

OPTICAL SOCIETY

ROCHESTER SECTION

ROSA News

August 2011

ROSA 2011-2012 Council Members

President

Julie Bentley

Past President

Rick Plympton

President Elect

Chris Palmer

Secretary

Cristina Canavesi

Treasurer

Jessica Nelson

Education

Steve Jacobs

Program Co-Chairs

Ted Mooney

Damon Diehl

House Co-Chairs

Melissa Geng

Monica Sears

Councilors at Large

Stephanie Bloch

Mari de Wit

Joe Vornehm

Cisca Sugiro

Attend our first event of the year on September 13th!

Our first talk of the year will be on Tuesday, September 13th by Daniel Harris, a Senior Scientist and Esteemed Fellow at the Naval Air Systems Command in China Lake, California. He will speak on the "History of Magnetorheological Finishing".

Abstract: Magnetorheological finishing (MRF) is a deterministic method for producing complex optics with figure accuracy <50 nm and surface roughness <1 nm. MRF was invented at the Luikov Institute of Heat and Mass Transfer in Minsk, Belarus in the late 1980s by a team led by William Kordonski. When the Soviet Union opened up, New York businessman Lowell Mintz was invited to Minsk in 1990 to explore possibilities for technology transfer. Mintz was told of the potential for MRF, but did not understand whether it had value. Mintz was referred to Harvey Pollicove at the Center for Optics Manufacturing of the University of Rochester. As a result of their conversation, they sent Prof. Steve Jacobs to visit Minsk and evaluate MRF. From Jacobs' positive findings, and with support from Lowell Mintz, Kordonski and his colleagues were invited in 1993 to work at the Center for Optics Manufacturing with Jacobs and Don Golini to refine MRF technology. A "preprototype" finishing machine was operating by 1994. Prof. Greg Forbes and doctoral student Paul Dumas developed algorithms for deterministic control of MRF. In 1996, Golini recognized the commercial potential of MRF, secured investment capital from Lowell Mintz, and founded QED Technologies. The first commercial MRF machine was unveiled in 1998. It was followed by more advanced models and by groundbreaking subaperture stitching interferometers for metrology. In 2006, QED was acquired by and became a division of Cabot Microelectronics. This talk recounts the history of the development of MRF and the founding of QED Technologies.

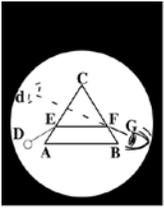
A Bit of History ... by Mari de Wit

This month's spotlight is on Frederick Eugene Wright who served as our second president from 1918-1919. As you can see from his biography, Mr. Wright was a very busy man. When starting my research on his involvement with the OSA, I found little detail. It wasn't until I started searching his geological field that I was overwhelmed with the amount of information available on-line.

Did you know... Dr. Wright was a pioneer in crystal optics and the development of optical methods for the identification of minerals -- in honor of his accomplishments, the name "Wright, F. E." has been given to a symmetrical crater in the southern part of the moon. He also made important contributions during World War I to the development and manufacture of optical glass in this country, which previously had to be imported from Europe.



FREDERICK EUGENE WRIGHT
1877 – 1953



OPTICAL SOCIETY

ROCHESTER SECTION

BIOGRAPHY:

Frederick Eugene Wright* was born on October 16, 1877 in Marquette, Michigan. His father was stationed there as state geologist and unfortunately died at an early age in 1888. Shortly after his death, Mrs. Wright with her three sons moved to Ann Arbor, Michigan.

In 1895 the family moved to Germany where he was a student at the Real Gymnasium at Weimar for one year. In 1896 he enrolled at the University of Heidelberg where, following in the footsteps of his father, he pursued intensive studies in mineralogy, petrology, and geology, as well as in chemistry, physics, and mathematics. In December 1900 the degree of doctor of philosophy (summa cum laude) was awarded to him at the age of 23.

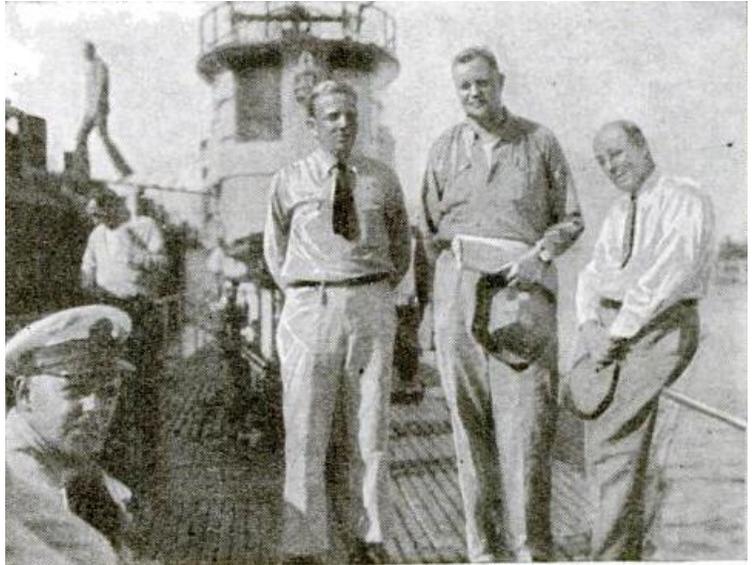
It is of interest to note that while in Heidelberg Dr. Wright spent a period in the shop of the well-known instrument maker Peter Stöe. This experience later proved very helpful in developing the various optical instruments and accessories with which the name of F. E. Wright has long been associated.

He was a pioneer in this country in crystal optics and the application of polarizing microscopic methods. In addition to this long list of papers, Dr. Wright made important contributions during World War I to the development and manufacture of optical glass in this country, which previously had to be imported from Europe. These studies were sponsored by the Ordnance Department and resulted in the publication in 1921 of the book entitled *The Manufacture of Optical Glass and of Optical Systems*.

Reference must also be made to Dr. Wright's researches and activities as Chairman of the Committee on the Study of the Surface Features of the Moon. These studies, which he began in 1924 and continued until 1939, were made at the Mt. Wilson Observatory. The results are recorded in the annual reports of the Committee in the Year Book of the Carnegie Institution of Washington.

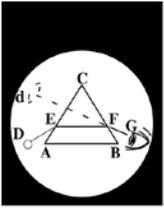
Dr. Wright is a member or fellow of many scientific societies in this country and abroad, including the National Academy of Sciences, the Mineralogical and Optical Societies of America of which he is a past president, and the Geological Society of America. In 1941 the honorary degree of Doctor of Science was conferred upon him by the University of Michigan.

Mr. Wright died on 25 August, 1953** at his summer home on Sagastaweka Island in the Thousand Islands. He was recognized as a pioneer in the development and application of optical methods for the identification of minerals.



Left to right: Dr. Fred E. Wright, of the Carnegie Institution; Dr. Vening-Meinesz, and Elmer Collins, naval hydrographer, on the submarine S-21's deck.

Popular Science Monthly, March 1929



OPTICAL SOCIETY

ROCHESTER SECTION

SMALL SAMPLE OF ACHIEVEMENTS:

Lunar Crater named for the late Dr. Fred E. Wright ***:

The name "Wright, F. E." has been given to a symmetrical crater in the southern part of the moon.

His direct visual and photographic observations contribute much knowledge about the moon's configurations, its craters, mountains, rifts and plains, but to learn what these are made of is a much more difficult problem. Dr. Wright had summarized three effects to analyze the moon's materials: by Absorption, Polarization and Plane polarization through reflection.

The petrographic microscope: A usefull tool in applied optics

JOSA, Journal of the Optical Society of America (1917 - 1983)

Vol. 1, Issue 1 pp: 15–21 — Jan. 1, 1917

Journal of the Washington Academy of Sciences

Vol. V February 19, 1915 No. 4

PHYSICS. — The accurate measurement of the refractive indices of minute crystal grains under the petrographic microscope.

Fred. E. Wright, Geophysical Laboratory.

Glass Making: War-time development of the optical industry, Journal of the Optical Society of America, 2, 1 - 7, 1919.

If interested, you can read his biography on any of the websites below:

- <http://footprints.org/9-100119.htm>

- <http://books.nap.edu/html/biomems/fwright.pdf>

- http://www.thefullwiki.org/Frederick_Eugene_Wright

* <http://books.nap.edu/html/biomems/fwright.pdf>

** http://www.minsocam.org/ammin/AM39/AM39_284.pdf and Science 13 August 1954: 241-242

*** <http://adsabs.harvard.edu/full/1954PASP...66..145A>