionally, SEPM has agreed to or cosponsored these scientific meetings operated by other organizations:

- **USA - Coastal Processes and Environments Under Sea-Level Rise and Changing Climate: Science to Inform Management, April 2013**
- **UK - 10th International Conference on Fluvial Sedimentology, July, 2013**
- **USA – International Nannofossil Conference – September, 2013**
- **India - Annual Meeting of Indian Association of Sedimentologists- November, 2013**
- **Argentina – International Paleontological Congress – September, 2014**
- **Austria – 2nd International Congress on Stratigraphy, July, 2015**

### Collaborations (AAPG, AGI, GSL, GSA, ANAPS, NACSN and IUGS)

In 2013, SEPM continued its long tradition of holding the SEPM Annual Meeting in conjunction with AAPG and helping provide an excellent technical program with the volunteer work of the SEPM members on the Local Convention Committee. We co-sponsored a student field trip with AAPG.

Also in 2013, SEPM continued to increase its presence at the GSA Annual Meeting having a Joint Technical Program Chair representing SEPM (Neil Tabor, SMU, Dallas, TX) for the meeting in Denver, CO, where SEPM sponsored multiple technical sessions.

The Society continues to work with AAPG, GSA, GSL, SEPM Sections, and our Global Ambassadors to produce jointly sponsored conferences and publications where applicable. SEPM remains an official member of the American Geological Institute (AGI), the North American Commission on Stratigraphic Nomenclature (NACSN), the Association of North American Paleontological Societies (ANAPS), as well as an associated society with the International Union of Geologic Societies (IUGS).

**Howard E. Harper**, Executive Director



**SEPM 2013 – 2014 Council**

Front row (left to right):

J. Frederick (Rick) Sarg, David Budd

Back row (left to right):

Beverly DeJarnett, Gene Rankey, Jean-Paul Zonneveld, Greg Ludvigson

Missing from photo:

Maya Elrick, Stephen Flint, Dawn Jobe, Susan Kidwell, James MacEachern,

Kitty Milliken, Gary Nichols, Tom Olszewski, Brian Ricketts,

Brian Romans and Alex Simms

## Director's Report

### SEPM Governance and Council 2013-2014

SEPM has added three new Council positions over the last two years. These are the Web & Technology Councilor, to oversee SEPM's online communications efforts; Early Career Councilor, to make sure that this large community of sedimentary geologists has input into SEPM; and Student Councilor, to make sure that the future leaders in our community are part of SEPM's governance from the beginning.

#### Evan Franseen

President-Elect  
University of Kansas  
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#### Kitty Milliken

President-Elect  
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#### Maya Elrick

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#### Stephen Flint

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#### Susan Kidwell

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#### Rick Sarg

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#### Brian Romans

Web & Technology Councilor  
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#### Tiffany (Dawn) Jobe

Student Councilor  
Colorado School of Mines  
tiffany.job@aramcoservices.com

**TBA** (part of the 2013 Fall Ballot)  
Early Career Councilor

Table 1. – Membership Statistics

	2006	2007	2008	2009	2010	2011	2012
<b>SEPM MEMBERSHIP</b>							
Total Members	3802	3616	3580	3604	3739	3389	3414
Professional Members	3027	2883	2883	2809	2767	2562	2560
Student Members	775	733	697	795	972	827	854
New Members	302	293	299	407	264	383	344
Dropped Members	495	380	408	448	619	559	658
<i>Journal of Sedimentary Research</i>							
Individual Library Subscribers	882	817	768	715	669	621	587
Aggregate Library Subscribers (GSW & DataPages)	349	422	486	541	583	647	747
Member Subscribers	2762	2584	2633	2705	2386	2168	1901
<i>PALAIOS</i>							
Individual Library Subscribers	312	278	247	221	199	181	167
Aggregate Library Subscribers (GSW & BioOne)	1217	1269	1420	1647	1774	1878	1978
Member Subscribers	1353	1243	1384	1498	1339	1281	1013
<b>Books Online</b>							
Individual Libraries	NA	NA	NA	NA	NA	13	16
Aggregate Library Subscribers	NA	NA	NA	NA	NA	NA	NA
Members Subscribers	NA	NA	NA	NA	NA	650	880



## Society Awards



John W. Snedden accepts the Distinguished Service Award from President David A. Budd

### Distinguished Service Award for extraordinary service to the Society John W. Snedden

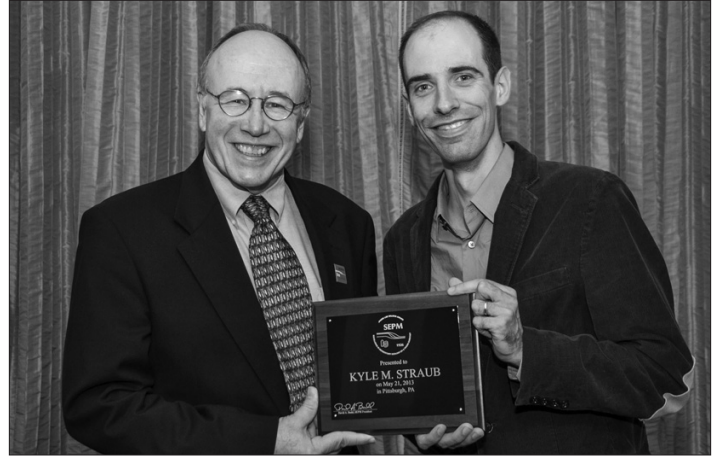
John William Snedden has been an SEPM member since 1980. Since joining the society, he has served on numerous committees, including Research Committee, multiple Nominating Committees, Investment Committee, Headquarters and Business Committee, and Honorary Member Selection Committee. He has served several times on the Annual Meeting Committee in several capacities including as SEPM Vice-Chair. While in Germany, he acted as an SEPM Global Ambassador and has taught SEPM Short Courses and Core Workshops. He has been elected to the SEPM Council as Secretary-Treasurer. Additionally he was the first SEPM Joint Technical Program Chair for the Geological Society of America's Annual Meeting for the 2012 Charlotte, NC convention, where he was responsible for re-energizing the sedimentary geology program at GSA. While on the Headquarters and Business Committee, he chaired an ad hoc group to produce a report on SEPM Book Publishing which has set the program for SEPM's future direction in this area.

John has given years of service to the society at the highest levels.

### Reply from John W. Snedden

I would like to thank SEPM for this Distinguished Service Award. It has been an honor and privilege to serve the society in numerous capacities, from Secretary-Treasurer to convention Technical Program Chair to Global Ambassador. The many facets of SEPM in its sedimentary geology mission have been important to me since I first joined in the 1980's. SEPM attracted me from the start as it includes participation of and contributions from both academics and industry personnel, and thus delivers the best of both worlds to its members.

I would also like to acknowledge several people who have supported my efforts on behalf of the society. Dag Nummedal, my dissertation advisor, who was an excellent role model with his ability to take on so many roles for SEPM while managing a full-time research project at LSU. Rick Sarg, a long-time mentor and friend, encouraged me to continue in various roles for the society over the years. Finally, I would like to express my loving gratitude to my wife, Peggy, who was so understanding when I devoted so much time over evenings and weekends to SEPM activities. After all, serving our society is an unpaid, volunteer activity for the vast majority of us. Thus, my family and friends deserve this award more than I do.



Kyle Straub accepts the James Lee Wilson Award from President David A. Budd

### James Lee Wilson Award For Excellence in Sedimentary Geology Research by a Young Scientist Kyle M. Straub

I am delighted to introduce Kyle M. Straub as the 2013 recipient of the SEPM James Lee Wilson Award. Kyle's principal contribution to sedimentary geology is linking stratigraphic data collected from both laboratory experiments and seismic volumes with appropriate numerical models to produce quantitative understanding of the evolutions of depositional landscapes and the sedimentary record. Kyle uses the lab to unambiguously connect transporting flows to the topography and stratigraphy that they produce. These observations made at reduced scale guide the interpretation of 3D seismic volumes preserving similar stratigraphy at natural scales. Analyses of both data sets are connected by numerical models tracking the interactions between depositional processes and the resulting stratigraphy. Kyle developed this scientific approach while a graduate student at MIT and he has refined it during his postdoc at St Anthony Falls Laboratory, University of Minnesota, and as a faculty member at Tulane University. His scientific contributions can be divided between three main categories: (1) deepwater sedimentation and stratigraphy; (2) deltaic sedimentation and stratigraphy; and (3) understanding the "Stratigraphic Filter." Kyle's work on deepwater systems has been motivated by two primary questions: (1) "what is the role of channel sinuosity on sedimentation patterns in submarine channels," and (2) "how is channelized, turbidity-current flow connected to overbank flow and sedimentation." His experiments define the feedbacks between currents and submarine topography; feedbacks that are now used to interpret continental-slope stratigraphy imaged in seismic volumes. Through his work on deltas he developed a method for determining the degree to which channelized systems fill space in basins via the compensational stacking of depositional lobes. The significance of this work was officially recognized when Kyle was awarded the 2009 Outstanding Paper in the *Journal of Sedimentary Research*. Kyle has contributed to understanding the "Stratigraphic Filter" by measuring how surface topography is transferred into the subsurface. Using data from numerical and physical experiments, as well as outcrops, he has shown that the geometry of fluvial deposits carry the signature of stochastic autogenic dynamics out to time scales commonly associated with large-scale allogenic cycles. This work both defines and emphasizes the challenges we face when inverting stratigraphy for

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paleoenvironmental conditions. Kyle M. Straub is an ideal recipient of the James Lee Wilson Award because of these contributions and the continuing quantitative rigor and creativity he brings to his many studies in sedimentary geology.

Biographer: David Mohrig

Citation: For creative applications of laboratory experimentation, seismic interpretation, and numerical modeling to understanding the production of depositional landscapes and their transfer into the stratigraphic record.

### Reply from Kyle Straub

Let me start by stating that I was truly honored and more than a bit surprised when I was notified that I'd received the James Lee Wilson award. I'd like to thank SEPM for this award and for all the organization does to promote our field. As someone who has not spent enough time studying carbonates, receiving this award once again reminds me of the breadth of our field. I also know that I would not be receiving this award but for the work of Torbjorn Tornqvist, David Mohrig, Chris Paola, and Sanjeev Gupta who nominated me. Each of these individuals have been role models and represent how to operate with integrity, enjoy life, and do good science.

I think I can say that I would not be in the career I'm in if it wasn't for the influence my grandfather had on me. My grandfather, who passed away a couple of months ago, was an engineer and programmer for one of the first mainframe computers at Remington Rand in the 1950's. Outside of work, though, he loved to hike through the Appalachian mountains and spend time in nature. From him I learned to appreciate the beauty in both mathematics and nature.

I feel like I've been lucky in my career at many times. I ended up going to my local state university for undergrad, Penn State, and received what I think was a great education, from great faculty. Foremost among them, with regards to my education, was Peter Flemings. Peter gave me an opportunity to do research in his group and exposed me to 3D seismic data, in addition to instilling in me the importance of a strong work ethic and giving me tough, but completely honest reviews of my writing. I try to remember this every time I receive a rough review these days.

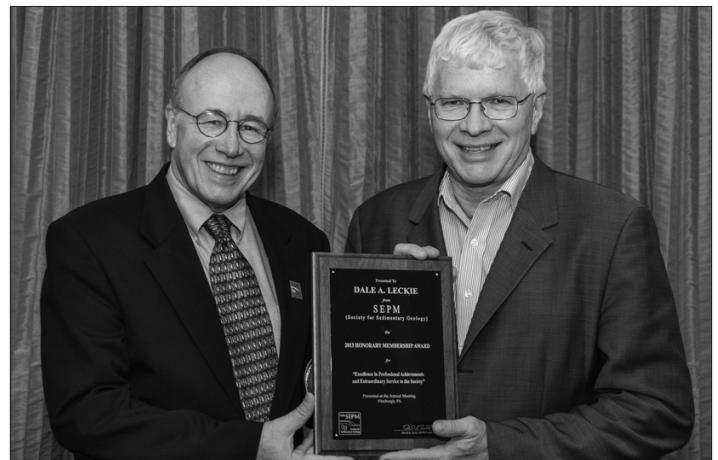
Following my undergrad I jumped right into a PhD program where I focused on the interaction of turbidity currents with topography and was advised by David Mohrig. I'll forever be thankful to David for his mentoring skills, specifically when dealing with very green students who think they know more than they do. David gave me my first exposure to experimental sedimentology, facilitated access to 3D seismic data, interaction with industry, and a work environment that encouraged free thinking, with an appropriate set of bumper rails to keep me from going too far off track. David also, more than anyone, taught me how to write. This was a painful process, for both of us I'm sure, but has served me well. David's mentoring was not just restricted to geology. He helped me make it through some of my patches of self-doubt and gave me the confidence necessary to pursue an academic career.

Following my PhD I had the opportunity to work with Chris Paola at St. Anthony Falls Laboratory for a year and a half. Working at SAFL, I think, is a dream for most experimentalists, and I feel lucky for the time I had there. Chris exposed me to both shallow water sedimentology and long time scale stratigraphy. Both of which are major focus areas of my current research portfolio.

Since my time at SAFL, I've been at Tulane University. Tulane has been unbelievably supportive of me over the last four plus years. They've given me the space and resources to construct a state-of-the science experimental sedimentology lab equipped with lots of toys for an experimental sedimentologist. In some ways it's like a 5 year olds dream job. I get to show up to work and play in sand-boxes all day and get paid for it! Though the sand boxes are a bit more high tech than when I was a kid. I can also count many of my colleagues at Tulane as close friends. I've had the opportunity to work with great graduate students and postdocs, which is why I wanted to stay in academia, in addition to the opportunity to work with many skilled undergrads, both in and out of the classroom.

Being near the end of what some might call my early career, I'm looking forward to hopefully many more years as a sedimentologist and many more AAPG/SEPM meetings. Again, I think of myself as lucky. This time, I'm lucky to be near the beginning of my career as sedimentology is rapidly moving towards a more quantitative direction and at a time when experiments are increasingly being accepted as a tool to address long standing questions in sed/strat. I'm also lucky to be perusing research questions with a host of great young colleagues, specifically including Liz Hajek, David Pyles, and Alessandro Cantelli. For all of this I feel lucky.

Finally, I feel lucky to be exploring life with a wonderful family. I was raised by a great mom who I love much. I have a wonderful wife whom I get to explore life with and who is wonderfully supportive and a beautiful young son.



Dale Leckie accepts the Honorary Membership Award from President David A. Budd

### Honorary Membership For contributions to the science and SEPM Dale Leckie

As a researcher, Dale's early work began with a PhD at McMaster University, and his resulting 1982 AAPG paper on the Falher/Gates/Notikewin is still quoted widely. His subsequent contribution has been highly significant with over 100 publications and 170 conference presentation abstracts to his name. Although Dale has worked on research topics throughout the world (e.g., his frequently quoted material on the river systems of New Zealand's south island) it is in the Western Canadian Sedimentary Basin where he has made his mark. Dale is arguably the leading authority on the sedimentary geology of western



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Canada where he has made a contribution spanning over 30 years. Here he has authored or co-authored a very respected body of work in the field including the landmark CSPG Memoir 15, and AAPG Memoir 55 both on the WCSB. While the volume of Dale's contribution has been high, so has the quality. This is evidenced by a long list of awards for best papers and presentations, such as multiple awards of the CSPG Medal of Merit for best paper in Canadian Petroleum Geology, or the Gabriel Dengo award for best presentation at AAPG ICE. Dale has also covered a remarkably wide field of interest in his research career. Besides excelling in the fields of stratigraphy and sedimentology, he has also published widely on oil sands, biostratigraphy and paleoenvironment, minerals (gold and diamonds), clastics and carbonates, coal, soils, and glacial geology.

One of Dale Leckie's major accomplishments has been to widely promote the field of sedimentary geology by extensive association with numerous collaborators, by disseminating the knowledge in many dynamic research talks, forums, short courses, textbooks and lecture tours (e.g. as AAPG Distinguished Lecturer, CSPG Distinguished Lecturer, AAPG and CSPG short course presenter, SEPM Keynote Speaker, Gussow Conference Keynote Speaker and numerous others). In Dale's current position as Chief Geologist at Nexen, he has led the field in linking his company activities with those of the wider scientific community by engaging with colleagues and experts to provide field trips, lectures and short courses throughout the world, and by sponsoring a wide variety of professional activities at national and international conferences. Dale has provided much company data for use by the academic community and by students in graduate projects in particular, and also made it available for publication in the wider community. This type of contribution from industry to the wider community, and championed by Dale, is by no means common and is a shining example for the industry to follow.

Dale has been a member of SEPM since 1978. He has served in a wide variety of roles, but the peak contribution came as SEPM President in 2008-9. He served with distinction in this role, while at the same time holding down a demanding role as chief geologist at Nexen. He has also served as associate editor for both AAPG and SEPM journals as well as *Sedimentary Geology* and as an SEPM councilor in addition to co-teaching short courses for AAPG/SEPM and CSPG. Dale has played a major role in organizing research conferences over his career. Early on he co-organized the CSPG Sequences conference in 1988, and has gone on to organize Hedberg conferences on heavy oil, to chair conference sessions in most years since the 1980s, and recently was the SEPM Vice Chair for the 2010 AAPG ICE in Calgary. Much of Dale's work has happened in the background, and one can frequently see a journal acknowledgement for a helpful review from Dale, often for a paper that was hard to find a reviewer for, or was required in haste. Dale is a worthy recipient of SEPM Honorary Membership, combining as he does a genuine love of geosciences and particularly their application

to Western Canada, a keen talent for geological interpretation and field work, and dedicated service to his profession and society.

Biographer: Ron Boyd

Citation: To Dale Leckie, in recognition of his research excellence in stratigraphy and sedimentology, his extensive contributions to knowledge of the Western Canadian Sedimentary Basin, his success in propagating geological knowledge through the professional and general community and his service to the society. Dale Leckie exemplifies the spirit of SEPM and is a most worthy recipient of Honorary Membership.

### Reply from Dale Leckie

It is great to be honored by the Society for which I have so much respect and from which I have learned so much.

Over the years, several colleagues have been influential in the direction that my career has taken. The two most influential individuals were Roger Walker and Gerry Middleton at McMaster University. Roger, as my supervisor, and Gerry, on the committee, were no nonsense and very demanding mentors. It was from them that I learned sedimentology, which allowed me to make a career out of my passion. Others, along the way, who have significantly inspired me have been Drs. Ron Boyd, David James, Claudia Schroeder-Adams, Lee Krystinik, Brian Zaitlin, Bob Dalrymple, Milovan Fustic and Steve Hubbard.

Before I graduated from McMaster University, I was initially hired by Petro-Canada to work in their Research Lab in Calgary, where I applied sedimentology to exploring for gas and oil in western Canada. After 3 years, I moved to the Institute of Sedimentary and Petroleum Geology, Geological Survey of Canada in Calgary. There I focused primarily on the sedimentological and geological setting of the occurrence of economic deposits – natural gas, oil, coal, gold and diamonds. I spent 1992 in New Zealand at the Institute of Geological and Nuclear Sciences working on the modern Canterbury Plains and also a Tertiary shale project.

1998 was time for change. I moved to the oil industry, with which I had collaborated, for over a decade. I was hired as Chief Geologist for Wascana Energy Inc., which over time became part of Nexen ULC, the company I currently work for. In this role, I have remained largely technical, assisting in the exploration and development for gas and oil in sedimentary basins around the world. Consequently, I have been able to liaise with geo-scientists around the globe, using the science to enhance and understand hydrocarbon production.

My various roles with SEPM, including being President in 2008-2009, allowed me to do a bit of "pay-back" to the Society and to the discipline.

One of my personal mantras has always been about the obligation of a scientist, in our case – earth scientists – to society. Society gives us considerable freedom and allows us to investigate and study what we wish. From that, the only obligation that we, as scientists, have is to return the results of our investigations back to society – largely

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by publishing. Throughout most of my career, I have been given considerable license to investigate what I was interested in. I, in turn, made a point of ensuring that the results were always published and presented at meetings. Now, I make sure the technology is returned to the company that employs me. I also ensured that I broadened my knowledge base by working with other disciplines largely by participating in multidisciplinary studies.

I thank my wife, Marilyne, for all of her support and encouragement for all of my activities and global adventures in the name of sedimentology and geology.

I am very honored by the recognition SEPM has presented to me. Thank you.



J. Casey Moore accepts the Francis P. Shepard Medal  
from President David A. Budd

### Francis P. Shepard Medal For Sustained Excellence in Marine Geology J. Casey Moore

J. Casey Moore deserves his place of among the distinguished recipients of the Francis P. Shepard Medal. His research career spans both modern and ancient subduction systems, but his contributions to marine geology have been groundbreaking. Casey started on a fast track, after earning his B.S. degree in 1968 from the University of California, Santa Barbara. The fledgling Earth Sciences Department at UC Santa Cruz hired him as an Acting Assistant Professor (in 1970) before he finished his Ph.D. at Princeton University (in 1971). It's hard to imagine anything comparable in this day and age, but the choice by UCSC was obviously prudent.

Casey's foray from boots-and-rock-hammer adventures on Kodiak Island into the blue ocean waters began in 1972, when he served as sedimentologist on DSDP Leg 25 (W. Indian Ocean). His first subduction-zone drilling occurred in 1973 (DSDP Leg 31, Nankai Trough). His most recent drilling in 2012 was on IODP Expedition 343 (Japan Trench off Tohoku). Sandwiched by those benchmarks, Casey led five science parties as Co-Chief Scientist and sailed on five other legs/expeditions. He holds the unique position of having sailed on Glomar Challenger, JOIDES Resolution, and Chikyu. He's also participated in numerous seismic surveys and manned dives on the submersible ALVIN.

A prolific author of more than 150 papers, Moore's scholarly influence is reflected by an H-index of 41. Highlights cover a swath of themes and methods: the first truly interdisciplinary integration of stratigraphy/structure/tectonics, and physical properties (Nankai); first stratigraphic proof of frontal accretion and imbricate thrusting (Middle America); first catalog of structural fabrics found in subduction-zone cores; initial discovery of cold seeps and venting in subduction zones (Cascadia); first comprehensive assessment of fluids and internal plumbing of subduction zones; first to drill through and sample fluids from the décollement (Barbados); first calculations of in situ pore pressure using logging-while-drilling data (Barbados); insightful considerations of how lithology, fluids, and diagenesis collectively influence fault-slip behavior.

Professor Moore has also been a model of guidance and encouragement for generations of successful students and post-docs at UCSC. Perhaps the best testament to his influence as an advisor comes from the Nankai Trough Seismogenic Zone Experiment; most of the U.S. Co-Chiefs and lead proponents for that high-profile project cut their subduction-zone teeth in Santa Cruz. All of this matches Francis Shepard's standards of scientific discovery and mentoring.

Biographer: Michael Underwood

Citation: To J. Casey Moore, in recognition of his mentoring of young scientists; his stellar insights into the behavior of subduction systems; his leadership over five decades of scientific ocean drilling; his innovative uses of logging-while-drilling and seismic data; and his holistic assessments of subduction-related fluids, hydrodynamics, lithostratigraphy, deformation, physical properties, and fault-slip behavior.

### Reply from J. Casey Moore

I was utterly surprised and honored when notified last fall that I had been designated as the Shepard Medalist for 2013. And, I was a bit puzzled because I have never considered myself a marine geologist, in the strict sense.

At UC Santa Barbara I received training in traditional geology, save one course in marine geology with Bob Norris. Interestingly Bob Norris was a former Ph.D. student of Francis Shepard at Scripps Institution of Oceanography. As a graduate student at Princeton University I was exposed to geophysicists driving the development of plate tectonics, including Fred Vine and Jason Morgan. At Princeton Creighton Burk was my dissertation advisor. Creighton Burk was an adjunct faculty member who ran a research group, in Princeton. He and his team analyzed the continental margins of the world for investment opportunities for Mobil Oil. He suggested working on what turned out to be an exhumed subduction complex of the eastern Aleutian Trench. In so doing he encouraged me to stand with one foot on land and one foot in the water.

After my PhD I became involved in scientific ocean drilling (a.k.a. DSDP, ODP, or IODP): a major influence fostering an interest in marine geology. Ocean drilling allows one to cross the boundary between the accumulating sedimentary record, or marine geology, and rocks that we see on land.

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The cruises offer a team environment where the sediment to rock transition is studied from multiple perspectives and substantial results are produced by state-of-the-art shipboard laboratories. The constant presence of specialists in all aspects of marine geology offers a wonderful setting for learning comprehensively about the geology of the marine environment. In addition to the specific scientific results, ocean drilling has always been an international effort. Not only do the ships transport scientists all around the world, but the advisory structure provides opportunities to travel and collaborate with the international scientific community.

Currently my research focus is on Northern Japan and understanding how the widespread red-brown clays of the North Pacific Ocean facilitate great earthquakes and tsunamis. My efforts have been driven by trying to understand the recent Tohoku earthquake of 2011 that killed 19,000 people. A subsequent drilling cruise allowed me to explore the nature of the damaging subduction thrust. This endeavor completes the circle between classical aspects of marine geology and the role of earthquakes in developing and shaping the terrestrial geology of convergent plate margins.

My accomplishments at “work” would have been impossible without a supportive home environment. I thank my wife, Hilde Schwartz, and my children, Allison, Jay, and Maya for their understanding of my absences whether at sea or on land. Moreover, the University of California, Santa Cruz has provided a broad intellectual environment with stimulating faculty colleagues and great students that diversified my continuing education.

I would like to thank the people who nominated me for this award: Mike Underwood who assembled the nomination, and Peter Flemings, Bob Garrison, Miriam Kastner, and Greg Moore for supporting letters. And finally I would like to thank the SEPM awards committee and Professor Budd for their work in evaluation of the nomination and presentation of the medal. A treasure of our profession is such supportive colleagues. In honoring their peers they act completely unselfishly and reflect an aspect of why the earth sciences is a wonderful profession.

### Raymond C. Moore Medal For Sustained Excellence in Paleontology K.S.W. Campbell

Ken Campbell studied paleontology in the University of Queensland under Prof. Dorothy Hill, well known for her work on corals and Archaeocyathinae. He graduated from her classes with a First Class Honours Degree. His early work was on brachiopods, and he used paleontological methods to study the Carboniferous and Permian stratigraphy of rocks outcropping on broad belts through Queensland / New South Wales on the eastern part of the continent. He then taught for 10 years at the University of New England [UNE], Armidale. He had five students who had distinguished careers in Education, Geological Surveys or Museums. He also supervised an outstanding Fulbright scholar, Alan Cvancara. Campbell gained his PhD during these years by doing external

work at the University of Queensland. He won a Nuffield Dominion Fellowship to go to Cambridge, UK, in 1958.

After UNE, he joined the Australian National University in Canberra, where he taught paleontology and stratigraphy. Now based in a geological terrain situated to the west of his previous work, he had to master different groups of organisms, particularly trilobites. A Fulbright Fellowship allowed him to work with Prof. Harry Whittington on Siluro/Devonian trilobites from Oklahoma and Maine. He also brushed up his knowledge of brachiopods by working with Dr Gus Cooper at the Smithsonian. Back in Canberra, he had several students from Australia, Europe and Canada, working on brachiopods and trilobites. Summaries of the trilobite works were used for the revised sections of the Treatise on Invertebrate Paleontology.

In 1969, Campbell edited a volume of essays in honour of Prof. Dorothy Hill. The invited authors contributed essays ranging from sedimentology, graptolites, to vertebrates, illustrating her wide influence in geological topics.

With three other Canberra geologists, Campbell organised an international symposium with contributions by researchers who were working in Antarctica. In 1975, he edited the volume “Gondwana Geology” based on the proceedings of this meeting.

He also did his share of University administration, and from 1979-1983 he was Deputy Dean and Dean of the Science Faculty.

Campbell’s interest in vertebrates came from his discovery of an Early Devonian dipnoan at a locality near Canberra. Together with Dr R.E. Barwick, a zoologist and a fine illustrator, he published some 40 articles on the evolution of osteichthyans, and this work has dominated his research over the last 45 years. As a result of this work, with several others, he organised an international symposium on “The Evolution of Early Vertebrates”. This produced a number of papers that were published under the editorship of Dr A. Ritchie in the “Proceedings of the Linnean Society of New South Wales”.

This work, and that on the study of echinoderms, forced him to consider modern work on the genetic changes that produced major developments in macroevolution. As part of this process, with Dr M.F. Day, Campbell organised an international symposium held in Canberra. In 1985, they published “Rates of Evolution” that put together a contemporary summary of the current ideas at that time. Further developments in this area have been published by Campbell in separate articles, and this area remains a large part of his work.

In 1993, he resigned his formal position in the University, and his colleagues arranged for a volume of essays to be published in his honour. This was published as Memoir 15 of the Association of the Australasian Palaeontologists. In the mean time, Ken continued his research work on various aspects of the evolution of Devonian osteichthyans on a part time basis.



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On another front, Campbell's work has been helped by co-workers such as Prof. Tim Senden and Dr. Gavin Young who have used serial tomography to examine the endostructures of vertebrates, thus leaving the specimens in their original form, thus several internal features never seen before.

Many of the postgraduate and undergraduate students have had distinguished careers in Australia, and some have also had careers in Canada, the US and China. Campbell regards these people as the crowning achievements of his academic career.

Through his career Campbell has received several awards including the Clarke Memorial Lecture in 1975; Mawson Medal in 1985; the W. R. Browne Medal in 2006; the W.B. Clarke Medal, 2010: and now the R.C Moore Medal in 2013.

In 1983, he was elected as a Fellow of the Australian Academy of Science, and over the 1990-1993 period, he was a member of the Academy of Science Council.

Biographer: Patrick DeDeckker

Citation: Ken Campbell has often expressed an independent opinion, not necessarily fashionable or following current trends, but always one based on careful observation of the material and critical of any superficiality.

### Reply from K.S.W. Campbell

Naturally I am honoured, and am more than delighted, to receive the R.C. Moore Medal. I had no intention of becoming a geologist or a paleontologist. I did no geology at school. A friend asked me to study Geology at University, and I agreed to keep him company, even though my main interest was in Physics. During the Geology course, Professor Dorothy Hill noted an essay I had written, and commented that it broke usual bounds for an undergraduate essay. She approached me and said that she would mentor me if I chose to study paleontology. She was an outstanding researcher, and to have her as a mentor was a real opportunity. From then on it was all plain sailing. As you know she contributed to the Rugose and Tabulate Corals and the Archaeocyatha to the R.C. Moore Treatise Volumes. I started to study brachiopods, particularly those of the Carboniferous and Permian of Eastern Australia. I was then appointed to a lectureship at the University of New England, Armidale, New South Wales, where I had several good students who ultimately had senior positions in Academia, Geological Surveys and Museums. In 1958 I won a Nuffield Dominion Travelling Fellowship to work in Cambridge, England. This experience changed me from a mainly stratigraphical paleontologist to an interpreter of fossils as living organisms. I published 15 papers on these brachiopods.

I moved to the Australian National University in Canberra in 1962. This was a new geological environment, and I had to supervise postgraduate students in trilobites as well as brachiopods. So I applied for a Fulbright Fellowship to work with Prof Whittington at Harvard. Under his guidance I was able to work on Siluro-Devonian trilobites from Oklahoma and Maine, on which I published three Bulletins, but I also

learned something about the growth series of trilobites. I also went to the Smithsonian and learned more about brachiopods from Dr Cooper.

By this time, in order to honour Prof Hill. I contributed to and edited a volume in her honour, and this included articles on stratigraphy, ecology of reefs, graptolites as well as corals, indicating the breadth of her interests.

Back in Canberra my undergraduate classes increased in numbers, and I am still getting comments from some of these students who thank me for teaching them to think creatively. I also had postgraduate students including Brian Chatterton and Peter Jell whose work contributed to the supplements to the R.C. Moore Treatises on growth patterns of trilobites and he structure and evolution of pagetiids. Robert Willink's work on crinoids also contributed these Volumes. This experience also gave me the opportunity to look functionally at two aspects of trilobites. First was the function of the brim on the cephalon of trinucleids which appeared in the Ordovician. These structures were understood by etching and observing their sedimentary burrows. Secondly the visual capacity of the lenses in phacopid eyes, which had been interpreted on examples that had been partly recrystallised, but were now reinterpreted by computer analysis of new data.

But experience is a strange thing. On a field trip I came upon the head of an Early Devonian lungfish. This discovery started me off on a program that has continued on well into my retirement. It also introduced me to a different class of paleontologists. This was of great significance as I now had to work with Chinese, Russian, French and Swedish paleontologists. Also the Field Museum in Chicago. gave me a Fellowship to work on the only other Early Devonian lungfish known at that time, and this work was later published as part of a Memoir. Already the group studying the Evolution of Lower Vertebrates had organised a couple of international meetings, and with a few Australian colleagues we decided to run such a meeting in Sydney and Canberra. This involved the production of articles in the Proceedings of the Linnean Society of New South Wales, edited by Alex Ritchie, and a number of field trips in NSW and Victoria so visitors could see the range of materials that were available to us here. Also attending the meetings was a geneticist who was interested in the stratigraphic distribution of various groups of early fishes. His interest was in the role of gene regulation in the origin of new morphological designs. This kind of work has strongly influenced my thinking.

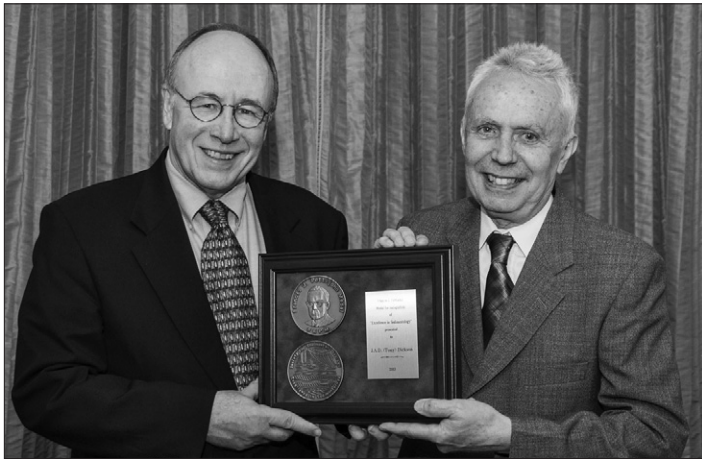
Meanwhile a colleague from Zoology became interested in fossil vertebrate work on which I was researching. He left Zoology, and joined the Geology Department. Campbell and Barwick have now published some 40 scientific papers on dipnoan and other sarcopterygian structure and evolution. It became apparent that with a wide variety of concepts available, it would be an advantage to hold a symposium for paleontologists and geneticists. Maxwell Day an entomologist and geneticist, and I organised an international meeting in Canberra in 1968 to survey the present understanding of structural change and genetics. The results were published as a book "Rates of Evolution", with the two of us as Editors. In this book Campbell and Marshall contributed an article

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on the functional evolution of Echinoderms. The results of this book, as judged from the reviews, has had an important impact on joint studies.

On the geological front two other exercises have occupied my time. First in 1968 with D.A. Brown and K.A.W. Crook, we published "The Geology of Australia and New Zealand". This was superseded by work on sea floor spreading, but it provided some factual basis for later interpretations. Secondly Australia and New Zealand have been involved in the exploration and geological interpretation of Antarctica. Four of us decided it was time to put together the Gondwana story, including work by researchers still working in Antarctica. We organised a meeting in Canberra, and I edited a Volume "Gondwana Geology". This was a comprehensive volume requiring modification of the articles into English.

So this is the end of a diverse career involving research on a number of groups of invertebrates and vertebrates, as well as teaching, postgrad supervision, publishing, and university administration. I am very grateful to the Paleontological Society for the award of the R.C. Moore Medal for my work.



J.A.D. (Tony) Dickson accepts the Francis J. Pettijohn Medal from President David A. Budd

### Francis J. Pettijohn Medal For Sustained Excellence in Sedimentology J.A.D. (Tony) Dickson

Tony was born in Cockermouth, northern England. He received First Class, Special Honors from Queen Mary College, University of London for his undergraduate degree and continued at London University for his Ph.D.

One of Tony's most widely used achievements was his refinement of staining techniques for carbonate petrography; a technique that is used worldwide by petrographers today.

Tony's work on modelling of crystal growth in the 1980's explained the growth of carbonate cements in new and insightful way. His integration of stable isotope and trace element analyses from different generations of carbonate, has allowed the interpretation of diagenetic

histories and fluid movements throughout burial.

Tony taught at Cardiff, Nottingham and Cambridge. As a teacher, he inspired many students to have a love for sedimentology in the classroom, lab and especially the field. He introduced many students to the fascinating world revealed through meticulous petrographic observation. He has taught short courses for industry from Dubai to Dahrhan from Houston to Hangzhou. He was the recipient of the Wollaston Fund award by the Geological Society of London in 1985. Tony is an affable field companion, judging the end of the day either by when the pub will be serving up its best dish and the beer will be just right, or when darkness falls.

Tony continues to explore aspects of carbonate diagenesis: Proterozoic biomineralization in Namibia; Floridian aquifer geochemistry and the changing Mg composition of seawater through time. His 2002 Science paper presented empirical evidence that showed the Mg/Ca ratio of Phanerozoic ocean water has changed throughout the Phanerozoic.

Dr. Dickson ranks with Gerald Friedman, Robin Bathurst, and Francis J. Pettijohn himself, as one of the top petrographers in sedimentology. For his major contributions to carbonate sedimentology he is a most worthy candidate for the Pettijohn Medal.

Biographer: Carol B. deWet

Citation: Born in England, Tony Dickson received his honors undergraduate degree and Ph.D. from University of London. His refinement of the carbonate staining technique is used globally, and his modeling of calcite crystal growth, coupled with the integration of stable isotopes and trace elements provides an unrivaled template for diagenetic studies in limestones. He ranks with Gerald Friedman, Robin Bathurst, and Francis J. Pettijohn himself, as one of the top petrographers in sedimentology.

### Reply from Tony Dickson

I am delighted and humbled to receive the Pettijohn medal and am indebted to Carol deWet and colleagues who put forward my name to the committee.

I believe my place here is largely due to colleagues who have been such a help to me over the years. In my first year as a research student, I was invited by Robin Bathurst to spend a week with him at his home and he told me to bring along a box of my research thin sections. Robin spent the whole week analyzing my thin sections. Any skill I now have as a petrographer I owe to the revelations I received during this and subsequent visits.

Robin also persuaded me to attend my first SEPM meeting on deep burial diagenesis that was held in Tulsa. I had little money at that time so I had to share a room. I arrived in Tulsa at midnight and was told by reception "your room mate - Ezekiel - is already in your room". Imagine my trepidation when I opened the door to find a single double bed with one snoring Ezekiel occupying half of it! Ezekiel, or Charley Druckman as

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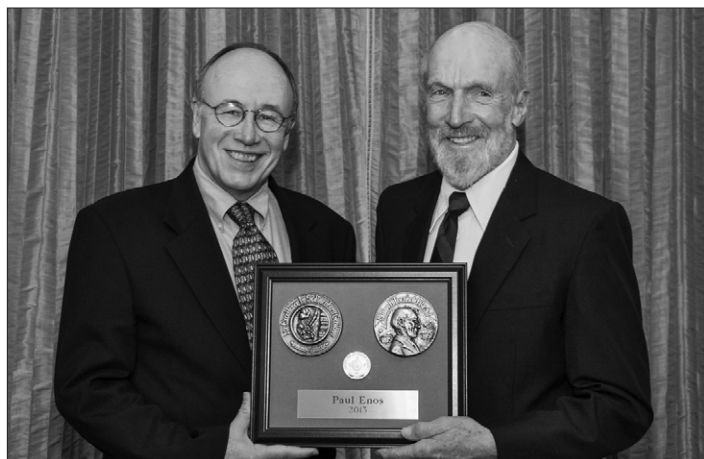
he is better known, was responsible for another great break in my career because he persuaded Clyde Moore to invite me and my family to spend a year in Baton Rouge and join Clyde's carbonate research program. Wow - what a great opportunity - I was invited by 20 of the sponsoring companies to give talks in their offices all over this country. I car-pooled with Robert Handford and met Eytan Sass, Marshal Vinet, Hans Machel, Gill Harwood, Brenda Kirkland Ivan Gill, Ezat Heydari and many others. I met my life time collaborator and dear friend Art Saller. Because of Art - enrollment in my undergraduate courses in Cambridge suddenly shot up for Art led trips to the Guadalupe and Sacramento Mountains for our British students - a trip of a lifetime for them.

I have had great sabbaticals - the most influential one for me was with Bill Myers at Stony Brook. The discussions with Bill and his group were fantastic and included Phil Choquette, Jay Banner, Sydney and Garry Hemmings, Troy Rasbury, Vicki Pedone, and we were all fortunate to escape Long Island's dreary December weather with a field trip to Caicos led by Bruce Fouke.

My biggest stroke of luck however, was when I was in Cardiff during my first job. One Saturday night I attended the City Hall dance and I met a girl in a red dress. During our first dance she said to me "great you have a car - you can drive me back to my lodgings after the dance" - I was flabbergasted - but then she added "I'm here with a friend and she also lives in the same lodgings and needs to return there after the dance". That girl is now my wife and has excused my many absences from home looking at rocks. This includes being frozen in polar bear country in Svalbard with Neil Pickard, camping in Namibia with John Grotzinger; John advised me before going on this trip "there's no need to take waterproofs as it never rains in Namibia" - well I lost faith with John because during our trip after a flash flood I was greeted by my shoes floating towards on a lake that had submerged my tent. Recently I've endured 40 degree temperatures while eating fresh mangoes with Rachel Wood on Copacabana beach - but that's enough field work anecdotes!

Without the support from Caroline and our three children I believe I may have fulfilled my headmasters prediction as I left school he said to me - "Dickson! Have you considered a career as a bank clerk" - he had in mind for me a lifetime of servitude in some rural backwater in Northern England.

My family tell me I have led a blessed life, and now I have another blessing thanks to the Pettijohn committee and another cause for celebration - thank you.



Paul Enos accepts the William F. Twenhofel Medal from President David A. Budd

### William F. Twenhofel Medal For a Career of Outstanding Contributions in Sedimentary Geology Paul Enos

The award of the Twenhofel medal to Paul Enos is a fitting tribute to Paul's fundamental innovations in the field of Sedimentary Geology. As a native of Perry, Kansas, born in 1934, and alumnus and emeritus distinguished professor from the University of Kansas, there is a remarkable symmetry in this award. Twenhofel was on the faculty at the University of Kansas, and R.C. Moore, the first recipient of the Twenhofel medal, was an influential professor at Kansas during Paul's undergraduate years, which culminated in his B.S. in 1956, followed by a Fulbright scholarship in Tübingen and service in the U.S. Army.

For decades, Paul Enos has been one of the most diverse and influential teachers and researchers in Sedimentary Geology. Equally comfortable with mountain or microscope, modern or ancient, carbonates or clastics, Enos is a true renaissance man for the world of sedimentary research. With his wife Carol's help, fieldwork was a family affair for the Enoses, as Paul pursued his passions for field geology and family wherever the research project took them.

After receiving the M.S. from Stanford in 1961 and Ph.D. from Yale in 1965, where he cut his teeth in the field of deepwater clastics, he earned the Best Paper Award in the *Journal of Sedimentary Petrology*. After Yale, he moved on to Shell Development Company, where he was a major figure in the initial development of the field of Carbonate Sedimentology. His work on shallow-water sediments from South Florida and the Bahamas remains as a series of foundational contributions to this field, still essential to all carbonate sedimentologists.

In 1970, Paul joined the faculty of SUNY-Binghamton to pursue an academic career of teaching and research. He was then lured home to the University of Kansas in 1982 as the Haas Distinguished Professor. Paul's research contributions as an academic were diverse and seminal. His papers on deepwater carbonates define many of the fundamental principles used today. Research on porosity in modern



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carbonates remains as foundational research in this field. Cretaceous carbonates held a special appeal, including diagenetic and stratigraphic contributions from ocean drilling and in Mexico. His models from carbonate platforms in Mexico are among the most important in applications to the Cretaceous worldwide. Later, the Permian and Triassic of China and the Alps provided new insights into carbonate cyclicity and carbonate platform evolution.

As a teacher, Paul's career was characterized by an infectious enthusiasm for getting students and professionals into the field to learn what the rocks and modern processes could teach them. His many field courses to the modern and ancient were legendary for the amount that all would learn, and also for the enthusiasm for discovery, adventure, and fun that Paul would convey.

We all owe a great debt to Paul Enos for his many foundational contributions, upon which we continue to build the field of Sedimentary Geology. As we acknowledge that our current field stands on the shoulders of giants that created the basic tenets of Sedimentary Geology, we must acknowledge Paul as one of those giants worthy of our highest award, the Twenhofel Medal.

Biographer: Robert H. Goldstein

Citation: For a career of ground-breaking innovations in Sedimentary Geology, from the mountain to the microscope, deep water to shallow, modern to ancient, and carbonates to clastics, the research of Paul Enos created the foundation upon which we continue to build our discipline.

### Reply from Paul Enos

Since 1970 I've been a teacher, so when I learned I get to say a few words, I immediately thought of 50-minutes worth – actually 80 minutes because I've been teaching T & T. The first half would be taken up thanking all the people who made it possible for me to up here. Then I got the WORD and realized I couldn't begin to thank everyone I should.

However, I have to give a big thank you to my wife, Carol, who has alternately enjoyed and endured being a geowife for 55 years. She accompanied me in the field to Gaspé, Quebec (where she hatched two babies, one of whom is here), to Mexico, and China, among others. She's also my chief publicist; she fought a 3-month campaign to get Twenhofel mentioned in the local paper. Also thanks to my whole family: my parents, 6 siblings, 4 kids, and 5 grandkids – one of whom is here - and he brought his mom. Thanks to many teachers along the way, from Miss Ballou in first grade to John Sanders, my doctor vater. Among all of my colleagues at Shell, Binghamton, and Kansas, I'll single out Luis Gonzalez, Gene Rankey, and Bob Goldstein. Someone has to go to bat for you and they did big time. I understand I also owe a big debt to Noel James and to long-time colleagues Bob Ginsburg and Gene Shinn; I just hope they didn't have to commit perjury.

When people ask me what I do in retirement, it's "Geology, of course. It's too much fun to quit." I've been privileged, by virtue of longevity, to

watch the development of plate tectonics, sequence stratigraphy, cycle stratigraphy, and a lot of new knowledge about carbonate rocks. I'm excited to see what's next?? Almost certainly it will higher tech – but where & what?

I was planning to show the way by giving a scientific paper at this meeting, but my abstract was rejected. Not a surprise, it dealt with granulite-grade metamorphic rocks from the Himalayas. My goal is to convince metamorphic geologists that some sedimentary structures are preserved despite the extremes of temperature and pressure they have suffered — or enjoyed, as the case may be — and that these structures have a coherent story to tell about these rock's early history. So this would have been the wrong audience, preaching to the choir instead of to metamorphic geologists, who so far refuse to see the light. How many of you are metamorphic geologists?

On that theme, I've had two previous abstracts rejected, both by AAPG/SEPM. In each case the senior author was a Twenhofel recipient or a future recipient. So much for respect....

Thus humbled, I'll just offer some avuncular observations. It's no secret that the first caveat of research is "garbage in/garbage out." With geology, especially sedimentary geology, this translates to "the conclusions won't be any better than the field work." Not only is field work the most fun part; it's at least one of the most important parts.

I'll cite several lessons I've learned from field work: as so often happens, lessons taught by students.

After my first field season in South China, where I gained an invaluable colleague for all our work there in Wei Jia Yong, I wrote an NSF proposal to work on an isolated Triassic carbonate platform I'd seen in passing. Working with the regional maps, I realized that the faulted limb of a narrow syncline that sliced clear through the bank provided a cross section of the platform from the Permian foundation to the Late Triassic termination. My approach would have been to measure closely spaced detailed sections through the syncline to fill in the cross section. This was the advice I gave Dan Lehrmann, then a doctoral student, after we finished a brief reconnaissance. More reconnaissance convinced Dan that to unravel the complexities of the critical margin-to-slope transition, he had to map that part of the syncline in detail. That map became the cross section, which has graced a number of subsequent publications on the Great Bank of Guizhou.

Dan Lehrmann did something else that I would never have taken on. He recognized that to properly understand the historical context and sequence stratigraphy, he needed a robust biostratigraphy, and that meant conodonts. He set up a rudimentary lab, lugged a few tons of rock down from the mountains, did the preliminary limestone dissolution in China, and established an excellent biostratigraphy, that has spawned an lot more research on this bank.

Another bit of fallout from the first field season dealt with the carbon-isotopic anomaly at the Permo-Triassic boundary. Profiles of this anomaly

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had just been published from the Alps and from the eventual global boundary stratotype at Meishan, China. When I had to return to China in spring 1989 to smuggle out my samples, Wei and I made a brief excursion to the Great Bank to sample the Permo-Triassic boundary there. We got the very base of the excursion, but not the recovery to 'normal' values. We had failed to appreciate the enormous expansion of scale in platform carbonates of the GBB section in comparison with the condensed basinal section at Meishan. It was 12 years later that Jon Payne got it right during his Harvard dissertation research on the Great Bank. His detailed profile has been a gold standard for theories on the Triassic recovery from the end-Permian extinction.

The final example comes from working out the evolution of the synchronous Yangtze platform, the vast cratonic platform with a bank margin 100 km north of the Great Bank. The same syncline that cuts the Great Bank gave us one detailed cross section, where the platform was relatively stable and died in shallow water, beneath an influx of quartz sand. We knew from reconnaissance work that 50 km to the west, the platform had a very different history and had drowned in deep water. In fact, we'd published a paper on the Yangtze platform's "Death in Guizhou" (with apologies to Thomas Mann). However, we despaired at working out the details in the badly deformed, high-relief synclines crossing the margin. Enter doctoral student, Marcello Minzoni, who had cut his teeth on slightly deformed platforms in the Dolomites; he tackled this problem, beginning on September 11, 2001. In two field seasons, he documented the details of strong structural control on this part of the platform which led to some unique platform architecture and the early death.

So, as a take-home thought; Geology is too much fun to quit, and field work is the most fun of all.

### ***2011 Outstanding Paper in the Journal of Sedimentary Research***

John Martin, Alessandro Cantelli, Chris Paola, Michael Blum,  
and Matthew Wolinsky

*Quantitative modeling of the evolution and geometry  
of incised valleys: JSR*, v. 81, p. 64-79

### ***2011 Outstanding Paper in the Journal of Sedimentary Research - Honorable Mention (Tie)***

Huw D. Williams, Peter M. Burgess, V. Paul Wright,  
Giovanna Della Porta, and Didier Granjeon  
*Investigating carbonate platform types: multiple controls and a  
continuum of geometries: JSR*, v. 81, p. 18-37

Jason S. Mintz, Steven G. Driese, Daniel O. Breecker,  
and Greg A. Ludvigson  
*Influence of Changing Hydrology on Pedogenic Calcite Precipitation  
in Vertisols, Dance Bayou, Brazoria County, Texas, U.S.A.:  
Implications for Estimating Paleatmospheric PCO<sub>2</sub>:  
JSR*, v. 81, p. 394-400

### ***2011 Outstanding Paper in PALAIOS***

Karen L. Bacon, Claire M. Belcher, Stephen P. Hesselbo,  
and Jennifer C. McElwain  
*The Triassic-Jurassic boundary carbon-isotope excursions  
expressed in taxonomically identified leaf cuticles,  
PALAIOS*, v. 26, p. 461-469

### ***2011 Outstanding Paper in PALAIOS (Tie)***

Katharine M. Loughney, David E. Fastovsky,  
and William G. Parker  
*Vertebrate fossil preservation in blue paleosols from the Petrified  
Forest National Park, Arizona, with implications for vertebrate  
biostratigraphy in the Chinle Formation:  
PALAIOS*, v. 26, p. 700-719

Brady Z. Foreman, Henry C. Fricke, Kyger C. Lohmann,  
and Raymond R. Rogers  
*Reconstructing paleocatchments by integrating stable  
isotope records, sedimentology, and taphonomy:  
A Late Cretaceous case study (Montana, United States):  
PALAIOS*, v. 26, p. 545-554

**Audited Financial Report – 2012**

HARTOG | KALLENBERGER | SWARTHOUT  
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**Independent Auditor's Report**

SEPM Council  
SEPM (Society For Sedimentary Geology)  
Tulsa, Oklahoma

We have audited the accompanying financial statements of SEPM (Society For Sedimentary Geology) (a nonprofit organization), which comprise the statements of financial position as of December 31, 2012 and 2011, and the related statements of activities and cash flows for the years then ended, and the related notes to the financial statements.

**Management's Responsibility for the Financial Statements**

The Organization's management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

**Auditor's Responsibility**

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

**Opinion**

In our opinion the financial statements referred to above present fairly, in all material respects, the financial position of SEPM (Society For Sedimentary Geology) as of December 31, 2012 and 2011, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

*Hartog, Kallenberg & Swarthout, P.C.*

Certified Public Accountants  
Tulsa, Oklahoma  
July 12, 2013

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**SEPM (Society For Sedimentary Geology)**  
**Statements of Financial Position**  
**December 31, 2012 and 2011**

**Assets**

	2012	2011
<b>Current assets</b>		
Cash and cash equivalents	\$ 1,485,705	\$ 1,266,055
Accounts receivable	137,602	327,287
Inventories	258,701	273,453
Prepaid expenses	46,911	39,124
<b>Total current assets</b>	<b>1,928,919</b>	<b>1,905,919</b>
<b>Non-current assets</b>		
Furniture and equipment, less accumulated depreciation	20,717	25,331
Long-term investments	2,056,943	1,833,200
<b>Total non-current assets</b>	<b>2,077,660</b>	<b>1,858,531</b>
<b>Total assets</b>	<b>\$ 4,006,579</b>	<b>\$ 3,764,450</b>

**Liabilities and Net Assets**

<b>Current liabilities</b>		
Accounts payable and accrued liabilities	\$ 80,059	\$ 36,517
Deferred income	514,902	692,645
<b>Total current liabilities</b>	<b>594,961</b>	<b>729,162</b>
<b>Net assets - unrestricted</b>	<b>2,495,465</b>	<b>2,268,300</b>
<b>Net assets - board designated</b>	<b>916,153</b>	<b>766,988</b>
<b>Total net assets</b>	<b>3,411,618</b>	<b>3,035,288</b>
<b>Total liabilities and net assets</b>	<b>\$ 4,006,579</b>	<b>\$ 3,764,450</b>

See accompanying summary of accounting policies  
and notes to the financial statements.

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**SEPM (Society For Sedimentary Geology)**  
**Statements of Activities**  
**For the Years Ended December 31, 2012 and 2011**

	2012	2011
<b>Changes in unrestricted net assets</b>		
Revenues, gains and other support		
Dues	\$ 113,690	\$ 118,950
Publications	293,752	340,435
Journal of Sedimentary Research - subscriptions, royalties and other	613,424	630,086
Palaos - subscriptions, royalties and other	214,439	195,704
Continuing education	48,000	68,618
Meetings, conferences and field trips	127,640	128,064
Membership activities	45,543	14,179
Net realized and unrealized gain (loss) on investments	170,701	(19,467)
Investment income	72,186	51,547
<b>Total revenues, gains and other support</b>	<b>1,699,375</b>	<b>1,528,116</b>
<b>Expenses</b>		
Publishing costs - Journal of Sedimentary Research	221,462	225,651
Publishing costs - Palaos	140,694	158,699
Publications	175,932	231,785
Continuing education	30,567	41,286
Meetings, conferences and field trips	65,294	82,768
Membership activities	152,138	121,225
Grant award to SEPM Foundation, Inc.	66,000	-
General and administrative	470,958	467,304
<b>Total expenses</b>	<b>1,323,045</b>	<b>1,328,718</b>
<b>Change in unrestricted net assets</b>	<b>376,330</b>	<b>199,398</b>
<b>Net assets - beginning of year</b>	<b>3,035,288</b>	<b>2,835,890</b>
<b>Net assets - end of year</b>	<b>\$ 3,411,618</b>	<b>\$ 3,035,288</b>

See accompanying summary of accounting policies  
and notes to the financial statements.

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## Audited Financial Report – 2012

**SEPM (Society For Sedimentary Geology)**  
**Statements of Cash Flows**  
**For the Years Ended December 31, 2012 and 2011**

	2012	2011
Cash flows from operating activities		
Change in unrestricted net assets	\$ 376,330	\$ 199,398
Adjustments to reconcile changes in net assets to net cash provided by operating activities		
Depreciation	7,724	9,182
Net realized and unrealized (gain) loss on investments	(170,701)	19,467
(Increase) decrease in		
Accounts receivable	189,685	(55,106)
Inventory	14,752	(68,138)
Prepaid expenses	(7,787)	1,861
Increase (decrease) in		
Accounts payable and accrued expenses	43,542	11,669
Deferred income	(177,743)	76,451
Net cash flows from operating activities	<u>275,802</u>	<u>194,784</u>
Cash flows from investing activities		
Payments for purchase of equipment	(3,110)	(10,440)
Purchase of investments	(361,697)	(367,563)
Proceeds from maturations and sales of investments	<u>308,655</u>	<u>400,280</u>
Net cash flows from investing activities	<u>(66,152)</u>	<u>22,277</u>
Net increase in cash and cash equivalents	219,650	217,061
Cash and cash equivalents - beginning of year	1,266,055	1,048,994
Cash and cash equivalents - end of year	<u>\$ 1,485,705</u>	<u>\$ 1,266,055</u>

**Supplemental cash flow information**

Interest paid	\$ -	\$ -
Income taxes paid	\$ -	\$ -

See accompanying summary of accounting policies and notes to the financial statements.

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**SEPM (Society For Sedimentary Geology)**  
**Summary of Significant Accounting Policies**  
**December 31, 2012 and 2011**

**Organization and business**

On September 27, 1987, the Society of Economic Paleontologists and Mineralogists (Society) became a separate entity from the American Association of Petroleum Geologists. Prior to this date, the Society was an unincorporated technical division of the American Association of Petroleum Geologists. In the event of the dissolution of the Society, the net assets will be donated to charitable, scientific or educational institutions; no assets shall inure to the benefit of any member.

The objective of the Society is to advance the science of stratigraphy through the dissemination of scientific knowledge of, promotion of, research in, and other contributions to paleontology, sedimentology, and allied disciplines.

The Society primarily deals with members of the organization for services, to universities and oil-related companies for attendance at educational schools, workshops, and short courses, and for sales of special publications. Substantially all customers are located in oil-producing regions both within the United States of America and internationally.

**Estimates**

In preparing financial statements in conformity with generally accepted accounting principles, management is required to make estimates and assumptions which affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and revenues and expenses during the reporting period. Actual results could differ from those estimates.

**Cash and cash equivalents**

The Society considers all cash and short-term securities with maturities of three months or less when purchased as cash and cash equivalents.

**Inventory**

Inventory consists of special publications (including short course notes), which excludes the journals published by the Society. The limited excess quantities of the journals are provided as reference material to the profession and, as such, are not inventoried.

Special publications are valued at cost (specific identification) in the year of publication and the two succeeding years. After this period, publications are valued at 50% of cost, with the further limitation that the valuation of publications over five years old is limited to 100 copies.

**Inventory write-downs were as follows:**

	2012	2011
Publications	<u>\$ 28,919</u>	<u>\$ 4,710</u>

**Inventory consists of the following:**

	2012	2011
Publications	\$ 233,538	\$ 242,304
Continuing education materials	15,823	22,027
Work in process	<u>9,349</u>	<u>9,122</u>
Total	<u>\$ 258,701</u>	<u>\$ 273,453</u>

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**SEPM (Society For Sedimentary Geology)**  
**Summary of Significant Accounting Policies**  
**December 31, 2012 and 2011**

**Furniture and equipment**

Furniture and equipment are valued at cost. Depreciation is provided using the straight-line method over the useful life of three to seven years.

**Revenue recognition**

The Society recognizes income and expense on the accrual accounting basis for financial statement presentation.

Membership dues and subscriptions are recognized as revenue ratably over the period of membership or subscription term.

**Contributions**

Donor-restricted contributions are classified as unrestricted support if the restrictions are satisfied in the same reporting period in which the contribution was received.

**Advertising**

Advertising costs are expensed when incurred. No advertising expenses were incurred during the years ended December 31, 2012 and 2011.

**Tax status**

The Society is exempt from taxation under Section 501(c) (3) of the Internal Revenue Code. It is not a private foundation.

Accounting principles generally accepted in the United States of America require Society management to evaluate tax positions taken by the Society and recognize a tax liability (or asset) if the Society has taken an uncertain position that more likely than not would not be sustained upon examination by the Internal Revenue Service. The Society's management has analyzed the tax positions taken by the Society, and has concluded that as of December 31, 2012, there are no uncertain positions taken or expected to be taken that would require recognition of a liability (or asset) or disclosure in the financial statements. The Society is subject to routine audits by taxing jurisdictions; however, there are currently no audits for any tax periods in progress. The Society management believes the Society is no longer subject to income tax examinations for years prior to 2009.

**Subsequent events**

The Society has evaluated subsequent events through July 12, 2013, which is the date the financial statements were available to be issued.

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**Audited Financial Report – 2012**SEPM (Society For Sedimentary Geology)  
Notes to the Financial Statements  
December 31, 2012 and 2011**Note 1 – Furniture and equipment**

Included under this caption are the following:

	2012	2011
Furniture and equipment	\$ 239,289	\$ 236,179
Less accumulated depreciation	<u>218,572</u>	<u>210,848</u>
Total	<u>\$ 20,717</u>	<u>\$ 25,331</u>

**Note 2 – Investments**

Investments at December 31, 2012 and 2011, consist of the following:

	December 31, 2012	
	Historical Cost	Market (Carrying Amount)
General investments		
Cash and cash equivalents	\$ 27,577	\$ 27,577
Growth and capital appreciation funds	331,573	346,554
Bond and balanced funds	675,519	692,705
International funds	<u>59,581</u>	<u>88,704</u>
Total general investments	<u>1,094,250</u>	<u>1,157,640</u>
New Frontiers Fund		
Cash and cash equivalents	\$ 1,786	\$ 1,786
Growth and capital appreciation funds	487,473	584,399
Bond and balanced funds	155,325	171,820
International funds	<u>109,408</u>	<u>141,298</u>
Total New Frontiers Fund	<u>753,992</u>	<u>899,303</u>
Total investments	<u>\$ 1,848,242</u>	<u>\$ 2,056,943</u>

	December 31, 2011	
	Historical Cost	Market (Carrying Amount)
General investments		
Cash and cash equivalents	\$ 19,596	\$ 19,596
Growth and capital appreciation funds	319,978	288,630
Bond and balanced funds	708,474	705,095
International funds	<u>57,824</u>	<u>73,391</u>
Total general investments	<u>1,105,872</u>	<u>1,086,712</u>

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SEPM (Society For Sedimentary Geology)  
Notes to the Financial Statements  
December 31, 2012 and 2011**Note 2 – Investments (continued)**

	December 31, 2011	
	Historical Cost	Market (Carrying Amount)
New Frontiers Fund		
Cash and cash equivalents	\$ 2,001	\$ 2,001
Growth and capital appreciation funds	465,423	508,732
Bond and balanced funds	115,081	126,409
International funds	<u>106,505</u>	<u>109,346</u>
Total New Frontiers Fund	<u>689,010</u>	<u>746,488</u>
Total investments	<u>\$ 1,794,882</u>	<u>\$ 1,833,200</u>
Realized and unrealized gains and losses were as follows:		
	2012	2011
Unrealized gains (losses)	\$ 170,383	\$ (37,984)
Realized gains	<u>318</u>	<u>18,517</u>
Net realized and unrealized gain (loss)	<u>\$ 170,701</u>	<u>\$ (19,467)</u>

**Note 3 – Fair value disclosures**

FASB ASC 820-10-50 (formerly FAS 157), *Fair Value Measurements*, establishes a framework for measuring fair value. That framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (level 1 measurements) and the lowest priority to unobservable inputs (level 3 measurements). The three levels of the fair value hierarchy under FASB ASC 820-10-50 are described as follows:

Level 1 inputs: quoted prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date.

Level 2 inputs: inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly or indirectly through corroboration with observable market data.

Level 3 inputs: unobservable inputs for the asset or liability, that is, inputs that reflect the reporting entity's own assumptions about the assumptions market participants would use in pricing an asset or liability (including risk assumptions) developed on the best information available in the circumstances.

The Society's financial assets that are measured at fair value on a recurring basis were recorded using the fair value hierarchy as follows:

December 31, 2012	
Level 1:	
Mutual funds	<u>\$ 2,056,943</u>
December 31, 2011	
Level 1:	
Mutual funds	<u>\$ 1,833,200</u>

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SEPM (Society For Sedimentary Geology)  
Notes to the Financial Statements  
December 31, 2012 and 2011**Note 4 – Deferred income**

Deferred income consists of the following:

	2012	2011
Dues	\$ 63,268	\$ 59,500
Subscriptions	330,888	392,950
Publications in process and other	<u>120,746</u>	<u>240,195</u>
Total	<u>\$ 514,902</u>	<u>\$ 692,645</u>

**Note 5 – Commitment**

The Society leases its offices and warehouse under operating leases. Total minimum rent commitments for space and equipment leases for the year ending December 31, 2013 is \$27,597.

Rent expense was \$49,784 and \$48,913 in 2012 and 2011, respectively.

**Note 6 – Unrestricted net assets**

Unrestricted net assets consist of the following:

	2012	2011
General fund	\$ 2,495,465	\$ 2,268,300
Board designated		
New Frontier fund - long term purposes	885,503	732,688
New Frontier fund - current purposes	13,800	13,800
New opportunities	5,500	5,500
Capital projects	<u>11,350</u>	<u>15,000</u>
Total	<u>\$ 3,411,618</u>	<u>\$ 3,035,288</u>

The New Frontiers Fund represents board-designated funds for the purpose of funding the development of science and education. The board has designated one-third of the royalties from the Copyright Clearance Center, Inc. to be used specifically for the building of this fund.

**Note 7 – Related party transactions**

The Society received \$8,000 for each of the years ended December 31, 2012 and 2011, from the SEPM Foundation, Inc. (an affiliated non-profit entity) for management fees.

During 2011, the Society received a grant for \$5,000 for publications from the SEPM Foundation.

The Society had receivables from the SEPM Foundation, Inc. of \$136,838 and \$137,374 at December 31, 2012 and 2011, respectively.

**Note 8 – Concentration of credit risk**

The Society maintains its cash in bank deposit accounts which, at times, may exceed federally insured limits. The Society has not experienced any losses in such accounts. The Society believes it is not exposed to any significant credit risk on cash and cash equivalents.

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