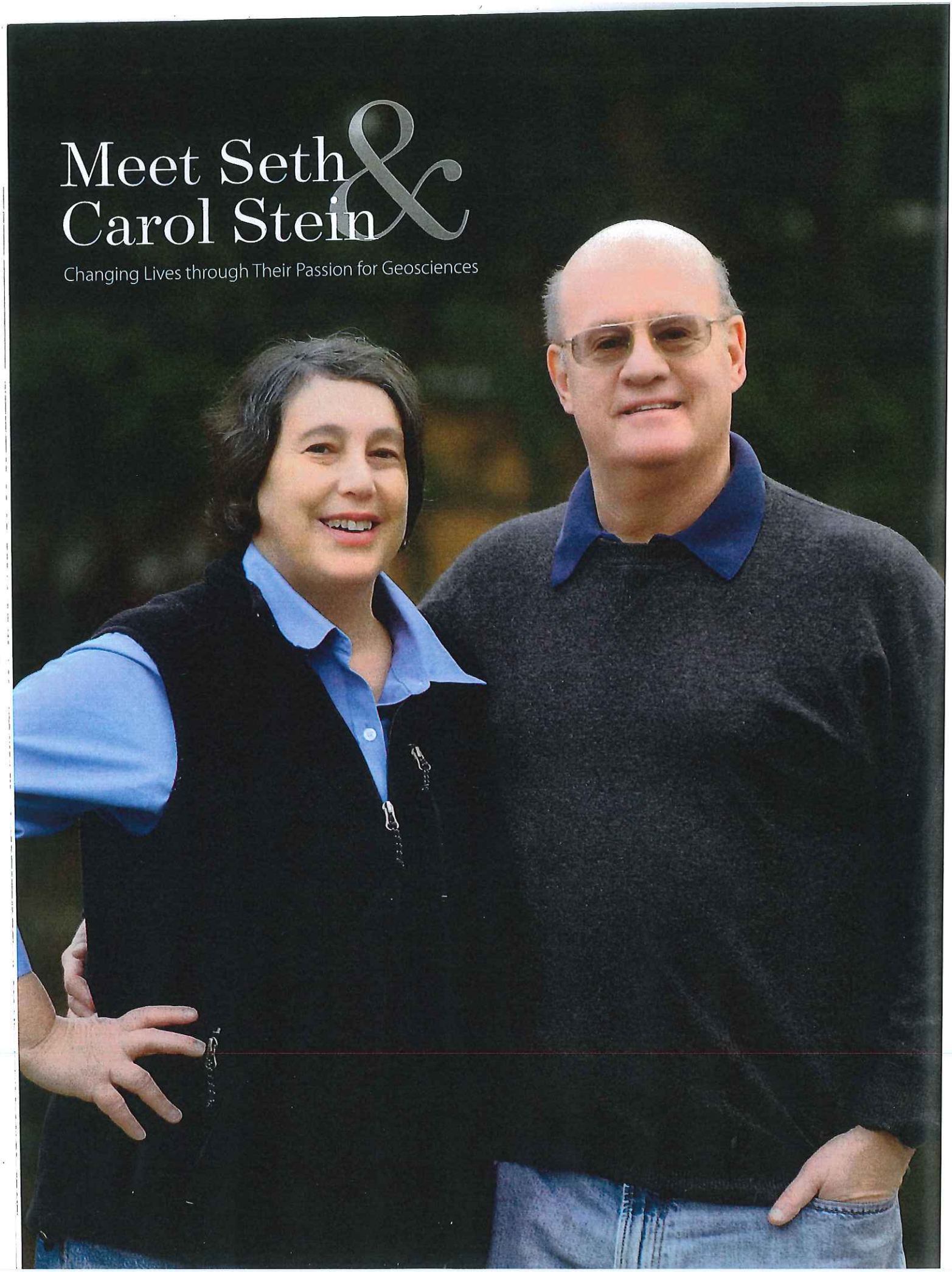
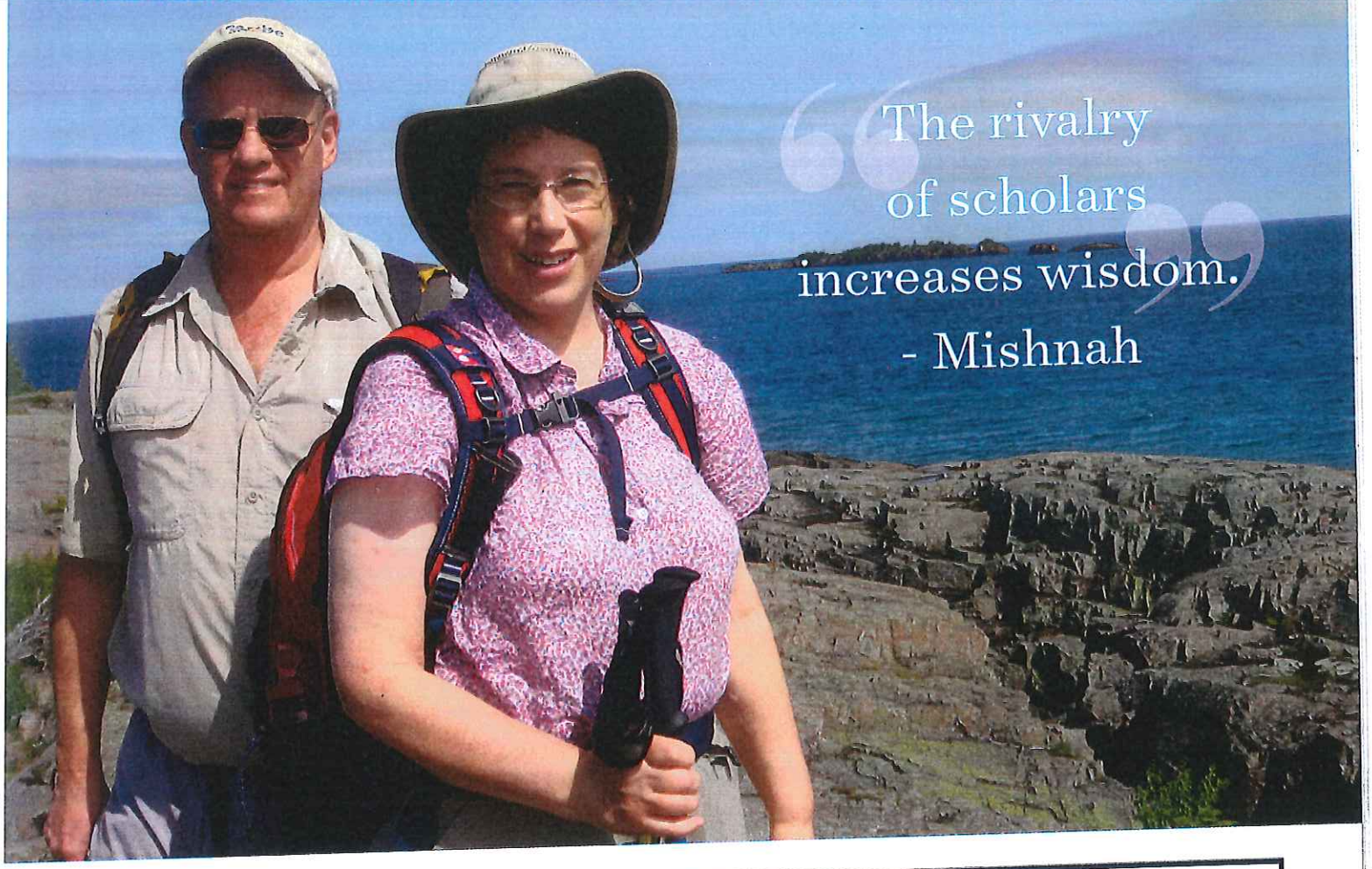
Meet Seth & Carol Stein

Changing Lives through Their Passion for Geosciences





Imagine taking a kayak trip on the Chicago River, discovering the glaciers' story behind Glencoe Beach featured in *Ferris Bueller's Day Off*, or learning how earthquake hazard maps may not be as accurate as they appear. For students of Seth Stein, a William Deering Professor at Northwestern University, and Carol Stein, Professor at the University of Illinois at Chicago, learning is an interactive experience.

In addition to instructing students in the classroom, Seth and Carol work together on joint projects, researching, and producing videos to help others discover the importance of geoscience on a number of topics.

These two scientists find Lake Superior to be a mysterious, magical place. 1.1 billion years ago, an 1800 mile long mid-continental rift formed under Lake Superior that could have pulled North America apart, splitting it into to two sections, had it fully developed.

What caused the rift to stop? Why did North America not break into two parts? Those questions still have not been answered.

What is amazing, though, is the depression -- a staggering 18 miles deep - that formed beneath Lake Superior. What's mysterious about Lake Superior is being able to "see" the rift underground. Using seismic waves and computer imaging, Seth and Carol can see the U-shaped basin.

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Interestingly, the long belts of volcanic and sedimentary arms of the rift meet at Lake Superior. One arm extends southwest to Oklahoma. The southeastern arm extends through Michigan, Ohio, and all the way to Alabama. If the country had split into two sections, perhaps these would have been the boundaries.

Carol shares, "You can see this majestic geological structure" for yourself. Check out the St. Croix river at the Wisconsin - Minnesota border. Look at the signature rocks formed by the rift, volcanic rocks, and magnetized minerals. Explore the different beautifully colored cliffs surrounding the lake in comparison to background rocks. With a greater understanding of geoscience, renewed appreciation for the earth will inevitably result.

In addition to studying the continental rift under Lake Superior, Carol and Seth are interested in earthquakes. Before the earth starts shaking, people turn to an earthquake hazard map to tell how strongly to build buildings to withstand potential earthquakes. But how well does this work? Seth compares earthquake hazard maps to weather forecasts years ago. While they can be helpful, they aren't as advanced as weather forecasts today. Misinterpretation and faulty data can result in misleading maps. But with each passing day, scientists are on a quest to improve their research for these maps.

Seth recognizes the need to note the uncertainties and limitations of earthquake hazard maps. Currently, he is supervising research by his graduate students on this important topic.

Overall, Seth and Carol find their professions very rewarding and enriching. Motivating and training the next generations of scientists makes being a professor worthwhile. Having a student see the connection and relevance to principles in the classroom is foundational to becoming a well-rounded individual. Discussing science with colleagues around the world -- as the Mishnah quote says -- helps them understand our planet better.

Seth used the results of his research in writing a textbook -Introduction to Seismology, Earthquakes, & Earth Structure – that is used around the world. Currently, this popular textbook is being translated into Chinese. To this day, Seth gets emails from around the world from students and professors, who are impacted by his work.

Carol appreciates it when students thank her for her teaching, even 20 years later, finding her courses helpful. This seasoned professor gives her students exposure to concepts. When they see a science program on television, they understand it clearly because of her teaching. Making a difference is what it is all about for her. She says, "It's more than just educating students." It's building a legacy through her lifework.

For more information on Seth and Carol's work, check out their website, http://www.earth.northwestern.edu/people/seth