

## 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 a 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.



### Acknowledgements

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National Air and Space Museum  
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Santa Claus  
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## *“Once Upon a Christmas Cheery, In the Lab of Shakhashiri . . .”*

*Tuesday, December 13, 1988  
Samuel P. Langley Theater  
National Air and Space Museum  
Washington, D.C.*







## About Bassam Z. Shakhashiri

Bassam Z. Shakhashiri is Assistant Director of the National Science Foundation for Science and Engineering Education — on leave from the University of Wisconsin-Madison, where he is Professor of Chemistry. As the principal education officer of the Foundation, he is responsible for the design and administration of a wide variety of programs to improve all levels of education in mathematics, engineering, and the sciences. For Fiscal Year 1989, the science and engineering education activities are budgeted at over \$170 million (up from about \$80 million in Fiscal Year 1986) and range from fellowship support of graduate education, to curriculum development, faculty enhancement, and instrumentation and laboratory improvement for undergraduate education, to major curriculum development and teacher enhancement programs for elementary and secondary schools.

Prior to joining NSF in June 1984, Dr. Shakhashiri was Professor of Chemistry and Director of the Institute for Chemical Education at the University of Wisconsin-Madison. 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 his Christmas Lecture was presented in Washington at the National Academy of Sciences, and since 1987 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.

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 1960-61. 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.

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. 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 services to the science of chemistry, to science education, and to the Nation.



## Program

Dr. Martin O. Harwit <i>Director</i> National Air and Space Museum	Welcoming Remarks
Mr. Bill G. Aldridge <i>Director</i> National Science Teachers Association	Introduction of Speaker
Dr. Bassam Z. Shakhashiri	Christmas Lecture