

SEPM - Society for Sedimentary Geology - 2021 Annual Report Howard E. Harper, Executive Director

SEPM and 2021 during a continued pandemic

2021 was as we all know a continuation the pandemic that impacted most all aspects of life in one way or another. SEPM and its activities were no exception. However, SEPM's staff had long been practicing significant remote working practices so that aspect of the pandemic was not highly impactful on our regular operations. Many of our outsourced companies were not so lucky and that has impacted regular operations, mostly with delays in their support to our publishing and some member interactions. Rebekah Grmela continued as our digital media/marketing hands-on consultant. SEPM's online presence from its website to social media accounts was enhanced under Rebekah's partnership with SEPM HQ and Council.

The International Sedimentary Geoscience Congress (ISGC) which had been rescheduled for April 2021 in Flagstaff, AZ, USA had to be cancelled again. This time the rescheduled date is now in April 2024. This choice was based on reconciling with IAS to offset the ISGC from the IAS International Sedimentological Congress (ISC) which is scheduled for 2022. The SEPM staff and the Program Committee had worked extremely hard to organize the meeting and several items were organized to promote the research work that was in the original program out to the community. These efforts resulted in an all student online virtual session, the publication of an abstract book and the plans to publish a composite field trip guide.

The \$50,000 NSF Award to Howard Harper and SEPM to fund student travel for participation in the ISGC meeting was successfully approved for a No Cost Extension so that it would be available for the 2024 meeting.

SEPM Annual Meeting

AAPG canceled the ACE planned for Denver in the spring and partnered with SEG to hold a joint meeting in September in Denver. The new joint meeting is named IMAGE and was held as a hybrid meeting with both in person and some online aspects. SEPM's input to the technical program, short courses and field trips continued but was again highly impacted by the pandemic. The AAPG-SEG partnership IMAGE meeting will continue through 2025 and will be held in Houston, TX in August of each year. SEPM is invited to continue to be a part of this meeting.

The 2021 SEPM Research Symposium topic was, "Uncertainty Analysis and Reduction in Sedimentary and Stratigraphic Sciences" and was presented virtually. The SEPM content at the meeting and the virtual versions were organized by the Annual Meeting Committee. Most of the virtual IMAGE content was available online for the rest of 2021.

SEPM Annual Meeting Committee

- Piret Plink-Bjorklund, SEPM Vice-Chair
- Kristy Milliken and Lisa Stright, SEPM Field Trip Chairs
- Howard Harper, SEPM Short Course Chair

Short Courses & Field Trips

- Advanced Sequence Stratigraphy Vitor Abreu and Howard Harper
- All field trip offerings were cancelled due to low registrations

SEPM President's Reception and Awards Ceremony

Due to the pandemic, the SEPM President's Reception was not held at the IMAGE meeting. However, the 2021 Awards Ceremony was again held online with participation by most all of the awardees and President Mike Blum presiding. The video of the meeting is available on SEPM's YouTube Channel – <u>https://www.youtube.com/channel/UC9iDj3Jg49rJaQKEDhnGeNg</u>

SEPM Research Groups

SEPM supported and organized three Research Group meetings; one hybrid at IMAGE and two virtual at other dates.

• Carbonate RG held a hybrid meeting with in person presentations at the IMAGE meeting and contributions from several remote presentations by students. The meeting video is at SEPM's YouTube Channel

- Deep Water RG held a virtual meeting in November on the "Future of Deepwater Sedimentology". The presentations are on SEPM's YouTube Channel.
- A New RG Planetary Geology held a virtual meeting in June. The presentations are on SEPM's YouTube Channel.

Journals

Both of our technical journals continued having great years although there have been some delays at Allen Press in processing manuscripts due the pandemic impact on their operations. The *Journal of Sedimentary Research* continues publishing top-quality papers under the guidance of the co-editors, Peter Burgess (University of Liverpool), and Kathleen Marsaglia (California State University, Northridge). *PALAIOS* also maintained its excellence under the continuing editorship of Martin Zuschin (Universitat Wien) and Patrick Orr (University College, Dublin). SEPM journals continue to be available online via GeoScienceWorld (GSW), which continues to thrive. *JSR* is also part of AAPG-Datapages, while *PALAIOS* is also available in BioOne and JSTOR online aggregates. Both of the journals as well as SEPM eBooks are within SEPM's online publications site <u>www.sepmonline.org</u>. Journal issues are available individually in print at the SEPM Bookstore (<u>https://sedimentary-geology-store.com/</u>).

The Sedimentary Record, the Society's full color open access publication, which is now in its 19th year, has undergone a major evolution going from a single science article member magazine format to a full blown Diamond Open Access technical journal. Using an acronym of TSR, the change is being managed by the new editors Jenn Pickering and Jeong-Hyun Lee. TSR is now doing continuous publishing but compiling them into four issues per year. <u>https://www.sepm.org/the-sedimentary-record</u>. TSR's Diamond OA status is supported by the SEPM Foundation.

Special Publications

Under the editorship of Jean Hsieh, the special publications of SEPM continue to produce top of the line products. In 2021, three new books were published as well as the print versions of the JSR and PALAIOS journals. The pipeline of future books continues to have new proposals.

SEPM continues to publish Special Publications chapter by chapter online at the <u>https://www.sepm.org/Online-First</u> as each chapter is completed by the authors and passes all reviews. After the last chapter is finalized the book is compiled and placed for sale in the bookstore and processed to be online at <u>www.sepmonline.org</u> and GSW. Due to the pandemic the pathway to uploading new books online has encountered delays.

- 1st International Sedimentary Geosciences Congress (ISGC) Abstract Book. SEPM Miscellaneous Publication 21.
- Coccolithophores: Cenozoic Discoasterales—Biology, Taxonomy, Stratigraphy. Concepts in Sedimentology and Paleontology 14, Marie-Pierre Aubry
- Salt Tectonics, Associated Processes, and Exploration Potential: Revisited 1989-2019, 37th Annual Conference, J. Carl Fiduk and Norman C. Rosen (a Gulf Coast Section publication).

Additionally, SEPM continues to work with IAS to help manage technical publication aspects of their continuing series of book publications. The first of which should have a publication date of late 2021 or early 2022.

Research Conferences and Meetings

There were no in person SEPM Research Conferences in 2021. However, the Mountjoy III Virtual Sampler meeting was held online in partnership with CSPG to give a glimpse of what to expect at the 2022 in person Mountjoy III scheduled for Banff, Canada in August. A Bouma Conference Virtual Sampler is planned for Spring, 2022.

Plans for 2022 are of course impacted by the continued pandemic and SEPM is hoping to continue to host some virtual events and in partnership with CSPG, hold the third Mountjoy Carbonate Research Conference (Mountjoy III), in Banff, Canada, including some virtual aspects of the meeting. Future meetings planned over the next year include:

- Bouma Deep Water Virtual Sampler, April 20-22, 2022, Online
- Mountjoy Carbonate Research Conference III Hybrid, August 17-19, 2022, Banff, Canada

SEPM's YouTube Channel

A recent addition to SEPM's online presence is its YouTube Channel. Check it out - selections currently include:

- "How to" videos for Logging in, Resetting your password, Renewing and Joining
- SEPM Awards Ceremony 2021
- SEPM's 2021 Research Group videos Carbonates, Planetary and Deepwater
- SEPM ISGC Student and Early Career Virtual Sessions
- SEPM Live Editor Q&A Webinar

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

In 2021, SEPM continued its long tradition of collaborating with multiple geoscience organizations, although traditional face to face meetings and thus SEPM's onsite exhibit booths were all canceled.

The Society continues to work with AAPG, AGU, GSA, GSL, IAS, SEPM Sections, and our Global Ambassadors to produce and support jointly sponsored technical sessions, 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).

SEPM Governance and Council 2021

In 2020 SEPM's Bylaw changes to Council terms became fully implemented with terms for councilor's extended to three years and the President's term to two years after a one-year term as President-Elect. Additionally, all terms begin on January 1st and end on December 31st of the year.

Some additional changes occurred in 2021, including the extension of voting rights to all SEPM members and the deletion of the SEPM Foundation President from being an official Council member. The change concerning the SEPM Foundation President was at the request of the new Foundation President, Judith Totman Parish to legally clarify and disentangle the relationship between the Society and the Foundation, which are separate entities.

SEPM Council – 2021

Michael Blum, President mblum@ku.edu

Elizabeth Hajek, President-Elect hajek@psu.edu

Keriann Pederson, Secretary-Treasurer khpederson@gmail.com

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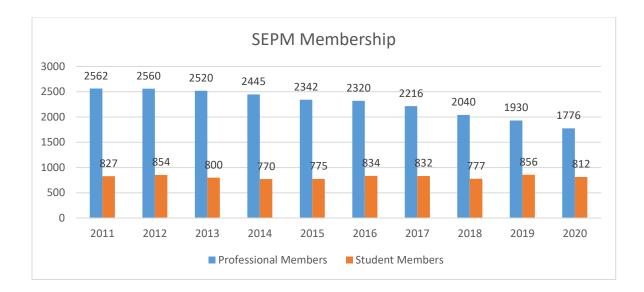
Jean Hsieh, Editor, Special Publications halloysite@yahoo.com

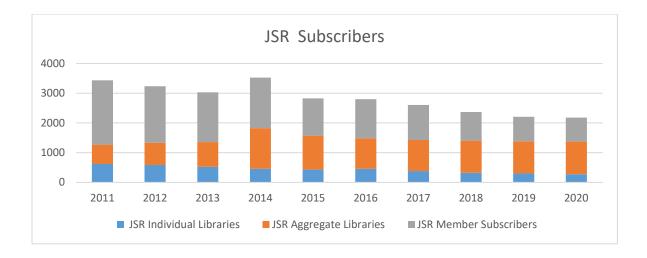
Newly Elected Council Members for 2022

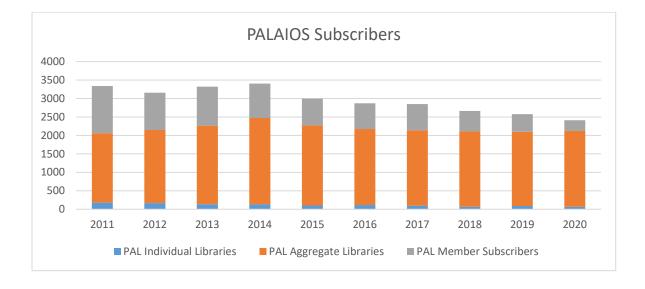
- Sedimentology Councilor: Shahin Dashtgard (Simon Fraser University, Canada)
- Paleontology Councilor: Sara Pruss (Smith College, USA)
- PALAIOS Co-Editor: Yurena Yanes (University of Cincinnati, USA)
- Student Councilor: Brette Harris (University of Alberta, Canada)

Major Council Actions in 2021

- Action to approve John Suter to the SEPM Foundation Board
- Action to inform the SEPM Foundation to focus on fund raising for student support.
- Action to approve the transfer of additional Sue Friedman bequest to the Foundation Friedman Fund.
- Action to approve Bylaw changes to extend voting rights to all SEPM Members.
- Action to approve Bylaw changes to remove the SEPM Foundation President as an official Council member
- Action to request Foundation funding support for The Sedimentary Record to be Diamond Open Access
- Action to Approve 2022 SEPM Science Medal Awardees
- Action to allow all ISGC 2021 student travel awards to be given as general awards to the previously approved students.
- Action to create a standing committee to evaluate SEPM DEI issues
- Action to approve that SEPM membership and subscription fees for 2022 be held at the same level as 2021
- Action to approve SEPM 2022 Budget are presented by Headquarters and Business Committee
- Action to allocate New Frontier funds of \$44,540 to the Digital Marketing Project
- Action to allocate New Frontier funds of \$2,000 over two years to support the new community journal *Sedimentologika*
- Action to transfer an additional bequest of \$87,000 from the Paul Potter estate from the Society to the Foundation, which will create a fund to support student travel to meetings







Wilson Award—Emily Smith



Biography (Francis MacDonald)

It is both an honor and pleasure to introduce Emily (Emmy) F. Smith as the 2020 recipient of the SEPM James Lee Wilson Award. Emmy is first and foremost a field geologist. Her data and interpretations have been hard earned with months of field-work in the deserts of Central Asia, the Kalahari, and the Mojave. Part of her success is her intellectual brilliance, but equally important are her positive attitude and leadership skills in the field that continually bring teams together to work with alacrity through difficult conditions in unforgiving landscapes. Emmy's work and spirit exemplifies excellence in field-based sedimentology, that is, using the richness of the stratigraphic record to address important questions in Earth history.

Emmy's research is focused on two critical questions in Earth history and our origins: 1) The Cambrian Explosion (Darwin's dilemma)—if evolution is a gradual process then why do complex animal fossils appear in the record so abruptly in the Cambrian Period? 2) Why are there large apparent changes to the carbon cycle during this critical period of evolution? By developing Ediacaran-Cambrian records in disparate locations across three continents, and integrating Sedimentology, Paleontology, Geochronology, and Geochemistry to do so, Emmy has built the ideal natural laboratories to test proposed drivers for coupled environmental and evolutionary change through this critical interval.

What is additionally unique about Emmy's work in Earth History is that she is redefining the scruffy image of a field geologist and mentoring students in her own image – many of whom are among the next generation of women scientists and leaders in this field. Representation matters, and it is a joy to have Emmy as a colleague and friend, and to watch her grow as a leader in the field.

Citation: Emily F. Smith is recognized with the 2020 SEPM James Lee Wilson Award for her seminal contributions to development of integrated bio-, chemo-, chrono-, and physical-stratigraphic records through the Ediacaran-Cambrian transition.

Emily Smith's Acceptance:

Thanks very much to the society for this award. It's such an honor to receive this. I'm sorry I can't attend this live. I'm currently doing field work in Namibia.

I didn't intend to major in geology in college. I stumbled into a geology class and was almost immediately hooked, in large part due to my kind, collaborative, and creative classmates. I'd especially like to thank Lidya Tarhan, who I still work closely with today.

In grad school, Francis Macdonald took a chance on me and gave me the opportunity to work on some of the most exciting research projects a budding sedimentary geologist could dream of. He provided me with the tools for success, inspiration, intellectual freedom, and a network work of collaborators. When the time came, he gave me the resources and space to launch my own career. Dave Johnston, Andy Knoll, and Dan Schrag were generous committee members and let me have free reign of their labs. I met Sara Pruss, a faculty member at Smith College, while I was a graduate student, and she was and still is one of my most important academic and life mentors. She leads by example and is a champion for her students; I'll be forever grateful to her for taking me under her mentorship wing. I'm also very grateful to Doug Erwin, my postdoc advisor at Smithsonian Natural History Museum, for unfailing kindness and support.

I'd also like to thank my peers from graduate school who challenged me, laughed with me, and commiserated with me. Many of these people remain close collaborators today. I'd especially like to thank Uyanga Bold, Athena Eyster, Blake Hodgin, Sierra Petersen, Alan Rooney, Erik Sperling, and Justin Strauss. I've learned about sponges, redox proxies, rift basins, and paleomag data alongside and from them.

My research is highly interdisciplinary, and I rely on the expertise and resources of many colleagues. Some of these people include Anne-Sofie Ahm, John Almond, Tanja Bosak, Simon Darroch, John Higgins, Jahan Ramezani, Laurent Richards, Jim Schiffbauer, and Mark Schmitz. They have been so generous with their time and resources, and, in many cases, have extended that generosity to my students. My research wouldn't be possible without these people and many others.

I'd like to thank my colleagues at Johns Hopkins, especially all the junior faculty. Without them, I'd probably still be trying to figure out how to renovate a lab. This award is as much my research group's as it is mine. My students, postdoc, and lab techs have challenged me, taught me, and inspired me. Together, we've tackled strange sedimentary tubular structures, archaeocyathan reefs, Ediacaran-Cambrian foreland basins, and mineral separation protocols. This job wouldn't be any fun without them.

Finally, thanks to my family for support. I thank my parents for encouraging, and sometimes forcing, me and my siblings to spend so much time outside while I was growing up. My 3 siblings and I all became geologists, and I thank them for years of camaraderie digging in the dirt and arguing around the dinner table. I'd also like to thank my husband for his unconditional love and support, pretending to appreciate my many rock gifts, and tolerating my field gear closet for over 10 years.

Dickinson Medal —Cari Johnson





Biography (Lauren Birgenheier)

I am delighted to introduce Dr. Cari L. Johnson as the 2021 recipient of the SEPM Dickinson Medal. Cari is tenacious in her pursuit of sedimentary geology innovation. She is skilled at solving basin-scale sedimentary and tectonic problems by combining basic field and observational skills with quantitative tools and methods across multiple sub-disciplines. Her work on sedimentary geology and its applications to tectonics is grounded in fundamental field-based science, and has advanced understanding of complexities and architecture in nonmarine, tidal, and shallow marine depositional systems.

Cari's tremendous contributions as an educator and mentor over 17 years at University of Utah is evidenced by the community of students, post-docs and junior faculty she has mentored. Her principle gift has been to train students in how to think, privileging their own scientific inquiry and maturation over a more prescriptive approach. She has raised a new generation of creative, talented, and critically-thinking geoscientists, as well as been a role model and resource to many.

Early exposure to the great outdoors sparked a keen interest in natural sciences that led her to pursue a bachelor's degree at Carleton College. The passion of her mentors at Carleton and several outstanding field-based opportunities led her then to pursue a PhD at Stanford University with Dr. Stephan Graham. Her field-based dissertation was a multi-disciplinary study of Mongolian rift systems and implications for petroleum system development. Her work on the tectonic evolution of Mongolia remains an active area of her research with continued expertise and long-lasting contributions in the field.

Quantitative reservoir characterization, paleogeographic and paleoenvironmental reconstruction of Cretaceous fluvial to shallow marine siliciclastic strata of the Kaiparowits Plateau has been the main the focus of the last decade of her research. More recently, she has been characterizing and building digital outcrop models of Permian deltaic systems in the Karoo Basin, South Africa as a reservoir analogue.

Cari is a mother to two girls and one Portuguese Water Dog, and is an advocate for the dual vocation of mother and scientist. In her spare time, Cari can be found on the tennis court, on her bike, or at boxing. Cari also enjoys beer, friends, and being awesome.

Citation:

For innovation in sedimentary geology and basin analysis. For dedication to basic field and observational skills as well as quantitative tools. For her unwavering commitments: Mother, Teacher, Mentor, Researcher, and Friend. Pursued always with a vulnerable excellence that inspires more.

Cari Johnson's Acceptance:

Dear SEPM colleagues,

Bill Dickinson is still such a transformational figure in our science, and I am honored to have any association with his name. Thank you so much to SEPM and those who supported my nomination for this award. This society and the broader sedimentary geology community has been so important to me, during this pandemic and beyond. I really look forward to the day when we can meet again in person. I invite every last one of you to come to Utah and let's look at rocks together.

I don't know how much credit I can really take for any of this. For sure there's been some hard work along the way, but there has also been plenty of privilege and plain old luck. Academia has its pitfalls, but I truly love my job, made all the better by supportive and dedicated colleagues and students. I'm mindful of how very fortunate I am to even be in a position to win such an award: I could have easily wandered another direction, if not for the incredible geoscientists I've met along the way, the faculty at Carleton and Stanford in particular. Thank you to Steve Graham for his intellectual leadership, mentorship, and friendship. I am so grateful to my global village of mentors, many of whom are unaware of their roles in my life: colleagues both junior and senior, students, staff, my daughters, and even GeoTwitter folks. I learn so much from these champions of curiosity, reason, kindness, and vulnerability.

We have so much work to do: diversity, equity, and inclusion challenges, public perceptions and the politics of science here in the midst of a global pandemic and climate crisis. The students we are educating now will face, along with us, daunting challenges in the Energy and Sustainability arena. We owe it to our students, not to mention the planet, to provide the best possible preparation. And I don't have the answers, but I think the solutions must still at least partly lie in the fundamentals championed by Bill Dickinson: observational skills, multi-disciplinary toolkits, creative and critical thinking, and the ability to communicate our science to a full range of stakeholders. In addition, I know that we must continue to rise by lifting others. So thank you again for this turn on the lift.

Moore Medal —Nigel Hughes





Biography (Paul Myrow)

Nigel Hughes is remarkable in that he has made fundamental contributions in two disparate fields, namely biological and evolutionary aspects of trilobites, and the paleontology and geology of South and Southeast Asia. Nigel's contributions to the understanding of trilobites (e.g., ontogeny, evolution) are groundbreaking, yet he has published on many other fossil groups: organic microfossils and macrofossils, trace fossils, hyoliths, conulariids, bradoriids, and brachiopods. Nigel's strengths include considerable quantitative and statistical skills, an encyclopedic memory for complex stratigraphy of multiple regions across Asia, and an ability to integrate wide ranging data sets to solve complex problems.

Nigel's paleontological study in the Himalayan region will stand as the definitive work of this area for the modern era. His work on the Cambrian trilobite record of northern India spans more than three decades. More recently, he has made prodigious contributions to the understanding of Precambrian through Cambrian geology and paleontology across many adjacent regions, including Tibet, Bhutan, China, Vietnam, Thailand, Malaysia, and Myanmar. Nigel's 2016 *Earth-Science Reviews* paper will stand as a seminal reference publication for Cambrian paleontology across the Himalayan Range for many years to come. His research has also substantially challenged the views of Himalayan workers about the ages and geological structure of the different sectors of the mountain range, and their relationships to each other.

Nigel is also an award-winning teacher and has published numerous articles for the popular press, including his 2012 illustrated children's book *Monisha and the Stone Forest*. It was translated into Bengali (a language that he is fluent in), and six thousand copies were distributed for free to children in India. This is a creative example of Nigel's efforts of outreach, and is part of a body of work that establishes him as one of the great ambassadors of science, and paleontology in particular, to South and Southeast Asia.

Citation: Nigel Hughes is a leader in the study of trilobites, applying cutting edge biological concepts to analyze past arthropod development. His studies of Himalayan strata has allowed for construction of an orogen-wide stratigraphic architecture, and the exploration of major questions concerning the tectonic and paleogeographic evolution of South and Southeast Asia.

Nigel Hughes' Acceptance

In receiving the R.C. Moore Medal for 2021 I am extremely grateful to SEPM and to all the many colleagues/friends who have helped me during my adventures in science. My parent's love of the natural environment coupled with the financial sacrifice they made to educate their sons privately meant that all our free time was spent walking in the British countryside. The Quaker school in York I attended may have the world's oldest school Natural History Society which fostered my developing interests the world around me. I was encouraged in by the examples set by my physics and astronomy teacher, the selfless David M. Robinson, and by my older brother Simon, who showed me that an academic career could be in my reach. Bootham School also encouraged my interest in the Indian subcontinent, which I first visited at age 18. I studied geology as an undergraduate at Durham University during the tenure of the inspirational professor John Dewey, followed by 8 months in Visva Bharati, West Bengal, studying language. My experience in college in India was seminal and I returned to a PhD ably guided by Derek Briggs at the University of Bristol. I was initiated into trilobite paleontology and its applications by Adrian Rushton and Richard Fortey, and by later my post-doc advisors Peter Jell in the Queensland Museum and Doug Erwin at the Smithsonian Institution: I learned differently from each of these masters of their own fields. Four years at the Cincinnati Museum Center followed, where I benefited enormously from interactions with "amateur" paleontologists in Ohio and Kentucky. My appreciation of amateurs grew early in my PhD fieldwork when assisted by Jerry Gunderson and Ron Meyer, without whom I could not have completed my PhD. I have been extremely fortunate to have a host of extremely talented PhD and Masters students at UC-Riverside, many of whom have continued onto storied careers of their own as geologists and paleontologists. I thank them all. I have benefitted enormously from collaborations with many colleagues, and in Asia I particularly thank Shanchi Peng and his associates in China, and so many friends in the Indian subcontinent and SE Asia. Two particular research collaborators who have expanded my horizons and the impact of my work are Giuseppe Fusco of the University of Padova, with whom I have worked to expand paleo-evolutionary developmental biology, and Paul Myrow of Colorado College who has been my stalwart partner in geologically-focused work in the Himalaya and SE Asia. The greatest treasure I have found in my career is my life partner and colleague Mary L. Droser whom I love, as I do our children Emily and Ian. Thank you for this honor.

Pettijohn Medal —Isabel Montanez





Biography (Kathy Campbell)

Born in Geneva, Switzerland, Isabel P. Montañez has been moving westward all her life – first to England, then Pennsylvania and finally to California, where she is currently Distinguished Professor and Chancellor's Leadership Professor at UC Davis. Following her 1989 Ph.D. in Geology from VPI, Isabel took up an academic position at UC Riverside and subsequently joined the faculty at UC Davis in 1998. She has written 140 scientific articles; advised and mentored dozens of research students, from undergraduates to post-docs; won teaching awards and numerous research grants; and played key leadership roles in service to sedimentology and geology.

Isabel has made significant in-roads in our understanding of intervals of major perturbations of the global carbon cycle, which are associated with large-scale and typically abrupt climate change and widespread oceanic anoxia. For example, her Cambrian oceanographic framework revealed the highly dynamic environmental conditions of the early metazoan world, and provided a Sr and C isotopic chronostratigraphy that offers, arguably, the highest temporal resolution for this early period of Earth's history. Furthermore, she established the first astronomically calibrated constraint on the timing of marine ecosystem recovery following the end-Permian mass extinction. Isabel's empirical-modelling approach to investigating past icehouse to greenhouse states has illuminated how climate and ecosystem processes respond to evolving CO_2 environments such as those we anticipate into the future – along the way challenging existing scientific paradigms, and revealing elusive, counter-intuitive interactions and feedback relationships in the Earth System. She also has worked on Late Quaternary linkages between mega-droughts and North Atlantic sea temperature fluctuations, with implications for how water resources might evolve in the arid West with continued climate warming.

Isabel has served on numerous National Academy of Sciences and NSF committees, producing key Earth-life transition initiatives, was President of GSA, and has held many journal editorships and memberships on advisory boards. Her scholarly recognition is farreaching and includes many fellowships (e.g., Union/AGU, Geochemical Society, European Association of Geochemistry, AAAS, GSA), and medals and awards (e.g., Lamarck/EGU, Sloss/GSA, Wilson/SEPM, Sproule/AAPG).

Citation: For her outstanding, game-changing contributions to geosciences in the field of paleoclimatology, which has led to our enhanced understanding of Earth's climate-life system over the past half-billion years, and her platinum service to the scientific community, Dr. Isabel Montañez epitomizes sustained excellence in sedimentology.

Isabel Montanez's Accpetance.

I am very honored to receive the 2021 Pettijohn Medal. I am also quite grateful to my nominator and citationist, Kathy Campbell, those who supported my nomination, and the members of the Pettijohn Medal committee who awarded me this medal. The Society for Sedimentary Geology has been a professional home since I attended my first conference, a 1985 SEPM meeting, and published my first paper in the *Journal of Sedimentary Research*.

As for many, the geoscientist that I am today reflects the collective experiences, collaborations, and interactions I have had with many over the years. It begins with an inspiring 5th grade science teacher and early mentors including Bruce Saunders of Bryn Mawr College as well as Ian McIntyre and Robert Newman of the Museum of Natural History, the Smithsonian Institution who pushed this fledgling just enough to find her confidence and spread her wings. As J. Fred Read's first female Ph.D. student at Virginia Tech, I will always be appreciative of the many things he taught me from how to be a 'forensic scientist to how to persevere in what was still a male-dominated field. When I joined the Carbonate Research lab in 1983, I had no sense of how influential my geology formative years would be with fellow lab mates Steve Dorobek, John Grotzinger, Maya Elrick, Jim Niemann, and Dave Osleger. So formative that I lured Dave Osleger to California in 1990 and he's been my greatest enabler ever since.

In particular, I want to highlight the deep appreciation I hold for the wonderful group of students whom I've mentored over the past 32 years. They came from diverse disciplinary backgrounds, but all soon became mesmerized by the rich archive of Earth's processes es entombed in the sedimentary rock record. These students have expanded my thinking through their keen curiosity and their will-ingness to challenge and not blindly accept ideas. Any award I receive, I share with them.

The future of the broader field of geology has been the focus of many discussions and articles over recent years, and, in particular, those subdisciplines of geology with a field and petrography focus, such as sedimentary geology. Francis Pettijohn presciently addressed this in his 1984 autobiography, *Memoirs of an Unrepentant Field Geologist*. Today, the study of geology has expanded to a spectrum of geoscience disciplines. As student career interests shift to technology, environmental issues, globalization, data science and artificial intelligence, planetary exploration, among other foci, it is easy to question the relevance of the core disciplines of geology. But as Professor Pettijohn so clearly recognized, field observations and petrographic studies are the ground truths that underpin and must guide all laboratory, theoretical, and modeling studies. Although my research interests have evolved over the years to focus on paleoclimatology and Earth system science, like Francis Pettijohn, I am first and foremost a field and sedimentary geologist. The underpinning of my studies of Earth system scientists. His work on Archean sedimentary successions that demonstrated the persistence of Earth's processes busted a leading paradigm of the time that hypothesized that Earth processes operated differently in the Precambrian than in the Phanerozoic.

As I reflect on my career, I appreciate that I never stop learning, have crossed paths with interesting people around the globe, and have experienced dozens of countries and many cultures from the lens of mountain tops, trenches, mines, crazy field drivers and unknown food substances. These career opportunities and experiences have provided me with more than enough reward. To be acknowledged by the Society for Sedimentary Geology with the Pettijohn Medal is truly an outstanding accolade.

Thank you!

Shepard Medal —Stanley Riggs





Biography (Steve Culver)

Stan Riggs, Emeritus Distinguished Professor in the Department of Geological Sciences at East Carolina University (ECU), graduated from Beloit College in 1960 with a BS in Geology, from Dartmouth College in 1962 with a MS in geology and he earned a PhD in Geology from the University of Montana in 1967.

Stan's early research on onshore and offshore phosphorites was of immense value to many third world countries and he was awarded the Oliver Max Gardner Award in 1983 for the single faculty member in the University of North Carolina system who has "made the greatest contribution to the welfare of the human race." From 1984 to 1988 he was Co-Director of IGCP 156—Phosphorites. A commentator stated, "I doubt if there is a country in the world that has not benefited from the work of Project 156 through the publications, training, and expertise".

Since 1967, Stan's research on the coastal geology of North Carolina has been broadly applicable to barrier island coastal systems around the world. In 2000 he codesigned, and then led for over a decade, a USGS-funded multi-institutional cooperative that resulted in ca. 70 peer-reviewed publications, ca. 180 abstracts, 4 PhDs and 31 master's degrees from ECU alone.

Stan has a deep conviction that scientific research should be not only relevant to humankind but also communicated beyond the world of academia. Among many appointments, he served on the NC Governor's Committee on Marine Natural Resources in the early 1970s, the State Emergency Response Team for the NC Division of Emergency Management (1998-2003), and the NC Legislative Commission on Global Climate Change (2005-2011). In 2013, he founded "North Carolina Land of Water", a non-profit organization whose mission is to enable the long-term, sustainable economic development of coastal North Carolina through wise management of natural resources.

In addition to teaching his many students for some 50 years, Stan's educational efforts have reached far and wide. He has lectured and led field trips for numerous teacher-training workshops that introduce high school educators to coastal processes. Stan has also got the word out on coastal processes and climate change through many documentaries on NC public television. Through his skills as a communicator, Stan's scientific research will influence the management of our coasts for decades to come.

Citation: For more than 50 years of rigorous research, inspirational teaching, and accessible outreach, and for a vision that will contribute to wise management of our coasts in the coming years of climate change. His work for the benefit of human-kind will have an influence far into the future.

Stanley Riggs' Acceptance

I am deeply grateful to the Society for Sedimentary Geology for bestowing on me the great honor of the 2021 Francis P. Shepard Award for "<u>Excellence in Marine Geology</u>". When I first began studying coastal-marine processes of the southeastern US coastal plain and continental shelf in 1962, there was no way to foresee where this work would lead. Now, to receive the most prestigious Shepard Award for undertaking this incredible career journey, is a very humbling experience.

I have always believed that team approaches to work on common goals had unlimited potential. Many people have played key roles as working team members through my 59-year career—and we're not done yet! I would like to specifically acknowledge Dr. Hank Woodard (Beloit College), Dr. Robert Reynolds (Dartmouth College), and Dr. Don Winston (University of Montana) who each laid critical groundwork for me.

I have been on the faculty at East Carolina University for 55 years as a Distinguished Professor. During this time my faculty colleagues, students, and associates at allied universities, state and federal agencies, and local citizenry were critical partners on our teams. Explicit thanks go to Charlie Brown, Scott Snyder, Stephen Culver, Dorothea Ames, David Mallinson, Albert Hine, Orrin Pilkey, Bill Burnett, Richard Sheldon, Peter Cook, Michael O'Connor, and numerous scientists, leaders, and citizens from everywhere we worked around the world. <u>But most importantly has been the un-ending support I received from my fabulous family</u>.

An incredible parade of life preceded <u>Homo sapiens</u> brief experience on earth and left a fossil record of appearance and disappearance. The basis for our future actions must acknowledge our planets finite limits with top priority placed on environmental quality of the earth system and the life of its inhabitants rather than on unlimited growth, unfettered development, escalating profit margins, and military domination. Humans do not stand alone; we are an integral part of a much larger system with which we must live harmoniously and learn to manage with understanding and compassion. Society must use good science to help resolve the cause of problems rather than build arsenals of painkillers to annihilate superficial symptoms. Geoscience's crucial contribution is its ability to educate society about the earth's engines of change and their consequences.

SEPM's recognition for our team's work over six decades is greatly appreciated. I accept this award for all the wonderful colleagues, students, and citizens who care deeply about the future of the earth's resources, its complex eco-systems, and inspiring and dynamic landscapes. For all young scientists, do great things by putting your science to work in the public domain—giving back provides great rewards and can help ensure human's sustainable future on our precious planet.

THANK YOU VERY MUCH FOR THIS RECOGNITION!

Honorary Membership —Kitty Milliken





Biography (Kathie Marsaglia)

Honorary membership in SEPM is given to Kitty Lou Milliken in recognition of her service to SEPM and her accomplishments in the field of sedimentary petrology. *She is the seventh female scientist to be so honored out of 125 awards since 1930 and only the third since 1978.*

Few students enter college as geology majors and even fewer know they want to be geologists in high school. Kitty was the rare example whose interest in sedimentology started in grade school during forays into the rocky fields and streams of southern Kentucky, including a memorable 1968 GSA field trip where her geo-mentor, Peter Whaley, introduced her to his PhD advisor, John Ferm. Kitty went on to receive a B.A. in Geology at Vanderbilt University in 1975, the same year she first joined SEPM and also transitioned to the graduate program at the University of Texas at Austin to work with the legendary Robert "Luigi" Folk. SEPM has been a constant thread in the tapestry of Kitty's career. Her Master's thesis on silicified evaporites would produce her first paper, a 1979 publication in the Journal of Sedimentary Petrology (JSP). At UT, Luigi (Twenhofel Medalist) and Earle McBride (Pettijohn Medalist), both SEPM Honorary Members, introduced her to the wonders of sedimentary petrology and the "vagaries" of diagenesis. Lynton Land (another Pettijohn Medalist) introduced her to sedimentary geochemistry and set her to work on a PhD project defining the sedimentary inputs and diagenetic products of the Gulf of Mexico stratigraphic succession. It was in this period that she did her first work on mudstone petrology. Her PhD (1985) was followed by a string of seminal papers on Gulf Coast clastic provenance and burial diagenesis, six of which were published in JSP from 1988-1994. Altogether she has authored and co-authored sixteen papers in JSP and its successor the Journal of Sedimentary Research (JSR).

At the invitation of John Southard, Kitty began her term as Associate Editor for JSR (1993 - 2000). As co-Editor of JSR from 2004-2008, she worked with Colin North to advance the citation performance of JSR, increase the number of publication pages, and transition from paper copies to digital review. Later, as SEPM President from 2014-2015, she encouraged the memorandum of understanding with IAS---something that has led to joint sponsorships of meetings and sessions, including the upcoming ISGC. She has a long history of activity in the SEPM Clastic Diagenesis research group, chairing the group in 1991 and 2003.

Post-PhD Kitty took on a variety of research and lecturer positions at UT Austin eventually becoming a Senior Research Scientist, with published work that covers diagenesis in sandstones, mudrocks, limestone, dolomite, chert, and serpentinite as well as microscopy methods, and educational materials for sandstone, mudrock, and carbonate petrology. During this time she made forays into two petroleum research labs (Exxon Production Research and Institut Français du Pétrole), and sailed on her first of five Ocean Drilling Program scientific expeditions (149, 316, 320t, 338, 362), broadening her research experience into unconsolidated muds. In 2008, she moved to the Bureau of Economic Geology where she has further explored the mysteries of mudrock diagenesis with a focus on rock property evolution through combined compaction and cementation. Her publications are many (>125), varied in topic, and highly cited.She adds this award to a long list of other honors including: GSA Fellow (2008), AAPG Berg Outstanding Research Award (2015), AAPG Distinguished Lectureships, publication awards from AAPG (Pratt), International Association of GeoChemistry (Hitchon), and awards for Teaching with Technology from the University of Texas at Austin.

Citation: For exceptional service to SEPM as a leader and editor and to the field of sedimentary petrology as a scholar, explorer of the microscopic realm, creator of petrological educational materials, vibrant collaborator, and outstanding role model.

Kitty Milligen's Acceptance.

Thank you, SEPM! And my thanks to the individuals who nominated me. To receive Honorary Membership in this Society is wonderful. I also want to thank SEPM for all the Society activities that have allowed me to make so many dear friends, citationist Kathie Marsaglia being one of them.

In reviewing responses to awards, I found that the theme of good luck is a common one. I, too, should be counted among the fortunate. My parents were surely bemused at the small child who brought home rocks, then more rocks. But they gave me books about rocks and a cabinet for my precious specimens. When a few rocks proved particularly mysterious, they took me to meet geology professors at Murray State University. My luck continued----these professors were generous and open minded about a little girl who loved rocks. I was invited to their classes and, on through my high school years, to their labs and field trips. My prized 1968 edition of Folk's Orange Book was obtained because Peter Whaley said I should get a copy and read it over and over.

At Vanderbilt my luck persisted. There's not space allowed here to list the great professors there but I learned things of immense value from each one, including the importance of joining SEPM and the wisdom of going to Texas.

Arriving in Texas my greatest good fortune unfolded. It was in the "magical years" at UT, when Bob Folk and Earle McBride, great friends at the peaks of their careers, had been joined by the third member of their collaborative, Lynton Land. There was a fluid mix of students working with those three, and with one another, in various combinations, as we took up the big issues of what happens to sediments after deposition. Having arrived with the first real influx of women into the graduate program since the 1930s I could look around and see other ambitious people who looked and sounded a lot like me.

With PhD in hand, I left UT for the petroleum industry but it didn't last long. Did a downturn in the industry break my luck? No! I learned a lot and made more great friends and colleagues. I called Lynton Land and he said, "Just come back to Austin and we'll work something out." Arriving "home", Earle McBride gave me a big work table at the back of his lab with a telephone and a key to his office. He said, "My microscope is your microscope". I worked at that table for the next 20 years. It's no exaggeration to say that Earle McBride saved my career. I was free to work on whatever I wished, which, luckily enough, was mostly mud. In the late 1980s no one had any idea that mud would turn out to be quite the thing.

Despite never having a faculty position, my good fortune has included outstanding students. Many of these students came during my recent UT years at the BEG, where I've been allowed to teach despite that not being in my job description.

So many things push too many women out of the pipeline for a sustained career in science. An aspect of my remarkable luck, is that these things, by and large, did not happen to me in any consequential way. Sure, there were naysayers, but to quote Sorby, "Most luckily, I took no notice of them." My science mentors were genuine collaborators and friends. Peer mentors brought more collaboration and career advice. My husband and I shared parenting of a healthy and independent-minded child. We had the finest daycare. During my months at sea my mother was helping at home. My geologist husband Steve and non-geologist daughter Katy have always stepped up in the most generous ways to support my work and cheer me on. My house is still full of rocks.

Thank you SEPM. It's a wonderful honor I've received and I'm so grateful for the good fortune of my long association with this fine organization

Twenhofel Medal — Teresa Jordan





Biography (Linda Godfrey & Peter B. Flemings)

Terry Jordan's enthusiasm for research is matched only by her openness and generosity in sharing her ideas with students and professionals alike. Throughout her career, Terry has coupled field observations with process-based models to illuminate how continental basins couple with orogenic systems and record mountain belt evolution. She envisioned how thrust loads drove the form and evolution of foreland basins and she developed one of the earliest approaches to model surface processes with geodynamics to illuminate the coupling between tectonics and sedimentation. These contributions established the foundation for the quantitative coupling of tectonics, surface processes, and basin evolution that continues today. Her application of sedimentology and stratigraphy in South America continues to result in a great and more complete understanding of systems and processes that include sedimentary basins, mountain uplift, interactions between paleoclimate, surface processes, water resources, and natural hazards. With US and South American colleagues, she studied the dry salt lakes of the Puna in Argentina and Atacama Desert of Chile.

She has embraced knowledge of halite petrology and isotope geochemistry and folded them into a stratigraphic model to better understand their context and implications. She expanded her studies to include: the study of water resources through architectural structures of complex aquifer systems; the analyses of, and hazards arising from, torrential desert storms; the study of fossils and soils and their importance in the stratigraphic column in defining surface processes; the study of sediment geochemistry to describe past environments. She is now tackling sustainable energy through the study of geothermal energy in the Appalachian foreland.

Her openness in discussing her work has led to fruitful industry, Government and academic collaborations. She is a stalwart researcher in Chile and Argentina, advising students and established researchers alike. She inspires students and young researchers by her dedication, motivation and desire to learn. She is always willing to share information and ideas with everyone, regardless of their initial understanding, and she has never lost the curiosity and drive to explore new fields. In the words of one, "…Terry is an honest person, open and generous with her knowledge, very welcoming to her colleagues, students and those who work with her in the field. She listens and share ideas, never imposes them. It has been a pleasure and a lesson for me to work with her all these years as a geologist belonging to the Geological Survey of Chile, constituting an enormous contribution to our work."

Through working with Terry, we, and others, have gained a huge appreciation of the importance in placing micro-analyses into a larger framework to fully appreciate the information they provide. It takes scientific curiosity, intelligence, and patience to work with different research disciplines and Terry has done so with tremendous success. Terry Jordan 's stature and integrity as a scientist, combined with her humility and strengths as a mentor and collaborator, set her apart as an outstanding role model for all of us.

Citation: In recognition for her important and lasting contributions to stratigraphy and sedimentary basin analysis and their links between surface processes, environments, and the sedimentary record. She has inspired not only the present generation of geoscientists, but those of the future, through her enthusiasm, insight and clarity in writing and presentation.

Teresa Jordan's Acceptance

Thank you, SEPM officers, staff, awards selection committee, and members, and the group who secretively nominated me. I am both stunned and deeply honored to have been selected for the Twenhofel Medal.

The second part of that statement should need no explanation - it is a great honor to be selected for a career award by the organization that has been a constant intellectual home for me for almost 50 years. The first part, that I am stunned, may need some explanation. This is because much of my research over the last 40 years has strayed a long way from what I learned as a student to think of as "true" sedimentary geology. The decision to spend my full career at Cornell University, where there was never a second sedimentary geologist but instead a lot of inspiring geophysicists, led to research topics outside of the mainstream of research topics on which "true" sedimentary geologists focused. As a result, it is a surprise, and a very pleasant one, to learn that SEPM still counts me in.

I'd like to begin by acknowledging an unnamed co-recipient of this award: my husband, Rick Allmendinger, structural geologist and geological software developer extraordinaire. Without Rick's companionship and patience who knows where I would have ended up, but probably not here.

My connection to SEPM began as a college sophomore through Professor Gerald Friedman at Rensselaer, who was at that time President of SEPM and who recruited student members with the promise that a membership application sponsored by the society's president was very special. The sense of honor for selection for the Twenhofel Medal comes in part from the fact that I follow both Gerry Friedman and Bill Dickinson, my Stanford graduate school advisor, in this award.

There has been a wide diversity of research chapters for me, but most of them have one foot in fieldwork involving sedimentary rocks; it was the other foot that varied across a lot of data types and questions. When I was young, my central criteria for a career were that I wanted to continue to learn, and I wanted to work outdoors. When I finished graduate school and needed a label for the sake of preparing a CV, I picked "physical stratigrapher" because it was so general, even though I didn't know anyone who called themselves a physical stratigrapher. My career has filled my early criteria, and it stayed largely within the broad bounds of physical stratigraphy. The other major factor that has shaped my career was the discovery that the Andes Mountain system is a phenomenal natural laboratory.

When I was young and stood on outcrops with sets of professional geologists in a typical professional field trip experience, like those sponsored by SEPM, it was very common to find that seven sedimentary geologists would offer five independent and incompatible interpretations. To me, the situation was unnerving. It convinced me that I was not a field sedimentologist or facies geologist, because I couldn't possibly pretend to have the degree of self-confidence exhibited by the debate participants – driving me to the label "physical stratigrapher." However, more importantly, these experiences shaped a feeling that uncertainty on many interpretations must be extremely high, albeit unacknowledged. At Stanford in the late 1970s there was no shame in being an "arm waver". To the contrary, vigorous arm waving about the relationships between plate tectonics and geological features led to rapid progress in understanding. However, I'm happy to observe that over the last 40 years our science has moved away from arm waving. There continues to be great value in our individual and collective creativity, but many new tools and approaches were developed over these decades that allow our hypotheses to be better tested and our uncertainties to be at least partially quantified.

I learned that uncertainty is much less if the system studied corresponds to the last 10 million years. For the recent geological past, there is often the potential to extract meaningful analogues from a system that still operates. Even simple information goes a long way, like the modern drainage system and modern topography. Examination of youthful sedimentary systems means that remote sensing, digital elevation models, and shoveling holes are very helpful sources of data, and I greatly appreciate the power of all these tools.

My curiosity is strongest when the task is to reconstruct a history using sedimentary geology to provide the forensic clues. But I also enjoy using sedimentary rocks to solve practical problems. The changes of topics over the course of my career were driven by curiosity, by a somewhat short attention span, and by the pull of collaborators who wanted to do things which were different than what I had done in the past. Yet the projects continue to circle back to physical stratigraphy.

I would not have succeeded in that meandering research path if it had not been for learning very young the incredible value of collaboration. Through a 21st century lens, the choice to collaborate in a multidisciplinary team may be perceived as the only sensible choice. However, be assured that much about my career was not based on a long-range vision or wisdom, but rather on either serendipity or raw need or on collaborators dragging me into projects I never dreamt of conducting. Cornell was a very collaborative research home, especially inspired by geophysicist Bryan Isacks. Raw need was certainly the original factor in South American collaborations -- I couldn't have worked at the basin scale in youthful Andean basins if Argentine collaborators like Victor Ramos, Apolo Ortiz, Ricardo Alonso, and Roberto Hernandez had not joined me, bringing their decades of observations, access to seismic reflection data, knowledge of the nationally published literature, and alternative perspectives. Nor would there have been a robust chronological framework for foreland basin analyses without Noye Johnson of Dartmouth. Later, I couldn't have made sense out of the extremely unfamiliar materials and processes of the Atacama Desert without U.S.-based collaborators Tim Lowenstein, Linda Godfrey, and Jason Rech, and Chilean geologists Constantino Mpodozis, Nicolás Blanco, Claudio Latorre, Gabriel González, Arturo Jensen, and Christian Herrera, to name just a few. Now, because of collaboration with engineers, led by Jeff Tester, I am deeply immersed in study of the potential for geothermal energy production from the rocks of the northern Appalachian Basin.

Throughout my career, Cornell graduate students have inspired my thinking, taught me new methods, and developed into steadfast friends. I thank them all. All of the students, whether the first three in the door back in 1984, Carol Lee Roarke, Peter Flemings and Jim Beer, or the final one, Lester Olivares, or the numerous ones in between, have been great companions along the journey.

I'm delighted that physical stratigraphy is still a vibrant line of work, with a promise to continue to tantalize our curiosity and solve our problems. I am happy to continue to be part of the SEPM, and truly grateful for the Twenhofel Medal recognition.



FINANCIAL STATEMENTS

DECEMBER 31, 2020 and 2019

WITH

INDEPENDENT AUDITOR'S REPORT



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INDEPENDENT AUDITOR'S REPORT

To the Council SEPM (Society for Sedimentary Geology)

Report on the Financial Statements

We have audited the accompanying financial statements of SEPM (Society for Sedimentary Geology) (a not-for-profit organization), which comprise the statements of financial position as of December 31, 2020 and 2019, 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

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 of 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 that 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, 2020 and 2019, 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.

Emphasis-of-Matter

As discussed in Note 1 to the financial statements, SEPM (Society for Sedimentary Geology) adopted Financial Accounting Standards Board Accounting Standards Update No. 2014-09, *Revenue from Contracts with Customers (Topic 606)* effective January 1, 2020. Our opinion is not modified with respect to this matter.

Hogen Taylor UP

Tulsa, Oklahoma August 31, 2021

STATEMENTS OF FINANCIAL POSITION

December 31, 2020 and 2019

	2020	2019
Assets		
Current assets:		
Cash and cash equivalents	\$ 874,771	\$ 627,623
Certificates of deposit	150,007	625,187
Accounts receivable	256,076	157
Receivable from affiliate	2,710	14,331
Inventory	123,638	134,186
Prepaid expenses	83,302	53,944
Total current assets	1,490,504	1,455,428
Furniture and equipment, net	28,132	30,334
Investments	3,875,834	
Total assets	\$ 5,394,470	\$ 4,985,859
Liabilities and Net Assets		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 79,450	\$ 58,065
Deferred income	261,932	379,090
Total current liabilities	341,382	437,155
Net assets without donor restrictions:		
Undesignated	3,234,727	2,855,129
Board designated	1,818,361	1,693,575
Total net assets without donor restrictions	5,053,088	i
Total liabilities and net assets	\$ 5,394,470	\$ 4,985,859

STATEMENTS OF ACTIVITIES

Years ended December 31, 2020 and 2019

	2020	2019
Revenues, Gains and Other Support:		
Dues	\$ 80,780	\$ 95,625
Publications	190,304	222,667
Journal of Sedimentary Research - subscriptions,		
royalties and other	419,745	480,799
Palaios - subscriptions, royalties and other	147,629	153,712
Continuing education	7,100	48,952
Meetings, conferences and field trips	3,280	138,504
Membership activities	685	15,928
Net realized and unrealized gain on investments	295,137	410,849
Investment income	114,942	126,002
Total revenues, gains and other support	1,259,602	1,693,038
Expenses:		
Program expenses:		
Publishing costs - Journal of Sedimentary Research	209,935	189,365
Publishing costs - Palaios	123,829	129,630
Publications	154,868	215,538
Continuing education	7,104	16,834
Meetings, conferences and field trips	45,197	108,476
Membership activities	110,984	276,301
Grant award to SEPM Foundation, Inc.	34,000	111,015
General and administrative	 301,122	322,741
Total expenses	 987,039	1,369,900
Change in net assets	272,563	323,138
Net assets, beginning of year	4,548,704	4,225,566
Cumulative adjustment for the adoption of ASC 606	 231,821	-
Net assets, end of year	\$ 5,053,088	\$ 4,548,704

STATEMENTS OF CASH FLOWS

Years ended December 31, 2020 and 2019

	2020	2019
Cash Flows from Operating Activities		
Change in net assets	\$ 272,563 \$	323,138
Adjustments to reconcile change in net assets to net	φ 272,000 4	525,150
cash provided by (used in) operating activities:		
Depreciation	6,483	6,697
Net realized and unrealized gain on investments	(295,137)	(410,849)
Change in operating assets and liabilities:	(2)0,107)	(110,015)
Accounts receivable	(24,098)	14,859
Receivable from affiliate	11,621	96,724
Inventory	10,548	(48,457)
Prepaid expenses	(29,358)	(5,356)
Accounts payable and accrued liabilities	21,385	16,682
Deferred income	(117,158)	42,612
	(11,,100)	,01_
Net cash provided by (used in) operating activities	(143,151)	36,050
Cash Flows from Investing Activities		
Purchase of furniture and equipment	(4,281)	(3,507)
Purchase of investments and certificates of deposit	(1,265,018)	(948,871)
Proceeds from sales of investments and maturities of		
certificates of deposit	1,659,598	830,482
Net cash provided by (used in) investing activities	390,299	(121,896)
Net change in cash and cash equivalents	247,148	(85,846)
Cash and cash equivalents, beginning of year	627,623	713,469
Cash and cash equivalents, end of year	\$ 874,771 \$	627,623

NOTES TO FINANCIAL STATEMENTS

December 31, 2020 and 2019

Note 1 – Nature of Operations and Summary of Significant Accounting Policies

Nature of operations

The Society of Economic Paleontologists and Mineralogists (the Society) originally was an unincorporated technical division of the American Association of Petroleum Geologists and became a legally separate entity in 1987. 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. In 1989, the Society changed its name to SEPM (Society for Sedimentary Geology).

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.

Basis of presentation

The financial statements of the Society have been prepared on the accrual basis of accounting and, accordingly, reflect all significant receivables, payables and other liabilities.

The financial statement presentation is in accordance with the Financial Accounting Standards Board (FASB) Accounting Standards Update (ASU) 2016-14, *Not-for-Profit Entities (Topic 958): Presentation of Financial Statements of Not-for-Profit Entities*, which requires the presentation of two classes of net assets – net assets with donor restrictions and net assets without donor restrictions.

Descriptions of the two net asset categories and the types of transactions off-setting each category are as follows:

Without donor restrictions – Net assets that are not subject to donor-imposed stipulations and are available for use at the discretion of the Board of Directors (the Board) and/or management for general operating purposes. The governing board has designated, from net assets without donor restrictions, net assets for board designated purposes. Board designated net assets are subject to self-imposed limits by action of the Board of Directors. Board designated net assets may be earmarked for future programs, investment, contingencies, purchase or construction of property and equipment, or other uses.

With donor restrictions – Net assets subject to donor-imposed restrictions. Some donor-imposed restrictions are temporary in nature and may or will be met by expenditures or actions of the Society, or by the passage of time. The Society reports gifts of cash and other assets as revenue with donor restrictions if received with donor stipulations that limit the use of the donated assets. When a donor

restriction expires, that is, when a stipulated time restriction ends, or purpose restriction is accomplished, the net assets are reclassified as net assets without donor restriction and reported in the statements of activities as released from restrictions. The Society has no net assets with donor restrictions as of December 31, 2020 or 2019.

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.

Certificates of deposit

Certificates of deposit are carried at cost plus accrued interest.

Accounts receivable

Accounts receivable consists of amounts owed from other organizations for royalties and the Society's share of revenue from meetings and conferences.

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 included in inventory.

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.

Furniture and equipment

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

Investments

Investments in marketable securities are carried at estimated fair value as reported by the asset custodian. Unrealized gains and losses are included in the statements of activities.

Contracts with customers

The Society adopted Accounting Standards Codification (ASC), *Revenue from Contracts with Customers* (ASC 606) effective January 1, 2020, for all revenue forms other than contributions or investment income, utilizing the modified retrospective approach. In determining the appropriate amount of revenue to recognize, the Society applies the following five-step model: (1) identify contracts with customers, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations, and (5) recognize revenue as each performance obligation is completed. The Society accounts for a contract with a customer when it has approval, the contract is committed, the rights of the parties, including payment terms, are identified, the contract has commercial substance and consideration is probable of collection.

In accordance with ASC 606, the modified retrospective method was applied to those contracts which were not completed as of January 1, 2020.

Previously revenues were recorded as follows:

- For membership dues and subscriptions, revenue was recognized ratably over the membership or subscription term;
- For conferences and meetings, revenue was recognized when the event was held;
- For publications, continuing education and membership activities revenue was recognized when the publication was delivered, and services were rendered to the customer.

Under the modified retrospective method, the cumulative effect of applying the standard is recognized at the date of initial application. The Society was required to recalculate the revenue earned on any contractin-process at the implementation date and to restate the revenue and costs of services as if ASC 606 had been followed from the inception of the contract. In recalculating costs and revenue under ASC 606 guidelines, a cumulative effect adjustment of \$231,821 was recorded as an adjustment to opening net assets as of January 1, 2020. In addition, an increase to accounts receivable of \$231,821 was recorded as of January 1, 2020. Results beginning after January 1, 2020, are presented under ASC 606.

The impact of adoption of ASC 606 on the statement of financial position as of December 31, 2020, includes an increase in accounts receivable of \$231,821. The impact of adoption of ASC 606 on the accompanying statement of activities for the year ended December 31, 2020, is as follows:

	Recognition under previous guidance	under previous on 2020 Statement			
Subscriptions, royalties and other Publications Journal of Sedimentary Research -	\$ 182,081	\$ 190,304	\$ (8,223)		
subscriptions, royalties and other Palaios - subscriptions, royalties and other	409,891 148,763	419,745 147,629	(9,854) 1,134		
	\$ 740,735	\$ 757,678	\$ (16,943)		

These adjustments were made based on the identification of the fulfillment of performance obligations for the timing of recognition for certain publication royalty income.

Contracts with customers – A contact exists when services to be performed and products ordered are specified in a submitted and accepted membership application, written contract, purchase order or similar instrument.

Performance obligations – The Society's contracts may have a single or multiple performance obligations. For contracts with multiple performance obligations, the Society allocates the contract transaction price to each performance obligation using the estimated standalone selling price of each distinct good or service in the contract, generally equal to the prices specified in the contract. Membership terms include many benefits and discounts available to the member. The Society treats these as a single performance obligation, the availability of the benefits, resources and discounts, as the customer may not utilize all benefits and value is created to the member for the integration of these benefits.

For membership dues and online publications, revenue is recognized ratably over the membership or subscription term as the customer receives and consumes the benefits. Revenue from each print publication is recognized in the month they are mailed to subscribers. Revenue from conferences, meetings and other events is recognized when the event is held, and services are rendered. Generally advertising revenue is recognized when the advertisement is delivered, either in publication or its display at an event.

Payment terms for memberships and subscriptions are due when the contract is initiated. Payment terms for conferences, meetings and other events vary based on stated contract terms, but typically require an upfront deposit upon registration for the event and the remainder due shortly before the event occurs. Contracts typically do not contain variable consideration, any consideration payable to the customer or any significant financing components.

Contract modifications – The Society considers contract modifications to exist when the modifications either create new or changes the existing enforceable rights and obligations. Most contract modifications are for goods or services that are not distinct from the existing performance obligation(s). The effect of a contract modification on the transaction price is recognized as an adjustment to revenue on a cumulative catchup basis.

The Society has adopted the following practical expedients and accounting policy elections:

Incremental costs of obtaining a contract – These costs are included in selling, general and administrative expenses as incurred when the amortization period is generally one year or less.

Shipping activities – The Society has elected to treat shipping and fulfillment activities as fulfillment costs rather than a separate performance obligation. As a result, any consideration received related to these activities will be included as a component of the overall transaction consideration and allocated to the performance obligations of the contract.

Sales tax and other related taxes – Sales and other tax amounts collected from customers for remittance to governmental authorities are excluded from revenue.

Contributions

Contributions, including unconditional promises to give, are recognized as revenue in the appropriate category of net assets in the period received. Unconditional promises to give are recorded net of an allowance for estimated uncollectible receivables. This estimate is based on such factors as prior collection history, type of contribution and the nature of the fund-raising activity. Donor-restricted contributions are classified as net assets without donor restriction if the restrictions are satisfied in the same reporting period in which the contribution was received.

Pledges receivable are charged off when deemed uncollectible by management.

Functional expenses

The costs of providing various programs and supporting activities have been summarized on a functional basis in Note 11. The footnote presents expenses by function and natural classification. Expenses directly attributable to a specific functional area of the Society are reported as expenses of those functional areas while indirect costs, including salaries and benefits, that benefit multiple functional areas have been allocated among the various functions based on estimated cost attributable to each function.

Risks and uncertainties

The Society invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the value of investment securities will occur in the near term and such changes could materially affect the amounts reported in the statements of financial position.

Income taxes

The Society is exempt from federal income taxes under Section 501(c)(3) of the Internal Revenue Code (the Code) and has been determined not to be a private foundation under Section 509(a) of the Code. As a result, as long as the Society maintains its tax exemption, it will not be subject to income taxes.

Use of estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the accounting period. Actual results could differ from those estimates.

Reclassifications

Certain amounts in the 2019 statement of cash flows were reclassified to conform with the current year presentation. The reclassifications had no impact on net cash flows from operating or investing activities.

New accounting pronouncement yet to be adopted

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842), which seeks to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the statement of financial position and by disclosing key information about leasing arrangements. Consistent with current U.S. GAAP, the recognition, measurement, and presentation of expenses and cash flows arising from a lease by a lessee will depend primarily on its classification as a finance or an operating lease (i.e., the classification criteria for distinguishing between finance leases and operating leases are substantially similar to the classification criteria for distinguishing between capital leases and operating leases under the previous guidance). However, unlike current U.S. GAAP, which requires only capital leases to be recognized on the statement of financial position, ASU No. 2016-02 will require both operating and finance leases to be recognized on the statement of financial position. Additionally, the ASU will require disclosures to help financial statement users better understand the amount, timing, and uncertainty of cash flows arising from leases, including qualitative and quantitative requirements. Upon adoption, the Society will record a lease asset and liability equal to the present value of its future minimum lease payments on the statement of financial position and include additional disclosures on its leases in the footnotes to the financial statements. In June 2020, the FASB issued ASU No. 2020-05 which delayed the effective date of ASU No. 2016-02 until January 1, 2022.

Subsequent events

Management has evaluated subsequent events through August 31, 2021, the date the financial statements were available to be issued.

Note 2 – Financial Assets and Liquidity Resources

The Society's financial assets available within one year of the statement of financial position date for general expenditures as of December 31, are as follows:

	2020	2019
Assets:		
Cash and cash equivalents	\$ 874,771	\$ 627,623
Certificates of deposits	150,007	625,187
Accounts receivable	256,076	157
Investments	3,875,834	3,500,097
Total financial assets available within one year	5,156,688	4,753,064
Less:		
Amounts unavailable for general expenditures within one year due to:		
Board designated funds	(1,818,361)	(1,693,575)
Total financial assets available to management		
for general expenditure within one year	\$ 3,338,327	\$ 3,059,489

The Society structures its financial assets to be available as its general expenditures, liabilities and other obligations come due.

The Society regularly monitors the availability of resources required to meet its operating and capital needs. Although the Society does not intend to spend its Board designated funds, amounts could be made available with approval from the Board if necessary.

Note 3 – Inventory

Inventory consists of the following at December 31:

	2020	2019
Publications Work in process	\$ 123,638	\$ 130,856 3,330
Total inventory	\$ 123,638	\$ 134,186

Note 4 – Furniture and Equipment

A summary of furniture and equipment at December 31, is as follows:

	 2020	2019
Furniture and equipment Less accumulated depreciation	\$ 150,380 (122,248)	\$ 146,099 (115,765)
Furniture and equipment, net	\$ 28,132	\$ 30,334

Note 5 – Investments

Fair value measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Accounting Standards provide a consistent framework for measuring fair value and 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 measurements involving significant unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy are as follows:

- Level 1 Quoted prices in active markets for identical securities
- Level 2 Other significant observable inputs (including quoted prices for similar securities)
- Level 3 Significant unobservable inputs

The level in the fair value hierarchy within which a fair measurement in its entirety is based on the lowest level input that is significant to the fair value measurement in its entirety. There were no investment transfers due to changes in the observability of significant inputs between Level 1, Level 2 and Level 3 assets during the years ended December 31, 2020 or 2019.

The Society's assets measured at fair value on a recurring basis consisted of the following:

	Fair Value Measurements as of December 31, 2020			
	Level 1 Level 2 Level 3 Total			
Mutual funds	\$ 3,875,834	\$-	\$-	\$ 3,875,834
	Fair Value I	Measurements	s as of Decem	nber 31, 2019
	Level 1	Level 2	Level 3	Total
Mutual funds	\$ 3,500,097	\$-	\$-	\$ 3,500,097

Investments held at December 31, consist of the following:

	H	Iistorical Cost	Market (Carrying Amount)
2020 Community			
General investments:	\$	61 765	¢ 61765
Cash and cash equivalents Growth and capital appreciation funds	φ	61,765 966,742	\$ 61,765 1,220,672
Bond and balanced funds		584,501	931,434
International funds		107,015	119,405
international functs		107,015	117,405
Total general investments		1,720,023	2,333,276
New Frontiers Fund:			
Cash and cash equivalents		50,210	50,210
Growth and capital appreciation funds		511,041	964,564
Bond and balanced funds		306,356	333,905
International funds		173,695	193,879
Total New Frontiers Fund		1,041,302	1,542,558
Total investments	\$ 2	2,761,325	\$ 3,875,834
2019			
General investments:			
Cash and cash equivalents	\$	54,991	\$ 54,991
Growth and capital appreciation funds	Ψ	932,443	1,084,941
Bond and balanced funds		800,327	867,931
International funds		106,446	113,710
		,	,
Total general investments		1,894,207	2,121,573
New Frontiers Fund:			
Cash and cash equivalents		38,771	38,771
Growth and capital appreciation funds		502,669	837,663
Bond and balanced funds		299,349	317,458
International funds		172,772	184,632
Total New Frontiers Fund		1,013,561	1,378,524
Total investments	\$ 2	2,907,768	\$ 3,500,097

Realized and unrealized gains for the years ended December 31, were as follows:

	2020	2019
Unrealized gains Realized gains	\$ 282,074 13,063	\$ 337,317 73,532
	\$ 295,137	\$ 410,849

Note 6 – Deferred Income

Deferred income consists of the following at December 31:

	2020	2019
Dues Subscriptions Publications in process and other	\$ 39,825 144,685 77,422	\$ 69,286 175,175 134,629
	\$ 261,932	\$ 379,090

Note 7 – Commitments

The Society leases its office under an operating lease having an expiration date of July 2023. Minimum annual rental commitments are as follows:

Year	Amount
2021 2022 2023	\$ 24,435 24,624 14,364
	\$ 63,423

Rent expense was \$24,111 and \$23,976 for the years ended December 31, 2020 and 2019, respectively.

Note 8 - Net Assets Without Donor Restrictions

Net assets without donor restrictions consist of the following at December 31:

	2020	2019
General fund Board designated:	\$ 3,234,727	\$ 2,855,129
New Frontier Fund	1,542,558	1,378,524
Other	275,803	315,051
Total	\$ 5,053,088	\$ 4,548,704

The New Frontier 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 9 – Related Party Transactions

The Society received \$8,000 for each of the years ended December 31, 2020 and 2019, from SEPM Foundation, Inc. (an affiliated nonprofit entity) for management fees. The management fees are netted against general and administrative expenses in the statements of activities.

The Society contributed \$34,000 and \$111,015 to SEPM Foundation, Inc. (the Foundation) during 2020 and 2019, respectively, for student travel grants and to fund capital projects.

The Society had receivables from SEPM Foundation, Inc. of \$2,710 and \$14,331 at December 31, 2020 and 2019, respectively, resulting from the Society funding Foundation grants and capital project expenses, net of the Foundation's revenue received by the Society.

Note 10 – Concentrations and Contingencies

Approximately 29% and 26% of revenue for the years ended December 31, 2020 and 2019, respectively, is royalty income.

The Society maintains accounts and deposits with financial institutions which are insured by the Federal Deposit Insurance Corporation (FDIC). Typically, cash balances exceed the FDIC insurance limits.

The spread of the novel coronavirus known as COVID-19 has caused supply chain disruptions, quarantines and travel restrictions causing many of the Society events to be cancelled, postponed or pivot to a virtual format. The effect of the global pandemic on the Society's future financial position or results of operations is not currently determinable due to broader economic and industry uncertainties.

Note 11 – Functional Expenses

The Society's functional expenses by natural classification for the years ended December 31 are as follows:

	Program		General and administrative		Total
2020					
Salaries, taxes and benefits	\$	337,601	\$ 192,576	\$	530,177
Professional fees		-	15,246		15,246
Office expense		5,374	4,414		9,788
Occupancy		-	34,314		34,314
Maintenance and rental		-	9,651		9,651
Travel		389	1,150		1,539
Conferences and conventions		-	-		-
Insurance		-	27,758		27,758
Publication		235,900	-		235,900
Educational program		7,104	-		7,104
Grants and awards		34,000	-		34,000
Membership activities		65,549	-		65,549
Other expenses		-	9,530		9,530
Depreciation		-	6,483		6,483
Total	\$	685,917	\$ 301,122	\$	987,039

	Program		General and administrative		Total	
2019						
Salaries, taxes and benefits	\$	367,073	\$	192,576	\$ 559,649	
Professional fees		-		24,683	24,683	
Office expense		10,911		6,550	17,461	
Occupancy		-		36,518	36,518	
Maintenance and rental		-		7,936	7,936	
Travel		17,351		2,333	19,684	
Conferences and conventions		67,929		-	67,929	
Insurance		-		24,469	24,469	
Publication		285,303		-	285,303	
Educational program		14,382		-	14,382	
Grants and awards		111,015		-	111,015	
Membership activities		173,195		-	173,195	
Other expenses		-		20,979	20,979	
Depreciation		-		6,697	6,697	
Total	\$ 1	1,047,159	\$	322,741	\$ 1,369,900	