

ANNUAL REPORT OF THE SOCIETY FOR 2011

DIRECTOR'S REPORT, SOCIETY AWARDS AND AUDITED FINANCIAL REPORT (2010)

Director's Report

Annual meeting

SEPM held its Annual Meeting in Houston, TX jointly with A.A.P.G. Outgoing President Mitch Harris turned the gavel over to the new President, Chris Fielding. Under the leadership of SEPM Vice-Chair Morgan Sullivan and his committee, SEPM's sole and jointly sponsored sessions accounted for about 40% of the technical program. The SEPM Research Symposium for 2011 was "**Source to Sink: Evaluating the Significance of Interdependence of Depositional Systems**". At the business luncheon, John Grotzinger gave attendees a view of the upcoming Mars expedition with his "**The Search for Source Rocks on Mars**". Then at the outgoing President's Reception Mitch honored the society's 2011 medalists and the best journal papers, best poster, best oral presentation and student awardees. This year SEPM awarded three cash prizes to the 2011 top SEPM Student Posters. SEPM again offered a balanced selection of courses and trips.

SEPM Annual Meeting Committee

- Morgan Sullivan, Vice-Chair for SEPM
- Bret Dixon, Oral Session Chair
- Art Donovan, Poster Session Chair
- Kirt Champion, Field Trip Chair
- Jeff Lonnee, Short Course Chair
- Michael Pyrcz, Awards Chair
- Howard Harper, Sponsorship Chairs

Short Courses & Field Trips

Annual Meeting (AAPG - Houston)

- SEPM Short Course: Sequence Stratigraphy for Graduate Students
- SEPM Short Course: Seismic Geomorphology and Seismic Stratigraphy:
- SEPM Short Course: GIS Analysis of Facies Patterns of Modern Carbonate Sands
- SEPM Short Course: GOM Deepwater Core Workshop
- SEPM Short Course: Sequence-stratigraphic analysis of shales: Key to paleoclimate archives, subsurface fluid flow, and hydrocarbon source, reservoir, and seal.
- SEPM Trip: Central Belize Mixed Margin: Long-lived Isolated Carbonate Platforms, Young Barrier Reef on Siliciclastics, and Atolls on Karst

- SEPM Trip: Nonconventional Mudstone Reservoirs Field Seminar: South Texas
- SEPM Trip: Quaternary Depositional Systems of the East Texas Coast and Shelf

International Meeting (AAPG ICE-Milan)

- SEPM Short Course: Sequence Stratigraphy for Graduate Students

Journals

Both of our technical journals continued having great years. The Impact Factors for both journals increased again. The *Journal of Sedimentary Research* continues publishing top-quality papers under the guidance of the co-editors, Gene Rankey (University of Kansas) and Paul McCarthy (University of Alaska). *PALAIOS* under the continuing editorship of Steve Hasiotis and Edie Taylor at University of Kansas published more pages and decreased turn around time. In 2011, JP Zonneveld was elected as the new *PALAIOS* co-editor replacing Edie Taylor. 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 as well as being part of SEPM's independent online publications site www.sepmonline.org.

The Sedimentary Record, the full color member magazine, is now in its ninth year, continued under the editorship team of Ruarri Day-Stirrat and Xavier Janson of the Bureau of Economic Geology, Texas and Wayne Wright with StatOil. The *SedRec* has continued publishing a current, interesting science article as well as giving 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.

Special Publications

Under the co-editorship of Gary Nichols and Brian Ricketts, the special publications of SEPM continue to produce top of the line products. In 2011, a total of seven

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new books are either out now or planned to be published by year end. Note that SP # 99 is in production and will be the first "free access" book at www.sepmonline.org. The pipeline of future books continues to be well filled. 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.

The 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 are uploaded to the archive either when they go out of print, are 5 years old or if they are sponsored to be free access.

- **SP #95 - *Cenozoic Carbonate Systems of Australasia*.** Edited by William Morgan, Annette George, Mitch Harris, Julie Kupecz, and Rick Sarg
- **SP #96 - *Mass Transport Deposits in Deepwater Settings*.** Edited by R. Craig Shipp, Paul Weimer, and Henry Posamentier
- **SP #97 - *From River to Rock*.** Edited by Stephanie Davidson, Sophie Leleu and Colin North.
- **SP #98 - *The Permian Rotliegendes of the Netherlands*.** Edited by Jürgen Grötsch and Reinhard Gaupp
- **SP #100 - *The End-Cretaceous Mass Extinction and the Chicxulub Impact in Texas*.** Edited by Gerta Keller and thierry Adatte.
- **Field Guide #11 - *Permian Platform and Basin Outcrops fo the Guadalupe Mts. Partial Analogs for Chemical Sedimentary Rocks on the Surface of Mars*.** Edited by Charles Kerans, Mitch Harris, John Grotzinger, Ralph Milliken, and Dave Beaty.
- **CSP #10 - *Outcrops Revitalized: Tools, Techniques and Applications*.** Edited by Ole Martinsen, Andrew Pulham, Peter Haughton and Morgan Sullivan

Research Conferences

Unfortunately in 2011, SEPM did not run any research conferences, one scheduled for a Mexico location has been cancelled and not as yet rescheduled, another joint GSL conference on rifts was postponed until 2013 and a conference on *Deciphering Paleoclimatic Signals from Continental Successions* was cancelled with low attendance due to multiple competing meetings in the same time frame but is being looked at for 2013.

Hopefully, 2012 will produce more conferences, with one - ***Digital Geospatial Context for 3-D Source-to-Sink*** in late April having just opened its registration. Another is part of a joint GSA-AGU-SEPM-GSL conference on the coastal impact of sea level change being organized for 2012 and headed up by past SEPM President, John Anderson, Rice University.

Additionally, SEPM co-sponsored these scientific meetings operated by other organizations:

- **California - AGU Chapman Conference on Source to Sink Systems Around the World and Through Time**
- **India - Modern and Paleo Sediments: Implications to Climate, Water Resources, and Environmental Changes**

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

In 2011, 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 2011, SEPM increased its presence at the GSA Annual Meeting in Minneapolis, MN. The Society sponsored several oral and poster sessions and for one oral session on "Formation, Development and Preservation of Bed Morphologies" SEPM supplied funds for keynote speakers. Additionally SEPM gave out three \$500 awards to the top student presentations. SEPM will continue to expand its role at this meeting, with John Snedden named as the official SEPM representative to the joint technical committee for the 2012 Charlotte meeting.

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 is part of GSA-AGU-SEPM-GSL planned meeting on the coastal impacts of sea level change, being planned for 2012, probably in Houston. 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

Director's Report



SEPM 2011 – 2012 Council

Back Row: Tim Carr, Janok Bhattacharya, Maria Mutti, Diane Kamola, Paul McCarthy, Gene Rankey
 Front Row: Steve Hasiotis, Chris Fielding, Mitch Harris, David Budd

Table 1. – Membership Statistics

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
SEPM MEMBERSHIP											
Members	4,597	4,299	4,156	3,790	3,521	3,504	3,399	3,422	3,475	3,457	3,592
Nondues Paying Members	200	192	265	205	332	345	402	194	105	147	147
	4,797	4,491	4,421	3,995	3,853	3,849	3,802	3,616	3,580	3,604	3,739
PALAIOS MAILING LIST											
SEPM Members & Honorary (Regular)	937	906	810	812	807	848	830	775	894	903	872
SEPM Members (Students)	169	149	109	138	142	481	523	468	490	595	467
Subscribers	430	456	494	509	435	386	312	278	247	221	199
	1,536	1,511	1,413	1,459	1,384	1,715	1,665	1,521	1,631	1,719	1,538
Journal of Sedimentary Research MAILING LIST											
SEPM Members & Honorary (Regular)	2,859	2,569	2,107	2,175	2,112	2,261	2,191	2,083	2,119	2,085	1,902
SEPM Members (Students)	422	268	253	298	277	587	571	501	514	620	484
Subscribers	1,176	1,176	1,122	1,073	1,022	988	882	817	768	715	669
	4,457	4,013	3,482	3,546	3,411	3,836	3,644	3,401	3,401	3,420	3,055
NEW MEMBER INFORMATION											
Applications Completed	236	181	229	296	294	320	302	293	299	407	267
Reinstatements	15	12	10	8	20	25	20	25	22	14	14
Transfers	-	-	-	-	-	-	-	-	-	-	-
Resigned	29	14	15	45	30	15	28	10	8	4	4
Deceased	16	5	4	5	15	7	12	5	6	7	7
Dropped for non-payment of dues	236	306	713	294	336	387	495	380	408	448	619

Society Awards



Christopher Clement St. George Kendall accepts the Distinguished Service Award from President Mitch Harris

Distinguished Service Award

For extraordinary service to the Society
Christopher Clement St. George Kendall

Christopher Clement St. George Kendall has pioneered in almost every facet of carbonates and stratigraphy. He has deep knowledge of carbonates from thin section to basin scale. Major discoveries always occur at interfaces between disciplines and Chris has migrated from one interface to another apparently fearlessly and eager to learn more--all the while publishing, lecturing to a variety of audiences, and presenting short courses. He is a master button-holer cheerfully announcing each new insight to one and all. His career is more active now than ever as he enjoys his retirement from the University of South Carolina as Distinguished Professor emeritus.

His research consists of, in part, high-resolution sequence stratigraphy, facies, petrophysics, and the controls on carbonates, evaporites and clastic systems of the Holocene through Mesozoic of the Middle East and elsewhere. He has developed sequence- stratigraphic simulations of carbonate and clastic systems as they relate to changes in eustatic, tectonic and sedimentation controls. He is responsible for discovering and naming teepee structures.

At present he is building, maintains and is chief editor of the SEPM's STRATA, the world premier web site on sequence stratigraphy with thousands of visitor's worldwide visits each month. This site is the focus of short courses he and others teach within academia and in the industry <http://sepmstrata.org/>. SEPM plans to use this site as the basis of a web site on Sedimentary Stratigraphy Web. The SEPM award is specifies his computer-stratigraphic efforts but this arises from his substantial background spanning the entire discipline.

I have known Chris for about 40 years and admire his capacity for forming long-lasting friendships. His personality has not changed a whit (although he has switched from cheap beer to cheap wine). Always cheerful, always exuberant and always mischievous--the Johnny Appleseed of sedimentary geology.

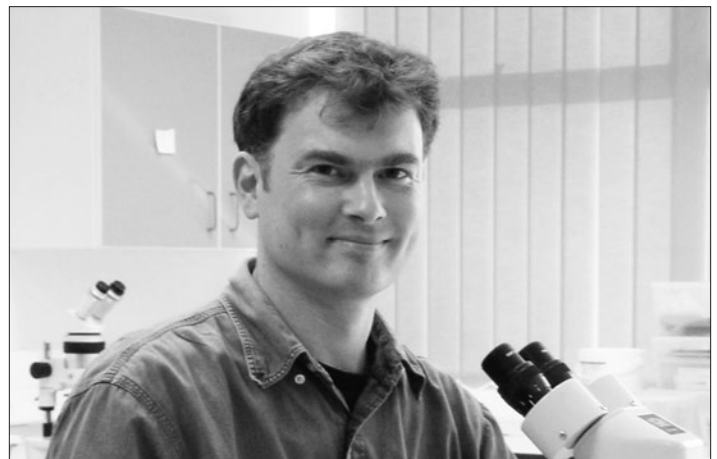
Reply from Christopher G. St.C. Kendall

My thanks to the SEPM for this Distinguished Service Award, and its recognition of my gift to SEPM of the SEPM/STRATA website on sequence stratigraphy. It is flattering and appropriate that my

arrival here on this podium follows the Gulf Coast Award to the founding members of Sequence Stratigraphy, namely Peter Vail, father of sequence stratigraphy, and his partners in this effort - Robert Mitchum and John Sangree. All these scientists influenced my career at Exxon, and they enabled me to graduate from this "University" training ground with a better understanding of the discipline sequence stratigraphy.

Though the Awards Ribbon is distinct ominous black band, I assure my friends and colleagues that instead of marking a career obituary, this award is the start of a new career for me as chief editor of the SEPM's STRATA web site on sedimentary stratigraphy.

It will be a privilege to work with SEPM and Howard Harper along with the members of the SEPM to further develop this web site, both in its redesign and the solicitation of new contributions. Our ultimate expectation is that the site will reflect the cutting edge of the sedimentary stratigraphy while encompassing new and innovative ways to display the results of our collective research in the ever growing medium of the internet web. Nassir AlNaji, my cohort in building this site, and I, hope that this site will inspire and provide education to young geologists while encompassing an encyclopedic format for those seeking new information or insight into thorny and often controversial nomenclature.



Richard John Twitchett accepts the James Lee Wilson Award

James Lee Wilson Award

For Excellence in Sedimentary Geology Research
by a Young Scientist
Richard John Twitchett

Richard has an excellent background in geology and biology, gaining a BSc Joint Honours degree at the University of Bristol. Awarded the Stanley Smith Prize for Paleontology in 1993, Richard moved on to the University of Leeds where his PhD research was supervised by Professors Paul Wignall and Jane Francis. His PhD was awarded in December 1997 for a multidisciplinary, largely field-based study of Early Triassic palaeoenvironments in the Dolomites of northern Italy. This work primarily focussed on the recovery from the end-Permian extinction event(s) and set the foundation for a career-long interest in the Permian-Triassic boundary and the recovery from extinction events in general.

Society Awards

From October 2003 to September 2005, Richard was at the University of Tokyo, on the first leg of a Royal Society 2 + 2 Japan-UK Fellowship, before returning to the University of Plymouth and subsequent promotion to a Readership in September 2008.

Richard's main interests focus around understanding the evolution of the Earth's biosphere, in particular how marine ecosystems responded to environmental and climatic changes associated with the major extinction events of the Phanerozoic. His present research largely revolves around the paleoenvironmental and paleoecological analysis of Permian through to Early Jurassic depositional environments, microfossils and trace fossils from field- and museum-based studies.

Richard has published ~50 peer-reviewed research papers in leading journals, including two in Science. Several of his papers have been highly cited and established him at the forefront of his generation. His research is almost always field-based, including Italy, Slovenia, Greenland, Svalbard, USA, Oman, Japan, China, Australia, Russia and Chile.

Richard is a member of many scientific societies, including The Palaeontological Association (a Council member since 2006), the Geological Curators Group, Geological Society of America, Palaeontological Society of Japan, Society for Sedimentary Geology (SEPM) and The Paleontological Society.

Biographer: Malcolm Hart

Citation: In recognition of Dr. Richard Twitchett's contribution to paleobiology, the understanding of extinction events and the recovery of ecosystems after crises.

Reply from Richard John Twitchett

First and foremost I would like to thank the Society for this award, and Malcolm Hart for putting my name forward. Unfortunately, I never met Dr. Wilson, but it is both humbling and a great honour to receive an award in his name, and I hope that my career turns out to be as productive.

Like Dr Wilson, my interest in geology and palaeontology began in early childhood, a decade before my first undergraduate lecture. Thanks to the support of my parents, I was extremely fortunate to be able to spend school holidays collecting fossils on the Isle of Wight in southern England. At first I focussed on sharks' teeth and ammonites from the Cretaceous Chalks, but soon turned most of my attention to the Lower Cretaceous dinosaur remains for which the Island is renowned. A dream hobby for any young boy!

It was at that time that I had the great fortune to meet the first of the many individuals who have shaped and influenced my career over the years and without whom I would not be where I am today. Stephen Hutt, the curator of the then Museum of Isle of Wight Geology, agreed to take me on as a volunteer. Aged 12, my first task was to assist with the display of an *Iguanodon* skeleton, and while cutting phalange-shaped holes out of polystyrene may not be a particular skill that I still use today, over the next six years Steve taught me so much about fossil collection, excavation, preparation, and curation that continues to be of immense use. Later, as an undergraduate at Bristol, I was equally fortunate to have as my mentors two of the giants of palaeontology: Derek Briggs and Mike Benton. Both have been, and continue to be, invaluable supporters and wonderful role models.

My work on extinction events and recovery began at Leeds with my

PhD under the guidance of Paul Wignall and Jane Francis. The project ignited an interest in Permian-Triassic ecosystems and environments that continues to burn to the present day. Having a breathtakingly beautiful field area in northern Italy helped too. Paul, and colleagues in Leeds at the time such as Mike Leeder, greatly improved my understanding of sedimentology and environmental analysis, which better equipped me to address some of those truly exciting extinction-related questions that require a multidisciplinary approach. Post-PhD, I was fortunate to be awarded a Lindemann Trust Fellowship to spend 12 months in Dave Bottjer's lab, and later a Royal Society/JSPPS fellowship to spend two years with Tatsuo Oji in Tokyo. All of these individuals, and those I met through them, are thanked for their influence and support over the years.

As I move from a 'young' to, presumably, a 'not-so-young' scientist, it's fantastic to see how many truly excellent students of sedimentary geology are making their way up through the system. Our subject is flourishing, and I look forward to seeing their names as future awardees. Thank you once again for this very special award.



Dag Nummedal accepts the Honorary Membership Award from President Mitch Harris

Honorary Membership For contributions to the science and SEPM Dag Nummedal

Honorary membership in SEPM for Dag Nummedal recognizes his outstanding service and leadership to the Society, diverse technical publications in the field of sedimentary geology including notable contributions in modern coastal systems and sequence stratigraphy of lacustrine to shallow water reservoirs, and his inspirational teaching and mentorship.

Dag has served SEPM as Research Councilor and President. He has also supported the society in roles as research symposium organizer, member of the education, nomination, technical program, and continuing education committees, as well as research group organizer and leader of SEPM field trips.

His varied but significant scientific contributions in the fields of sedimentary geology include modern coastal processes, ancient lacustrine depositional systems, shallow marine sequence stratigraphy, tectonics and sedimentation, planetary geology, unconventional gas, and carbon sequestration.

Society Awards

Dag's early contributions on coastal morphodynamics along the eastern USA, Gulf of Mexico, Iceland, Alaska, and Germany are still widely cited. This work led Dag to consider how to apply insights from the modern to Cretaceous ancient equivalents in the Western USA. The intensive fieldwork effort along with his numerous LSU students established the San Juan Basin and Four Corners Platform as a natural laboratory for understanding ancient shallow marine depositional architecture. In parallel with rapidly evolving ideas from sequence stratigraphy, he developed key concepts on transgressive stratigraphy at sequence bounding unconformities and ramp margin depositional systems which are still employed today.

Author of nearly 100 refereed papers, Dag also edited SEPM special publication No. 41, *Sea-Level Fluctuation and Coastal Evolution* as well as 20 books and major publications. Dag was selected as AAPG Distinguished Lecturer for Western Europe in 2002 and has been invited keynote speaker at several major technical meetings.

Dag is currently Director of the Colorado Energy Research Institute at the Colorado School of Mines and also serves as director of the Carbon Management Center, a part of the Colorado Renewable Energy Collaboratory. His success in forging integrated energy research partnerships within and between CSM and industry, national labs and federal and state research agencies is notable. This current effort was preceded by a diverse career in academia and industry, including stints as research scientist at U. South Carolina, visiting scientist on the JPL Viking Mars Lander team, full professor at LSU, Manager of E & P technology at Unocal, and Director of the Institute for Energy Research at U. Wyoming. While at LSU, Dag supervised over 25 theses and dissertations, served on 60 other committees, and continues that mentoring role now at CSM. His enthusiastic teaching style has inspired a generation of researchers and those applying stratigraphic principles to the subsurface. Dag's continuing service to national, state and local commissions ensures that both SEPM and the field of sedimentary geology are well represented in the decision making process by these key legislative bodies. His ability to work with diverse groups of people in these venues is well known. Dag's vision on the evolving role of sedimentary geology and future research into non-traditional energy resources continue to impress workers in these arenas.

Of course, without the loving support of his wife Alicia and daughter Natasha, Dag's service to our society and his contributions to sedimentary geology would not have been possible.

Biographer: John W. Snedden

Citation: For sustained service to SEPM as a visionary leader, producer of scholarly works, and inspirational teaching and mentoring of a generation of sedimentary geologists.

Reply from Dag Nummedal

It is with a deep debt of gratitude that I accept this honor from SEPM. Fourty years ago this society opened the door for me to the community of sedimentary geologists, and it has been a marvelous journey ever since – it still is. My many professors and colleagues along the way have greatly impacted my career, of course, yet it is really my many graduate students who have taught me the most by helping ask the difficult scientific questions. Among those, a very special appreciation goes to John Snedden for his gracious citation for this award.

What has kept my personal attention for these many years are three

attributes that continue to make SEPM special: it is focused on the fundamental science questions regarding sedimentary processes and products, it is large enough to be global in all its perspectives and activities, and it is small enough to build friendships and very open exchanges of viewpoints with one another. During my successive roles in SEPM: coastal research group chair, sequence stratigraphy research group co-chair, co-editor of a couple of special publications and president, it was and is the open and inquisitive scientific culture among the society's members that differentiate it from most other related associations.

Universities, too, have played a very big role in my life - and still do. I have studied or formally taught at the Universities of Oslo – Norway, Illinois – Champaign-Urbana, South Carolina, LSU (the most durable of them all), University of Wyoming, and now at the Colorado School of Mines – and taught intermittently at many, many more. I also had a great five years at the Unocal Corporation in California and Texas. I owe great debts of gratitude to all of these employers and the many wonderful colleagues. I would happily run the entire course all over again.

As you can tell I have been restless – perhaps it is my old Viking blood, they never stayed in one place either. Perhaps it is a life-long search, not for loot and booty, but for scientific insights and products that yield some intellectual satisfaction to the investigator and, I hope, a bit of value to society. I believe that our coastal geology group at the University of South Carolina under the leadership of Miles Hayes added such value in its emphasis on the fundamental processes of coastal sedimentation. The vibrant coastal and shallow marine geology community at LSU provided a fertile research environment and great students for a young professor. Together we tackled (and solved?) many problems in continental shelf storm sedimentation (John Snedden did all the hard work on that problem), highstand barrier islands and lowstand shelf-margin deltas (John Suter taught me everything I will ever know about those). My close industry colleagues in those years, Don Swift and Rod Tillman, got me intrigued by the mysteries of shallow marine “isolated sand bodies” in the Western Interior basin and students like Greg Riley, Ming Pang and many others solved some of those. Ming Pang, in fact, also was instrumental in helping refocus some of my research on geodynamics, particularly how the gravity pull of descending slabs is the dominant basin forming mechanism along active continental margins. My fascination with this issue continues, and another Chinese colleague, Shaofeng Liu, and I still actively pursue geodynamics research.

Again, it was probably restlessness that pulled me into industry; and they in turn pushed me back into academe, right into my favorite geological province where I have enjoyed a marvelous decade helping build cross-disciplinary research teams in the energy sciences, at a time when our society is so strongly focused on cleaner, more diverse and more secure energy sources. SEPM's many members have taught me to stick to the data when analyzing problems. Here at the Colorado School of Mines we try to do exactly that in energy research, and avoid the many associated politicized hyperbolae. When you do, science and engineering findings often come out at odds with what society's decision makers would like to hear. Hopefully, forty years in SEPM has taught me to have enough confidence in the scientific method, and the sanctity of good data, to weather push-backs on unpopular findings.

Thank you, SEPM, both for the honor of this award and the life-long education the society has provided me.

Society Awards



Miriam Kastner accepts the Francis P. Shepard Medal from President Mitch Harris

Francis P. Shepard Medal For Sustained Excellence in Marine Geology Miriam Kastner

Miriam Kastner is an extraordinarily gifted marine geologist and geochemist who has made major contributions to marine geology and ocean chemistry. In honoring her, the SEPM also recognizes the critical role marine geochemistry plays in understanding the deposition and diagenesis of marine sediments, as well as the major ocean cycles that determine the nature of the stratigraphic record.

Born in Bratislavia, then part of Czechoslovakia, Prof. Kastner grew up in Jerusalem where she received her early geological and geochemical training at The Hebrew University, following which she completed Ph.D. studies at Harvard working with Ray Siever. After a post-doctoral stint at the University of Chicago, she assumed a position at the Scripps Institution of Oceanography where she remains as Distinguished Professor of Earth Sciences.

Her earliest major discoveries focused on authigenic silicates, including seminal work on silica phase changes in biosiliceous sediments. Subsequent research advanced understanding of dolomitization and the origin of phosphorites in marine deposits. This work on authigenic minerals and diagenetic processes underpins our current understanding of cherts, dolomites, and phosphorites, and showed the importance of these lithologies for reconstruction of past oceanic conditions. Her more recent research, on authigenic barite as a proxy for seawater chemistry and paleoproductivity, and on fluids in subduction zones and ridge flanks, is at the forefront of geochemistry, and she is a recognized leader in these fields, from fieldwork to interpretation. Important results from this body of work include establishment of a high-resolution seawater sulfur-isotope record for the past 120 million years, understanding low-chloride fluids, recognition of fluid conduits that originated from great depths, and significant new insights on the formation and decomposition of gas hydrates.

Continuously productive for over three decades, she is the author or co-author of over 160 articles and reports, has participated in numerous research cruises, including 13 ocean drilling voyages, and has played a major leadership role in the marine geosciences through service on dozens of national and international panels and in vigorously promoting seafloor instrumentation and long-term

monitoring of sub-seafloor fluid flow. Each of her research topics and advances has been connected to her many students who themselves went on to distinguished careers. Much of their success stems from their exposure to Prof. Kastner's unique combination of rigorous field, analytical and experimental approaches to important scientific problems.

Biographers: Robert Garrison and Wolfgang Berger

Citation: In recognition of the geological and geochemical expertise she has employed in greatly enlarging our understanding of sediment deposition and diagenesis as well as fluid flow through sub-seafloor sediments and rocks, along with continuous high-level service to the marine geological community.

Reply from Miriam Kastner

I am extremely grateful to have been chosen as the recipient of the Francis P. Shepard Medal. I did have the opportunity to briefly meet Francis Shepard shortly after I joined the faculty of Scripps Institution of Oceanography (SIO), and feel greatly privileged to receive a medal in his name- sharing his passion of ocean exploration and research. I am honored and humbled to be in the company of many outstanding scientists who have been awarded the prestigious Francis Shepard Medal before me.

I grew up in Israel, and started my higher education as an undergraduate student at the Hebrew University, in Jerusalem. I was fortunate to receive a generous scholarship from Harvard University for my Ph.D. in Earth Sciences, for the duration of my stay there. At Harvard the challenge to understand complex processes and to focus on the broad perspectives was stimulating and rewarding.

Close to the completion of my Ph. D. degree at Harvard University the possibility of getting a prime job in academia looked rather bleak for graduates of my gender. Unexpectedly, I was the first woman to be invited to join the renowned faculty of SIO, where I briefly met Francis Shepard, and this had a profound influence on my career. This position provided me with extraordinary possibilities to engage in new research with state of the art facilities and great seagoing opportunities.

I am fortunate to have been able to work with great colleagues and with numerous talented and energetic graduate students and post doctorate fellows at SIO with whom I have explored a spectrum of topics, with emphasis on the various aspects of marine sediment geochemistry, authigenesis and diagenesis, with implications for chemical paleoceanography, on submarine hydrothermal deposits, the role of fluids and C cycling in convergent margins, including the significance of gas hydrates for slope stability and global change. Without them I would not be standing here today.

When I received the notice that I was selected to receive the Francis Shepard medal, the most touching and moving thought I had was that some of my colleagues thought that I am worthy of this medal and were willing to spend their busy time to nominate me. The achievements that were cited by those who nominated me for this award and recognized by the awarding committee were the work of many people, largely of my students, post doctoral fellows, and skilled laboratory personnel.

It would be remiss if I did not acknowledge the long-term financial support of my research by various funding agencies, NSF, DOE, ONR and the ACS.

Society Awards



Barun K. Sen Gupta accepts the Raymond C. Moore Medal from President Mitch Harris

Raymond C. Moore Medal For Sustained Excellence in Paleontology Barun K. Sen Gupta

In a distinguished paleontological career that has spanned more than four decades, Barun Sen Gupta has established a record of outstanding contributions to the field of foraminiferal micropaleontology that makes him a richly deserving recipient of the Raymond C. Moore Medal for Sustained Excellence in Paleontology. His research interests transcend the divide between the modern and the ancient, with a body of work that has significantly advanced the application of foraminifera to scientific problems in ecology, paleoecology, and stratigraphy.

Barun has been H. V. Howe Distinguished Professor Emeritus at Louisiana State University since his retirement in 2003. He joined the faculty at LSU in 1979 after a decade at the University of Georgia (1969-1979), a fellowship at the Bedford Institute of Oceanography in Canada (1966-1968), and teaching positions at the Indian Institute of Technology (1955-1966). His education includes B.Sc. (1951) and M.Sc. (1954) degrees from Calcutta University, an M.S. degree (1961) from Cornell University, and a Ph.D. from the Indian Institute of Technology (1963). He is the recipient of a Fulbright Netherlands Award (1992-1993), a GSA W. Storrs Cole Memorial Award for Research (1995), and a Joseph A. Cushman Award for Excellence in Foraminiferal Research (2005).

Barun's record of scientific accomplishment is rooted in stratigraphic micropaleontology and has contributed greatly to our understanding of the ecological significance of Recent and Quaternary benthic foraminifera. His early research on the taxonomy and biostratigraphy of larger foraminifera established the first standard zonation for the Paleogene of Kutch, India. His work on the foraminifera of polluted estuaries in the late 1960s represents some of the earliest research on what is now called "environmental micropaleontology." In the 1970s, his projects on modern foraminifera of the mid-Atlantic Bight advanced the application of quantitative methods to understanding the distribution of benthic foraminifera relative to environmental parameters. His research in the 1980s identified the effects of global paleoceanographic events in deep basins of the Caribbean Sea and Gulf of Mexico using foraminiferal records, as applied fossil foraminiferal records to delineate the evolution of sedimentary basins

in Central America and the Greater Antilles. Since the 1990s, Barun has investigated the foraminiferal record of unique environments associated with hydrocarbon seeps and coastal low-oxygen settings. He continues to find interesting projects to pursue, writing articles and conducting studies of foraminifera living at offshore oil platforms and in areas affected by the 2010 Gulf of Mexico oil spill. This sustained scientific excellence has resulted in more than 100 articles, book chapters, and reports. Among the most significant is the book *Modern Foraminifera* (1999), which Barun organized and edited in addition to authoring several chapters.

As graduate advisor for 24 M.S. and 10 Ph.D. students, his scientific guidance and mentorship prepared several generations of students for careers in academia, industry, government, and other fields. He is a dedicated and award-winning teacher who has a knack for connecting with undergraduate and graduate students alike.

Biographer: Peter McLaughlin

Citation: To Barun K. Sen Gupta, in recognition of his fundamental contributions to science in the study of modern and Cenozoic benthic foraminifera and a distinguished career as a respected educator and scientific mentor.

Reply from Barun K. Sen Gupta

Thanks Pete, for the kind words in the awards booklet, and thank you, SEPM, for the great honor. I am most grateful.

I will start with a confession. I am an accidental paleontologist. As a kid, I loved rocks, but growing up among Archean granite gneisses of the Indian peninsula, I didn't see any fossils. Even in college, I was mainly interested in petrology. But after I finished my Master's at Calcutta University, I was desperately looking for a teaching job, and the Indian Institute of Technology, Kharagpur—then a new national university—had an open instructorship in micropaleontology. I applied, and to my surprise, was chosen for the job. The contract involved research, and I designed a Ph.D. project on the biostratigraphy of Paleogene larger forams. The fieldwork, in a remote corner of Kutch, was manageable, but I soon realized that my self-directed taxonomy wasn't good enough. Luckily, the U.S. Agency for International Development came to rescue, and supported a 15-month training program at Cornell with the great man of larger forams, W. Storrs Cole. When I went back to India, I knew how to probe inside nummulitids and discocyclinids.

My next lucky break came in 1966, when the National Research Council of Canada gave me a two-year postdoctoral fellowship at the Bedford Institute of Oceanography. At this point, my interest had to shift to smaller benthic forams, and I ventured on an ecological study in the Grand Banks. This transition was relatively painless, because I possessed a magnificent book by Alfred Loeblich and Helen Tappan. That book was the forams part of R. C. Moore's *Treatise on Invertebrate Paleontology*. In addition, new friends provided ungrudging support. To name just two of them, Gus Vilks helped me with taxonomy, and Charlie Schafer taught me how to enjoy life while working hard. Gus is now gone, but my friendship with Charlie and the friendship between our two families remain strong. Ever since that exciting time in Nova Scotia, my preoccupation has been with small benthic forams.

Now more gratitude. First, to my wife Poree—who has taken care

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of me and our home for 54 years—and to our two children, Sagaree and Upal. All three have taken my long absences with remarkable tolerance, and have dealt heroically with the upheavals I created with job changes and emigrations. At the University of Georgia and Louisiana State University, I have learned a lot from people I worked with—geochemists, ecologists, biologists, sedimentologists, and paleontologists. And I fondly remember the generosity of colleagues at my sabbatical shelters—the Universities of Bordeaux, Utrecht, and São Paulo, and the Petrobras Research Center in Rio de Janeiro. But the people who have made the biggest impact on my professional career are my graduate students and postdocs. Our interaction in the field and lab has been splendid, but I prize most the affection they have shown me through the years.

As for paleontology, although our long relationship started accidentally, it has always been sweet. With that thought in mind, I humbly accept the Raymond C. Moore Medal.



David M. Rubin accepts the Francis J. Pettijohn Medal from President Mitch Harris

Francis J. Pettijohn Medal For Sustained Excellence in Sedimentology David M. Rubin

David M. Rubin began his geological career in New York State. With a physicist father and a prominent astronomer mother, he was a natural-born scientist, and collecting rocks as a 10-year old generated an interest in geology. He undertook both Bachelor's and Master's degrees at the University of Rochester where Bob Sutton sparked his interest in sedimentology. He followed with a PhD from the Rensselaer Polytechnic Institute under the guidance of Gerry Friedman.

Dave combines the skills of a field geologist with an understanding of mathematics that is beyond most of us, and he applies these capabilities to provide new insights into the generation and movement of bedforms, formation of stratification, interactions between bed sediment and suspended sediment, and grain-size analysis from digital images.

He is remarkably versatile - his contributions span diverse topics that range from early Paleozoic carbonates to cross-stratification in Martian sedimentary rock. His ingenuity has led to a number of new techniques and devices for measuring sediment transport in the field, for example, a new theory and equations for calculating the grain size of bed sediment from the concentration and grain size of suspended sediment.

His work on Colorado River sediment in the Grand Canyon has made a major impact on the understanding of how this system works and how to conserve it. Dave led a large interdisciplinary, multi-institutional, project that sought to mitigate the environmental damage engendered by flow restriction of the Colorado River. In 2004, he co-designed an experimental flood that partly restored some of the losses of useable land and habitat within the canyon and his resulting paper still guides experimental flood plans in the Canyon

Dave's impact on the field of sedimentology is exceptional. His contribution on the graphic computer modeling of bedforms gave us exceptional insight on the origin and nature of their internal structures. Bob Dalrymple, in a review, described his book on this subject as "one of the most important contributions to our understanding of bedforms, cross-bedding, and stratal architecture in many years... a major new contribution to the subject". This work is used globally in sedimentology classes and has found broad application in academic and commercial studies of paleogeography, paleoclimate, granular physics, and interpretation of sedimentary structures. His experimental study of bedform alignment, published in *SCIENCE*, presented a new theoretical treatment of how combinations of flow vectors control bedform alignment and was the first to show how such flows create oblique bedforms.

Dave is a renaissance scientist whose contributions transcend the field of geology. His paper on nonlinear prediction of spatial patterns has been cited in papers spanning a remarkable range of topics: physics, statistics, marine biology, DNA sequencing, the housing market, laser welding, and human motion. His invention for digital grain size analysis, the "Underwater Microscope System", is currently on display at the San Jose Tech Museum.

Biographer: H. Edward Clifton

Citation: For remarkably innovative and inventive contributions that have had a major impact in the field of sedimentology; understanding the orientation, morphology, motion, and stratification of ripples and dunes; and in understanding and managing sediment transport in Grand Canyon, one of the nation's greatest natural treasures.

Reply from David M. Rubin

I am truly honored to receive the Pettijohn Medal from SEPM. It is a great privilege and is particularly meaningful to me because of three connections to Francis Pettijohn, without whose indirect influence I would not have become a sedimentologist. I entered University of Rochester as a physics student and took several geology classes to fulfill general science requirements. Bob Sutton (Pettijohn Ph.D. 1956) taught a sedimentology class that was so inspiring it convinced me to change my major to geology and specialize in sedimentology. After an M.S. with Sutton followed by a Ph.D. with Gerry Friedman at RPI, I started work as a postdoc with Dave McCulloch at the USGS in Menlo Park. Ed Clifton (Pettijohn Ph.D. 1963) was director of the lab and hired me permanently in 1975. At the USGS, I worked closely with Ralph Hunter (Pettijohn Ph.D. 1960). I learned more from working with Ralph than I have from working with anyone else, and it was a pleasure and inspiration to collaborate with him. As we noted in our first paper together, first author was determined by a coin toss, and all of our work together was truly collaborative.

In 1970, I asked a U of Rochester classmate out on a date to hear the

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Grateful Dead performing on campus. I explained to Michelle that if the music went too late, we would have to leave temporarily to go to the geology lab; I needed to maintain the sampling schedule of a sedimentology lab exercise on settling-tube analysis (taken from Krumbein and Pettijohn's book). We did, in fact, leave the music for awhile to take the sediment sample. We were married two years later, and during the 4 decades since then, Michelle and our two children have joined me on sedimentology trips in Tonga, Japan, the Strezlecki and Simpson Deserts in Australia, Grand Canyon, and throughout the Colorado Plateau. I was particularly pleased to receive from SEPM a Pettijohn-autographed copy of the book that details the procedure for settling-tube analysis that I used for Bob Sutton's lab exercise that night in 1970.

I thank my parents for nurturing an interest in science, Serge Berne for nominating me for this award, and my colleagues who wrote supporting letters. The USGS has supported my work for 36 years and enabled me to work on a wide variety of sediment problems. I would also like to acknowledge the numerous colleagues with whom I have shared time in the lab or in the field. In particular, I have had great experiences puzzling over sedimentary structures in trenches in Grand Canyon with Johnnie Moore, Jack Schmidt, Hiroshi Ikeda, Roberto Anima, Jon Nelson, David Topping, Ted Melis, Hank Chezar, Amy Draut, Jessie Lacy, Dan Hanes, Scott Wright, and Dan Buscombe.



Walter E. Dean, Jr. accepts the William F. Twenhofel Medal from President Mitch Harris

William F. Twenhofel Medal For a Career of Outstanding Contributions in Sedimentary Geology Walter E. Dean, Jr.

Born and raised in the coal country of Wyoming Valley in northeast Pennsylvania, Walter Dean perhaps was destined to study organic-rich rocks. He obtained his Bachelor of Science degree at nearby Syracuse University, followed by an MS and PhD at the University of New Mexico and a postdoc at the University of Minnesota. After a stint in the academic world as a professor back at Syracuse, he moved to the U.S. Geological Survey (USGS) in Denver in 1975, where he spent the rest of his career. Early influential mentors for Walt included Roger Anderson, Herb Wright, and Eville Gorham. Always collaborative, he worked with a wide variety of students, postdocs, and colleagues;

his long-term collaborations with Mike Arthur, Platt Bradbury, Jim Gardner, and Kerry Kelts were especially productive.

In addition to his academic and government research experience, Walt Dean played a major leadership role as Chief of the Sedimentary Processes Branch from 1988-1992. Despite this administrative load, his research output was little affected. He flourished in the USGS system because his work plans promised more than most people could imagine, and he typically accomplished these goals in half the time promised. He used his remaining time to fuel his insatiable curiosity about how sedimentary geochemical systems worked.

Walter describes himself as a paleolimnologist and paleoceanographer with an abiding interest in paleoclimatology. Several other themes run through much of his research. Perhaps foremost is his fascination with cyclic sedimentation, especially varves-annually laminated sediments. Because varves are commonly associated with low oxygen conditions, his interests led naturally to sedimentary environments, both marine and lacustrine, where oxygen is at least seasonally depleted. Beginning with his PhD research on the Permian Castile varved evaporites, he worked in marine environments such as the California and Peru margins, the Black Sea, Cariaco Basin, and the Gulf of California. Among his lacustrine research, his work on the Eocene Green River Formation and on Elk Lake are especially noteworthy. The latter culminated in the seminal Geological Society of America Special Paper "Elk Lake, Minnesota: Evidence for Rapid Climate Change in the North-Central United States," which he co-edited with Platt Bradbury. Elk Lake also was typical of the way that Walt worked: despite its scientific success, the project was largely bootlegged over the course of about 20 years, on a shoestring of USGS and academic funding with 18 academic colleagues. If it was interesting, Walt would find a way to do it, inspiring others along the way.

Closely related to his interests in varves and low-oxygen sedimentation were his work with carbonates and organic-rich, or "black" sediments, one of Twenhofel's fascinations. Many years of work on the Cretaceous black shales of the western U.S. led to a classic 1998 SEPM special publication, edited with Mike Arthur, "Stratigraphy and Paleoenvironments of the Cretaceous Western Interior Seaway." In researching the geochemistry of these topics: varves, low-oxygen sedimentation, and black shales, Dean made long-lasting contributions to many of our concepts in sedimentology. The annual resolution of varved sediments led to his work on these sediments as records of past climate on a variety of time scales. His work on deposition of organic carbon and carbonates in both the oceans and in lakes led to conceptual advances in both hydrocarbon resources and global biogeochemical cycles.

Walt Dean has always been a model for research productivity. He has contributed over 200 refereed publications, and has an "h-factor" of >30. His many internal USGS awards culminated in 2006 with the Department of Interior's Meritorious Service Award. He also received a Lifetime Achievement Award from the International Paleolimnology Association in 2009. He is well known for his organizational skills and was a pioneer in collaborative research using multiple analytical methods to reconstruct paleoenvironments. He was a participant in many DSDP cruises and was an important player in the efforts to bring DSDP-style coring to the sediments of modern lakes. Many thought Walt at his best in a heated discussion of geochemical principles over a

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drink at the end of the day. His long and productive career in academia and government research was liberally punctuated by such moments, and a large number of teachers, students, and fellow researchers remember them fondly.

Biographers: Steve Colman and Beth Gierlowski-Kordesch

Citation: For his invaluable practical and conceptual contributions to sedimentary geochemistry applied to paleolimnology and paleoceanography in a wide range of environments. These include marine and lacustrine settings, Permian to modern ages, and in milieu ranging from anoxic marine to oxic fresh water, and topics ranging from hydrocarbon genesis and preservation, to climate change on a variety of time scales, and to global biogeochemical cycles, especially that of carbon.

Reply from Walter E. Dean, Jr.

Thank you, Mitch, for that kind introduction, and Beth and Steve for putting together my biography, and to all of the other folks who were involved in the nomination. I am humbled, delighted, and honored to accept this most impressive medal from SEPM as a representative of all those in the Sedimentary Geology community whose creative insights continue to make the study of sediments and sedimentary rocks inspiring.

Between my junior and senior year at Syracuse University as a geology major I took a field course through the University of Wisconsin lead by Bob Dott, another Twenhofel Medalist, but then a young Assistant Professor. We spent six weeks mapping and describing sedimentary rocks from South Dakota, Wyoming, Utah, Idaho, and Nevada. I fell in love with the west and sedimentary rocks. In my senior year I took a course in Stratigraphy and Sedimentation from Bill Merrill using the recently published text by Krumbein and Sloss. That cemented my desire to continue graduate work in sedimentary geology. And so, in the fall of 1961, my young wife Beverly and I drove our '55 Chevy to Albuquerque, New Mexico. During my first semester in Graduate School at University of New Mexico I took a course in Sedimentology from Sherm Wengard using Twenhofel's 1939 text on *Principles of Sedimentation*. I thought that's a little dated isn't it? However, as I got into Twenhofel's text I found that there was a lot of material there. I supplemented Twenhofel's text with Pettijohn's text on Sedimentary Rocks. I should point out that in 1926 the publication of *Twenhofel's Treatise of Sedimentation* and the creation of the Society of Economic Paleontologists and Mineralogists marked the beginning of modern sedimentology.

In addition to Sedimentology, Sherm had courses in Sedimentary Petrogenesis and Stratigraphic Analysis. Roger Anderson, the newest faculty member, taught Micropaleontology and Palynology that were of marginal interest to me at that time. However, little did I know that during my whole career dealing with sediments and rocks from both lakes and oceans, I would rely heavily on micropaleontologists and pollen peakers. I audited Roger's courses but never formally took them. I discovered the real Roger Anderson through a series of evening seminars. Because I was working full time, most of my Masters Degree course work was from those seminars, several taught by Roger. While I was at those seminars, Beverly was at home baking bread. The best part of those seminars was coming home to the smell and taste of fresh baked bread in the house. Our first son Scott was born in 1962.

From Roger I learned all about cyclic sedimentation and especially those annual cycles or varves. It also helped that an older graduate student, Doug Kirkland, came back from the oil patch in Farmington, New Mexico and was working on his PhD under Roger on the Pliocene Rita Blanca varved lake beds in the Texas panhandle.

In 1964, Roger and Doug, then a postdoc, with an NSF grant cored several holes in the upper Permian Castile varved anhydrite in the Delaware Basin of west Texas, and were able to correlate individual varves many km between holes. Also about that time John Platt Bradbury, who would become a friend and colleague for the next 40 years, came back to graduate school after a stint in the Park Service. Doug Kirkland convinced John to take on Zuni Salt Lake, that occupied a cryptovolcanic crater or maar in west central New Mexico, as a doctoral dissertation project.

I feel that I was a beneficiary of Sputnik, that satellite the Russians shot into space in 1958. After John F. Kennedy was elected president in 1960, he vowed to put a man on the moon by the end of the decade. That was a swift kick in the pants of science and technology and NASA was born. To train more scientists, universities were given NASA Predoctoral Traineeships. I don't know how many NASA Traineeships New Mexico was awarded, but about all you had to do is write a proposal and you were almost guaranteed to get a fellowship. Bradbury and I, with the help of Doug and Roger, wrote proposals and got funded. So that launched Bradbury's study of Zuni Salt Lake and mine on the Castile varved anhydrite. At the time of deposition of the Castile, the Delaware Basin was essentially a large saline lake fed with seawater through a leak reef. This was my introduction to both paleolimnology and paleoceanography. Roger got another NSF grant for further studies of the Castile. Roger and Doug had cored the lower part of the Castile, but with Roger's new grant we were able to core the whole formation in holes in west Texas. Bradbury and I finished our doctoral dissertations in 1967, and wanted to know more about lakes and paleolimnology. This was also a passion of Twenhofel's, which, together with the pioneering limnology studies of Birge and Juday, helped put the University of Wisconsin on the map for lake studies.

Bradbury got an NSF postdoc to study Mexican and Central American lakes with Ed Deevey at Yale. Unbeknown to John, Ed Deevey had gone to NSF, so John was under the nominal direction of the famous G.E. Hutchinson, and then the next year he took a postdoc at the Limnological Research Center at Minnesota. I got a postdoc in the Botany Department at the University of Minnesota to work on lake sediments with Eville Gorham who was Chairman of the Botany Department at that time. Eville and his graduate student, Jon Sanger, had selected 50 lakes throughout Minnesota that they thought would be representative of the 15,291 lakes in the state. They had done water chemistry of those lakes and Jon had run plant pigments on the sediments. Eville wanted somebody to do geochemistry and mineralogy of those lake sediments, and that was me. Some of the first lakes I sampled were in Itasca State Park, the headwaters of the Mississippi. A couple of graduate students had pontoon boats anchored on two lakes. I cored the first lake, Mina Lake, which was on Eville's list, and it was varved. I cored the second lake, Elk Lake and it was varved? Elk Lake wasn't on Eville's list but I put it there. I asked myself are all lakes in Minnesota varved? Turns out that very few are. I went back to Elk Lake that winter with Herb Wright and some graduate students to take piston cores. Because the lake was so deep, we were only able to get 10

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m of core, but Elk Lake was to occupy a significant part of my career for decades. More on that later. Our second son Kevin was born in Minneapolis in March, 1968. That year with Eville launched a whole new phase of my career in paleolimnology that continues today.

After Minnesota in 1968 I was hired as an Assistant Professor in chemical sedimentology in the Geology Department at Syracuse University. When I got to Syracuse, for some reason I acquired the reprint collection of Earl Apfel, a retired contemporary of Twenhofels teaching similar courses in stratigraphy and sedimentation. Eventually I threw them all out except this one, a 1939 paper in the Journal of Sed. Pet. by Twenhofel and McKelvey entitled *The sediments of Devil's Lake, a eutrophic-oligotrophic lake of southern Wisconsin*. I note that in 1930 Twenhofel co-founded JSP,

I taught one section of Physical and Historical Geology and Graduate courses in Chemical Sedimentology, Isotope Geochemistry, and Stratigraphic Analysis. After a couple years I added an undergraduate course in Oceanography and Limnology and an upper-division undergraduate/graduate course on Geology of the Algae co-taught with a biologist. That course was taught every other fall, then in the following spring I taught Carbonate Depositional Environments that included spring break in South Florida. We would start out on Fisher Island in Miami where Noel James and Bob Ginsburg, Two other Twenhofel Medalists, put on a fantastic show-n-tell.

I had a research leave after five years, which made me realize that I had to get back into research and back out west. Then in 1974 I got a call from Jon Connor who was Chief of the Branch of Regional Geochemistry with the USGS in Denver. He was looking for a recent graduate student with backgrounds in geochemistry and statistics. I had one but he was an Indian and therefore didn't qualify for Federal Employment. I said how about me. He said you're over qualified for this position, but we might have a position to work on the geochemistry of oil shale at a higher grade; if so I'll call you.

After the publication of the results of DSDP Leg 13 in the Mediterranean and the theory that the Med had dried up, I had some lively discussions with Bill Ryan at Lamont, who was co-chief scientist on Leg 13, about shallow-water versus deep-water evaporates. Bill was to be a co-chief on DSDP Leg 40 off southwest Africa and where there was a possibility of hitting deep water Jurassic evaporites in the Angola Basin. They were staffed up with sedimentologists for that cruise but there's another possibility of hitting Jurassic evaporites in the Cape Verde Basin off northwest Africa on Leg 41, and he recommend me for a sedimentologist position on that leg. And so in the spring of 1975, I found myself on the *Glomar Challenger* off northwest Africa. The DSDP Staff Scientist and lead sedimentologist was Jim Gardner. Jim was hoping for a position with the USGS Branch of Pacific Marine Geology in Menlo Park. That position came through while we were at sea. We never did hit Jurassic, but we did core some fantastic Cretaceous cyclic sequences, which were also to play major roles in my career for the next three decades with another partner in crime, whom I'll introduce in a moment.

The call from Jon Connor and the oil shale position came through in September 1995. At the GSA meeting in Salt Lake City that October, I gave a talk on the fantastic Cretaceous cycles we had cored in the Cape Verde Basin on Leg 41. After that talk, Mike Arthur came up to me and said I need to talk with you. I said I need to talk with you and we

haven't stopped talking ever since, about Cretaceous cycles, the Black Sea, and the Peru margin, among less academic topics. I already knew about Mike's PhD work on the Cretaceous cyclic sequences in central Italy.

I finished the fall semester at Syracuse and Bev and I along with the two boys, a dog, and a cat arrived at our new house in Lakewood, Colorado a few days before Christmas, 1975. Then Jon Connor told me that the funding for the oil shale position fell through the cracks in the floor boards; there was salary but no operating expenses. However, I did work on Green River oil shale on a shoe string for the next half-dozen years. At a DSDP Leg 41 post-cruise meeting I told Jim Gardner about the lack of oil-shale funds and he said come work with us at Pacific Marine; we have a lot of money. Jim had been with the USGS since June. "Work with us" meant a couple cruises in the Bering Sea on the *R/V Sea Sounder* with Jim and Tracy Vallier. At that time the St. George Basin on the southern continental shelf of the Bering Sea was on the oil and gas lease schedule. Jim and Tracy were funded by NOAA's Outer Continental Shelf Environmental Studies Program (OCSEPS) to look for faulting and slope instability on the continental shelf of the Bering Sea. There wasn't any, but nobody said that we couldn't kick a core barrel overboard every now and then, and that launched my career in Quaternary paleoceanography. After two summers in the Bering Sea, Jim and I moved into the North Pacific, although I was still in the Branch of Regional Geochemistry.

Beginning in 1978, a number of things happened. Mike Arthur finished his PhD at Princeton and was hired into the USGS Oil and Gas Branch by Pete Scholle, and we started in earnest on the geochemistry of DSDP Cretaceous cycles, which included black shales, another favorite topic of Twenhofel's. That same year, on Lookout Mountain outside Golden a bunch of us from different Branches in the USGS formed a small (\$1 M) Climate Program with G.I. Smith as the Program Coordinator. That program continues to this day under different names but we still call it the Climate Program. It supported most of my paleolimnology and paleoceanography studies over the years. The emphasis was on high-resolution paleoclimate records of the Holocene. John Platt Bradbury, came to the USGS from Minnesota the same time I did in 1975 to replace Estella Leopold who was moving the University of Washington. By then he was Platt, and we said what could be more high resolution than a varved lake core so we got G.I. Smith to fund a coring expedition to Elk Lake, Minnesota. Remember that one? With the help of Herb Wright and Bill Watts and Herb's better Livingstone coring equipment, we were able to get 22 m of varved sediment, which included all of the Holocene. We wanted to study the modern limnology of the lake including modern sediments, which meant sediment traps. So Platt and I called up our old adviser, Roger Anderson in New Mexico who came up and put his new, patented time marking sediment traps in Elk Lake. The study of Elk Lake would go on for 15 years with little funding to do the science, but with abundant help from 18 colleagues from 10 universities. That study was published as a GSA Special Paper in 1993.

In 1982, the Branch of Regional Geochemistry was merged with the Branch of Exploration Geochemistry. I went to Pete Scholle who, as I said, was Chief of the Oil and Gas Branch, and said look I'm working with a bunch of your folks, namely Mike Arthur, Lisa Pratt, and George Claypool, so why not take me in. And so he did. Mike left soon there after to go to the University of South Carolina, but we continued collaboration to this day.

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Harry Tourtelot, then Chief Geologist for the Central Region, said you and Mike have been running around the world plunkin' holes in the ocean floor looking for the Cretaceous when you have the best Cretaceous section in the world in your own back yard in the Western Interior Seaway. And so around 1990 Mike and I started the Cretaceous Western Interior Continental Drilling Project with funding from the USGS, DOI, and Amoco. We obtained a transect of cores from western Kansas to western Utah and brought in a bunch of colleagues from other universities, many of whom were already working in the Western Interior. That included two other Twenhofel Medalists, Erle Kauffman and Mike's old Princeton professor Al Fischer. The results of that study were published in 1998 as a SEPM Concepts in Sedimentology and Paleontology volume.

In 1986 the Energy Program in Denver made some personnel changes and I ended up in the Branch of Sedimentary Processes with Tom Fouch as Branch Chief. I took over as Branch Chief between 1988 and 1992, which also meant that I was Program Coordinator for the Uranium and Thorium, Oil Shale, and Evolution of Sedimentary Basins Programs. In the background under all this, Quaternary paleolimnology and paleoceanography studies continued.

Between about 1992 and 1994 there was a large project called Correlation of Marine and Terrestrial Records of the Western US (CMTR) funded by the Climate Program. Jim Gardner and I were the marine component with a focus on the California margin. Jim and I already had numerous cores from the northern California margin, but in 1992 the Climate Program funded a 5-week cruise on the *R/V Farnella* to the central and southern California margins on which we collected 54 piston cores. Results of the California margin study were published in several outside journals from 1994 to 1998, but that study continues today with cores from the Gulf of Alaska to Baja California.

In 1995 the Geologic Division reorganized and down sized with a Reduction in Force or RIF. This resulted in firing about 800 people. Following the reorganization and RIF there were only five organizational units called "Teams" in Denver. I was one of about a dozen scientists who ended up in the Global Change and Climate History Team finally funded entirely by the Climate Program, which had been there since 1978 but now it had a new organization and a new name. The lakes part of the CMTR Project morphed into Lakes and Catchment Systems (LACS). The focus of this project beginning in 1998 was on Bear Lake, Utah and Idaho. The Bear Lake study was published in 2009 as GSA Special Paper 450. Between 1995 and 2000 I was also on the Mississippi Basin Carbon Project, which involved all three USGS divisions. I was Upper Mississippi Basin lakes. These two projects funded my lake work. Jim Gardner had retired but my marine work was funded through John Barrons's project Holocene Climates of the Pacific Coasts, which continues today. These were all funded by the Global Change and Climate History Program. My paleolimnology and paleoceanography activities had always been working in the background with low levels of funding. Now they were up front and fully funded, more or less. And that has been my career to date, but I ain't done yet.

Thank you very warmly!

2010 Excellence of Oral Presentation

Regina L. Dickey and Thomas Yancey
*Palytology across a Sequence Boundary in the Wilcox Group,
Central Texas*

2010 Excellence of Poster Presentation (tie)

Berit Legler, Howard D. Johnson, Gary Hampson, Matthew D. Jackson, Christopher A. Jackson, Ahmed N. El-Barkooky, Rodmar Ravnas, David Alsop and Xavier Le Varlet
*Characterization of a Tide-Dominated Heterolithic Reservoir Analog:
The Eocene Dir Abu Lifa Member (Western Desert, Egypt)*

Erin M. Young, Robert Goldstein and Evan Franseen
*Faults, Depositional Settings, Sea-Level Change and Diagenesis
Control on Heterogeneous Carbonate-Chert Reservoirs within
Mississippian (Osagean) Strata in South-East Kansas*

2009 Outstanding Paper in the Journal of Sedimentary Research

Kyle M. Straub, Chris Paola, David Mohrig, Matthew A. Wolinsky
and Terra George
*Valleys That Never Were: Time Surfaces versus Stratigraphic Surfaces,
JSR, vol 79 iss 9, pgs. 673-688*

2009 Outstanding Paper in the Journal of Sedimentary Research - Honorable Mention

Jaco H. Baas, James L. Best, Jeffrey Peakall and Mi Wang
*A Phase Diagram for Turbulent, Transitional, and Laminar Clay
Suspension Flows, JSR, vol 79 iss 4, pgs. 162-183*

2009 Outstanding Paper in PALAIOS

Maria E. McNamara, Patrick J. Orr, Stuart L. Kearns, Luis Alcalá,
Pere Anadón and Enrique Peñalver Mollá
*Soft-tissue preservation in Miocene frogs from Libros, Spain:
Insights into the genesis of decay microenvironments,
PAL, vol 24 iss 2, pgs. 104-117*

2009 Outstanding Paper in PALAIOS - Honorable Mention

Robert Riding
*An atmospheric stimulus for cyanobacterial-bioinduced calcification
ca. 350 million years ago?,
PAL, vol 24 iss 10, pgs. 685-696*

Shanan E. Peteres, Mohammed Samen M. Antar,
Iyad S. Zalmout and Philip D. Gingerich
*Sequence stratigraphic control on preservation of late Eocene
whales and other vertebrates at Wadi Al-Hitan, Egypt,
PAL, vol 24 iss 5, pgs. 290-302*

Audited Financial Report – 2010



Certified Public Accountants
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Independent Auditor's Report

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

We have audited the accompanying statements of financial position of SEPM (Society for Sedimentary Geology) as of December 31, 2010 and 2009, and the related statements of activities and cash flows for the years then ended. These financial statements are the responsibility of the Society's management. 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 of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our 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, 2010 and 2009, and the changes in its net assets and cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Hartog, Kallenberger & Swarthout, P.C.

Certified Public Accountants
Tulsa, Oklahoma
April 12, 2011

**SEPM (Society for Sedimentary Geology)
Statements of Financial Position
December 31, 2010 and 2009**

	2010	2009
Assets		
Current Assets		
Cash and cash equivalents	\$ 1,048,994	\$ 1,049,367
Accounts receivable	272,181	166,330
Inventories	205,315	165,242
Prepaid expenses	40,985	37,157
Total current assets	<u>1,567,475</u>	<u>1,418,096</u>
Non-Current Assets		
Furniture and equipment, less accumulated depreciation	24,072	34,714
Long-term investments	1,885,385	1,718,244
Total assets	<u>\$ 3,476,932</u>	<u>\$ 3,171,054</u>
Liabilities and net assets		
Current Liabilities		
Accounts payable and accrued liabilities	\$ 24,848	\$ 35,044
Deferred income	616,194	502,303
Total current liabilities	<u>641,042</u>	<u>537,347</u>
Net Assets - Unrestricted	2,002,501	1,895,925
Net Assets - Board Designated	833,389	737,782
Total liabilities and net assets	<u>\$ 3,476,932</u>	<u>\$ 3,171,054</u>

See Accompanying Summary of Accounting Policies and Notes to Financial Statements.

**SEPM (Society for Sedimentary Geology)
Statements of Activities
For the Years Ended December 31, 2010 and 2009**

	2010	2009
Changes in unrestricted net assets		
Revenues, gains and other support		
Dues	\$ 106,508	\$ 112,653
Publications	223,428	178,176
Journal of Sedimentary Research - subscriptions, royalties and other	571,168	659,290
Palaios - subscriptions, royalties and other	191,881	213,780
Continuing education	67,790	46,665
Meetings, conferences and field trips	168,040	234,002
Membership activities	49,486	13,749
Net realized and unrealized gain on investments	134,155	328,558
Investment income	61,260	54,364
Total revenues, gains and other support	<u>1,573,716</u>	<u>1,841,237</u>
Expenses		
Publishing costs - Journal of Sedimentary Research	296,638	260,661
Publishing costs - Palaios	158,120	165,566
Publications	128,330	135,404
Continuing education	31,735	28,849
Meetings, conferences and field trips	121,166	130,181
Membership activities	161,173	145,969
General and administrative	474,371	476,154
Total expenses	<u>1,371,533</u>	<u>1,342,784</u>
Change in unrestricted net assets	202,183	498,453
Net assets - beginning of year	2,633,707	2,135,254
Net assets - end of year	<u>\$ 2,835,890</u>	<u>\$ 2,633,707</u>

See Accompanying Summary of Accounting Policies and Notes to Financial Statements.

Audited Financial Report – 2010

SEPM (Society for Sedimentary Geology) Statements of Cash Flows For the Years Ended December 31, 2010 and 2009		
	2010	2009
Cash flows from operating activities		
Change in unrestricted net assets	\$ 202,183	\$ 498,453
Adjustments to reconcile change in unrestricted net assets to net cash (used in) provided by operating activities:		
Depreciation	20,011	19,222
Net realized and unrealized (gain) loss on investments	(134,155)	(328,556)
(Increase) decrease in:		
Accounts receivable	(105,851)	(83,352)
Inventory	(40,073)	(18,546)
Prepaid expenses	(3,828)	16,425
Increase (decrease) in:		
Accounts payable and accrued expenses	(10,196)	(2,572)
Deferred income	113,891	(148,436)
Net cash provided by (used in) operating activities	<u>41,982</u>	<u>(47,364)</u>
Cash flows from investing activities		
Payments for purchase of equipment	(9,370)	(8,553)
Purchase of investments	(661,136)	(442,941)
Proceeds from maturations and sales of investments	628,151	396,937
Net cash provided by (used in) investing activities	<u>(42,355)</u>	<u>(54,557)</u>
Net increase (decrease) in cash	(373)	(101,921)
Cash and cash equivalents - beginning of year	<u>1,049,367</u>	<u>1,151,288</u>
Cash and cash equivalents - end of year	<u>\$ 1,048,994</u>	<u>\$ 1,049,367</u>
Supplemental cash flows information		
Interest paid	-	-
Income taxes paid	-	-
See Accompanying Summary of Accounting Policies and Notes to Financial Statements.		

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SEPM (Society for Sedimentary Geology) Summary of Significant Accounting Policies December 31, 2010 and 2009		
Organization and business		
<p>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.</p> <p>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.</p> <p>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.</p>		
Estimates		
<p>In preparing financial statements in conformity with generally accepted accounting principles, management is required to make estimates and assumptions that 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.</p>		
Cash and cash equivalents		
<p>The Society considers all cash and short-term securities with maturities of three months or less when purchased as cash and cash equivalents.</p>		
Inventory		
<p>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.</p> <p>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.</p>		
Inventory write-downs were as follows:		
	2010	2009
Publications	<u>\$ 8,442</u>	<u>\$ 9,732</u>

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SEPM (Society for Sedimentary Geology) Summary of Significant Accounting Policies December 31, 2010 and 2009		
Inventory consists of the following:		
	2010	2009
Publications	\$ 163,256	\$ 133,479
Continuing education materials	26,309	26,393
Work in process	15,750	5,370
	<u>\$ 205,315</u>	<u>\$ 165,242</u>
Furniture and equipment		
<p>Furniture and equipment are valued at cost. Depreciation is provided using the straight-line method over the useful life of three to seven years.</p>		
Revenue recognition		
<p>The Society recognizes income and expense on the accrual accounting basis for financial statement presentation.</p> <p>Membership dues and subscriptions are recognized as revenue ratably over the period of membership or subscription term.</p>		
Contributions		
<p>Donor-restricted contributions are classified as unrestricted support if the restrictions are satisfied in the same reporting period in which the contribution was received.</p>		
Advertising expense		
<p>Advertising costs are expensed when incurred. No advertising expenses were incurred during the years ended December 31, 2010 and 2009.</p>		
Tax status		
<p>The Society is exempt from taxation under Section 501(c)(3) of the Internal Revenue Code. It is not a private foundation.</p>		
Subsequent events		
<p>The Society has evaluated subsequent events through April 12, 2011, the date the financial statements were available to be issued.</p>		

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Audited Financial Report – 2010

**SEPM (Society For Sedimentary Geology)
Notes to the Financial Statements
December 31, 2010 and 2009**

Note 1 – Furniture and equipment

Included under this caption are the following:

	2010	2009
Furniture and equipment	\$ 225,738	\$ 216,368
Less accumulated depreciation	201,666	181,654
Net furniture and equipment	\$ 24,072	\$ 34,714

Note 2 – Investments

Investments at December 31, 2010 and 2009, consist of the following:

December 31, 2010	Historical Cost	Market (Carrying Amount)
General Investments		
Growth and capital appreciation funds	\$ 384,720	\$ 381,612
Cash and cash equivalents	82,127	82,127
Bond and balanced funds	500,552	499,255
International funds	101,573	119,492
Total general investments	1,069,972	1,082,486
New Frontiers Fund		
Cash and cash equivalents	1,992	1,992
Growth and capital appreciation funds	453,210	489,082
International funds	124,197	149,541
Bond and balanced funds	160,711	162,274
Total New Frontiers Fund	740,110	802,889
Total Investments	\$ 1,809,082	\$ 1,885,385

December 31, 2009	Historical Cost	Market (Carrying Amount)
General Investments		
Growth and capital appreciation funds	\$ 475,691	\$ 432,894
Cash and cash equivalents	82,049	82,049
Bond and balanced funds	397,412	359,304
International funds	99,897	106,215
Total general investments	1,055,249	980,462
New Frontiers Fund		
U.S. Government and agency obligations	57,629	60,250
Cash and cash equivalents	4,468	4,468
Growth and capital appreciation funds	403,030	397,733
International funds	122,976	128,674
Bond and balanced funds	151,780	146,657
Total New Frontiers Fund	740,783	737,782
Total Investments	\$ 1,796,032	\$ 1,718,244

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**SEPM (Society For Sedimentary Geology)
Notes to the Financial Statements
December 31, 2010 and 2009**

Note 2 – Investments (continued)

Realized and unrealized gains and losses were as follows:

	2010	2009
Unrealized Gains	\$ 154,091	\$ 332,760
Realized (Losses)	(19,936)	(4,202)
Total realized and unrealized gains and (losses)	\$ 134,155	\$ 328,558

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, 2010	
Level 1:	
Mutual Funds	\$ 1,885,385
December 31, 2009	
Level 1:	
Mutual funds	\$ 1,718,244

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**SEPM (Society For Sedimentary Geology)
Notes to the Financial Statements
December 31, 2010 and 2009**

Note 4 – Deferred income

Deferred income consisted of the following:

	2010	2009
Dues	\$ 65,330	\$ 55,778
Subscriptions	427,990	382,389
Publications in process and other	122,874	64,135
Total	\$ 616,194	\$ 502,303

Note 5 – Commitment

The Society leases its offices and warehouse under operating leases. Total minimum rent commitments for space and equipment leases are as follows: years ended December 31, 2011 - \$46,186, 2012 - \$46,896, 2013- \$27,597.

Rent expense was \$47,226 and \$42,894 in 2010 and 2009, respectively.

Note 6 – Unrestricted net assets

Unrestricted net assets consist of the following:

General Fund	2010	2009
Board designated:	\$ 2,002,501	\$ 1,895,925
New Frontier fund - long term purposes	789,089	737,782
- current purposes	13,800	-
New opportunities	5,500	-
Capital projects	25,000	-
Total	\$ 2,835,890	\$ 2,633,707

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, 2010 and 2009, from the SEPM Foundation, Inc. (an affiliated non-profit entity) for management fees.

The Society had receivables from the SEPM Foundation, Inc. of \$95,957 and \$165,227 at December 31, 2010 and 2009, 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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