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Geologist, Planetary Scientist: Susan Werner Kieffer "Genius" Award-Winner to Address IWU Student Research Conference, April 16-17

Bob Aaron
Illinois Wesleyan University

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BLOOMINGTON, Ill.A MacArthur Foundation "genius" award-winner and "music" geologist will keynote the 10th annual John Wesley Powell Student Research Conference, April 16-17, at Illinois Wesleyan University.

Geologist and planetary scientist Susan Werner Kieffer will deliver two presentations at the conference. About 50 students each year discuss their findings at the research conclavefindings spanning diverse fields: biology, chemistry, political science, psychology, history, English, mathematics, physics, theatre, and others.

Kieffer's 4 p.m. presentation, April 16 (Friday), is entitled, "'Scientist Sue'": Changing the Way At-Risk Adolescents View Science. She will speak in the Center for Natural Sciences, Beckman Auditorium (C-102), 201 E. Beecher St.

On April 17 (Saturday), Kieffer will make a noon-time presentation to research conference attendees, entitled, "Rock Music: Not all Geologic Processes are Adagio; Give me the Scherzos!" She will speak in the Main Lounge, Memorial Student Center, 104 E. University St.

"Scientist Sue"

Kieffer's "Scientist Sue" presentation will focus on her pioneering work in developing a "science-based, world wide web-based fully integrated curriculum" based on national standards. This is an outgrowth of her previous experience teaching science to homeless and at-risk seventh-and-eighth-graders in Phoenix.

Many of these youngsters, Kieffer explained, had low reading skills, low math skills, and the typical teenage fear of math and science. She pointed out that many of them shifted schools perhaps four times a year, with each school change costing a half-year in educational advancement.

However, working with the youngsters in 1997-98, Kieffer said, "We changed their perception of science and they loved it. Their excitement level was high, and conceptually, they understood things like meteors.

"If these children are to escape poverty," Kieffer concluded, "they have to leapfrog into the age of technology."

Now, Kieffer and her three colleagues (a math teacher, an English teacher with a background working with at-risk youngsters, and a professor of curriculum development and instructional design) are working on devising a sweeping new curriculumincorporating science, social science, English, and other elementsthat will tap into the technology and appeal of the world wide web global computer network as a teaching tool.

Two days after visiting IWU, Kieffer and her colleagues are slated to make the "Scientist Sue" presentation at an educational research conference in Montreal.

"Music Geologist"

Kieffer's geologic work focuses on very fast and violent processes, such as volcanic eruptions, meteor impacts, and huge river floods.

"My geology parallels my music," Kieffer said. "I can't stand slow piano movements. I skip the slow movements."

Hence the reference to scherzos in the title of her Saturday presentation, which will feature slides and video clips of catastrophic events like the Mt. St. Helen's eruption, Old Faithful as seen by a micro video camera lowered into the geyser between violent eruptions, and the meteor impact site that triggered the demise of the dinosaurs 65 million years ago.

MacArthur Fellow

Kieffer's MacArthur Fellowship, 1995-2000, was awarded to her "in recognition of your accomplishments in geology which demonstrate your originality, creativity, capacity for self-direction, and ability to make a contribution to our lives."

Commenting on the award, Kieffer said: "It was fabulous, a shock."

The MacArthur Fellowship allowed her to leave a tenured faculty position and found the Phoenix-based Kieffer Institute for Development of Science-Based Education (KIDSBE), which is spearheading the curriculum-development project.

"MacArthur Fellowships come with no strings attached," Kieffer said. "They hope you will do something for the betterment of humanity. The fellowships give you the permission to explore."

The John D. and Catherine T. MacArthur Foundation describes the fellowship program as "a stipend paid over five years to individuals who show exceptional merit and promise for continued and enhanced creative work." Typically, between 20 and 40 individuals are selected annually. Initial awards range from $30,000 to $75,000 a year, plus other benefits.

While the MacArthur Fellows program is popularly known as "genius" awards, the foundation points out that it avoids "using the term ‘genius’ to describe recipients of this Fellowship, largely because it is reductive in nature and does not take capacities such as dedication, intention, and hard work into account."

Kieffer Background

Physics and mathematics . . . astrogeophysics . . . geological sciences . . . planetary sciences. Kieffer has studied these fields, earning a doctorate from the California Institute of Technologyillustrating the interdisciplinary nature of science, a key theme of IWU’s student research conference.

Her main interests are geological physics, including disciplines like planetary sciences, solid-state geophysics, volcanic environments, and theoretical modeling with supercomputers.

Kieffer’s career has taken her to teaching in classrooms at the University of California-Los Angeles, Arizona State University, and the University of British Columbia, to working for the U.S. Geological Surveya federal agency once headed by John Wesley Powell, namesake of IWU’s research conference and IWU faculty member in the nineteenth century.

Kieffera native of Warren, Pa., who lives in Palgrave, Ontario, Canadahas been a member of the prestigious National Academy of Sciences since 1986, an organization with about 1,615 members, including only 150 geologists, geophysicists, geochemists, and representatives from related fields.

View of the Liberal Arts

Kieffer sees research, science, and the liberal arts as a comfortable partnership.

Referring to her own undergraduate years at Allegheny College in Meadville, Pa., Kieffer said: "I immersed myself in research from my freshman year in a liberal-arts setting. To me, research is a normal part of education.

"However, for me," Kieffer explained, "there is a more fundamental question and that deals with the role of liberal-arts collegesthey must be strong and preservedbecause over the span of a lifetime, a liberal-arts education gives you the flexibility to keep adapting to changes in life’s circumstances.

"A technical education," she added, "doesn’t let you do that. I’d never trade my four-year liberal-arts education for a technical one."

Student Research Conference

"The John Wesley Powell Student Research Conference is a unique Illinois Wesleyan experience," said IWU President Minor Myers, jr. "It showcases our students and their original workwork that gives them the opportunity to test their creativity, curiosity, organization, and critical-thinking skills.

"Many students participating in the research conference are multitalented," Myers added. "It is not uncommon for IWU students to major in diverse fields: biology and music, psychology and German, or physics and business administration. IWU students aren't nudged into either-or choices. Instead they are encouraged to pursue multiple interests simultaneouslya philosophy in keeping with the spirit and value of a broad liberal arts education."

John Wesley Powell

IWU's John Wesley Powell Student Research Conference is named for a legendary explorer, geologist, one-armed Civil War veteran, and a founder of the National Geographic Society.

Powell (1834-1902), who joined the Illinois Wesleyan faculty in 1865, was the first U.S. professor to use fieldwork to teach science. He took IWU students to Colorado's mountains in 1867, the first expedition of its kind in the history of U.S. higher education.

Powell headed the U.S. Geological Survey (1881-94) and was the first director of the Smithsonian Institution's Bureau of Ethnology. He was among the first to call for the U.S. government to play a role in developing the American West and he was a student of Native Americans, especially their languages.

Powell wrote on a wide range of subjects and promoted publications and projects that advanced scientific knowledge and popular awareness of the American West.

About Illinois Wesleyan

IWU, founded in 1850, enrolls about 2,000 students in a College of Liberal Arts, and individual schools of Music, Theatre Arts, Art, and Nursing. Since 1994, these facilities have been added to the IWU campus: a $15 million athletics and recreation center, a $25 million science center, a $6.8 million residence hall, and a $5.1 million Center for Liberal Arts.

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