

21st Anniversary

**Once Upon A Christmas Cheery
In The Lab of Shakhshiri**

December 1990



December 10-11

7:30 pm

*Farrington Daniels Chemistry Building
University of Wisconsin-Madison*

December 27

3:30 pm

7:30 pm

Boston Museum of Science

Michael Faraday's Christmas Lecture

Michael Faraday, the noted English physicist and chemist, lived from 1791 to 1867. He was a gifted lecturer, and he began giving his Christmas Lectures for children at the Royal Institution of Great Britain in the 1840s. Faraday loved simplicity, and he had a strong sense of the dramatic. His audience entered wholeheartedly into the world of science with him as guide. His ideas were still considered very unorthodox at that time, and children, who had not yet adopted conventional ideas, would react enthusiastically to the ones he presented. Eventually, the lectures became very popular, and even the Prince of Wales attended and learned about the mysteries of electricity. Faraday sought to awaken the sense of wonder in his listeners. He knew that once a person could be made to wonder about the world, it was only a short step to studying it. He strove to point out that if you looked closely at the most ordinary thing, such as the force of gravity, it ceased to be ordinary and became somehow miraculous. Faraday did all he could to urge his listeners to see and judge for themselves, to experiment--to question nature directly--whenever anyone discovered something out of the ordinary.



Bassam Z. Shakhashiri

"Scientist by training, teacher and public servant by trade, advocate by conviction, optimist by nature"--that is the way Bassam Z. Shakhashiri describes himself. As Professor of Chemistry at the University of Wisconsin-Madison, Dr. Shakhashiri finds outlet for all four attributes.

Dr. Shakhashiri was born in Lebanon, where he completed high school and attended the American University of Beirut for one year. He accompanied his parents and two sisters to the United States in 1957, and completed his undergraduate studies at Boston University in 1960. Dr. Shakhashiri was a Teaching Fellow in Chemistry at Bowdoin College in 1960-1961. His graduate studies were completed at the University of Maryland, which awarded him the M.Sc. and Ph.D. degrees. After a year as post-doctoral research associate at the University of Illinois, Urbana, he was for two additional years a member of its faculty in Chemistry. In 1970, he was invited to the faculty of the University of Wisconsin-Madison and became Professor of Chemistry in 1980. In 1983 he founded the Institute for Chemical Education at the University of Wisconsin-Madison and served as its first director.

On June 26, 1984 he was sworn-in as Assistant Director of the National Science Foundation for Science and Engineering Education by the President's Science Adviser. In this position he was the principal education officer of the government agency chiefly concerned with research in the natural sciences and engineering. As such, he was responsible for the design and administration of a wide variety of programs to improve all levels of education in mathematics, engineering and the sciences. He presided

over the rebuilding of the NSF efforts in science and engineering education after they had been shut down in the early 1980's.

The budget for Science and Engineering Education for fiscal year 1990 was \$204 million (up from about \$55 million in new funds for fiscal 1986), some 70 per cent of which went to improve the quality of science education below the college level. The President's Request for fiscal year 1991 was \$251 million; the final congressional action which was signed by the President into law has set the budget at over \$300 million.

His vision and effectiveness in developing and implementing national programs in science and engineering education became legend. His strong leadership and influence with Congress and across the Nation contributed to his removal from office. On June 1, 1990 his position was abolished by departing NSF director Erich Bloch and he was assigned as Senior Staff Associate in the Director's Office. He returned this fall to Madison (on leave from his career government status as a member of the Senior Executive System-Level 6) where he is now teaching introductory level chemistry to over 300 students.

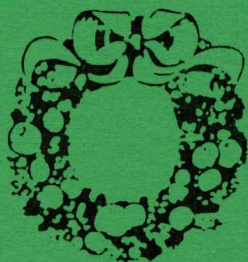
Every year since 1970 he has conducted a special Christmas Lecture full of demonstrations for his chemistry students and their friends. This program quickly expanded to an event eagerly awaited by the Madison community, and since 1973, it has been shown on local television and to audiences throughout the country. From 1984 to 1986 and in 1989 his Christmas Lecture was presented in Washington at the National Academy of Sciences, and in 1987 and 1988 at the Samuel P. Langley Theater of the National Air and Space Museum of the Smithsonian Institution. Beginning in 1986, the Christmas Lecture was presented in Boston at the Museum of Science. Dr.

Shakhashiri learned the tradition of Michael Faraday's Christmas Lecture from University of Illinois Professor Gilbert P. Haight, Jr., who had learned it from Princeton University Professor Hubert Alyea.

The Christmas show is only one expression of Dr. Shakhashiri's attachment to hands-on science. He is well known nationally and internationally for his development and use of demonstrations in the teaching of chemistry. He has conducted numerous workshops for college and school teachers on a variety of educational topics and has presented more than five hundred lecture demonstrations to audiences of all ages in a variety of settings including schools, convention centers, shopping centers, and retirement homes. As a consultant to the Chicago Museum of Science and Industry, Dr. Shakhashiri and his associates developed in 1983 an interactive chemistry exhibit, the first of its kind in the United States. He is co-author of several publications including: MANUAL FOR LABORATORY INVESTIGATIONS IN GENERAL CHEMISTRY; WORKBOOK FOR GENERAL CHEMISTRY AUDIO-TAPE LESSONS; CHEMICAL DEMONSTRATIONS: A HANDBOOK FOR TEACHERS OF CHEMISTRY, VOLUMES 1, 2 and 3.

Dr. Shakhashiri is a member of many scientific and educational organizations including the American Chemical Society, in which he has held numerous leadership positions at the local and national levels. In 1986, he was elected a fellow of the American Association for the Advancement of Science in recognition of his scientific and educational achievements. Dr. Shakhashiri has received many awards including the 1977 Keikhofer Distinguished Teaching Award from the University of Wisconsin-Madison, the 1979 Manufacturing Chemists Association Catalyst Award, the 1982 Ron Gibbs Award of the Wisconsin Society of Science Teachers, and the 1987 Boston University General Alumni Association Award

for Distinguished Public Service. He is the youngest recipient of both the American Chemical Society's James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry (1983) and the ACS Award in Chemical Education (1986). In 1988, the George Washington University conferred upon him the degree of Doctor of Public Service and Illinois State University awarded him the degree of Doctor of Humane Letters--for distinguished service to the science of chemistry, to science education, and to the Nation. In 1991 he will be awarded an honorary doctoral degree by Ripon College in recognition of his national contributions to science education.





Clint Sprott

Born in Memphis, Tennessee, in 1942, Clint Sprott developed an interest in physics early in his childhood. He earned a B.S. at The Massachusetts Institute of Technology in 1964 and a Ph.D. in physics from the University of Wisconsin-Madison in 1969. He spent 1970-1972 at the Oak Ridge National Laboratory in Tennessee. Since 1973 he has been a faculty member in the UW-Madison Department of Physics. His research focuses on plasma physics, and he is currently working on the development of magnetic fusion energy.

In an effort to share with the public his lifelong interest and enthusiasm for physics, Professor Sprott has presented "The Wonders of Physics" since 1984. Professor Sprott is a national leader in science education.



Paul H. Williams

Born in Vancouver, Canada, in 1938, Paul Williams completed his undergraduate degree at the University of British Columbia in 1959 and his Ph.D. degree in plant pathology at the University of Wisconsin-Madison in 1962. He immediately joined the faculty and rose to the rank of professor in 1971. He is the director of the Center for Biology Education and the originator of the Wisconsin Fast Plants and Bottle Biology Programs. His research activities include investigating the genetics of plant-parasite interactions with the aim of developing multiple disease resistant brassica vegetables and oilseeds to be distributed to plant breeders worldwide. In 1981 he received the Eriksson Gold Medal of the Royal Swedish Academy of Science and in 1989 served as president of the American Phytopathological Society. Professor Williams is a national leader in science education.

Acknowledgements

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