



Newsletter

Of the

New York Microscopical Society



30 North Mountain Avenue, Montclair, New Jersey 07042-1841

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Meeting Announcement

New York Microscopical Society, 2007 Fall Lecture Series

The Microscopy of Explosives

**Peter Diaczuk, Director of Forensic Science Training,
Center for Modern Forensic Practice at John Jay
College of Criminal Justice, CUNY.**

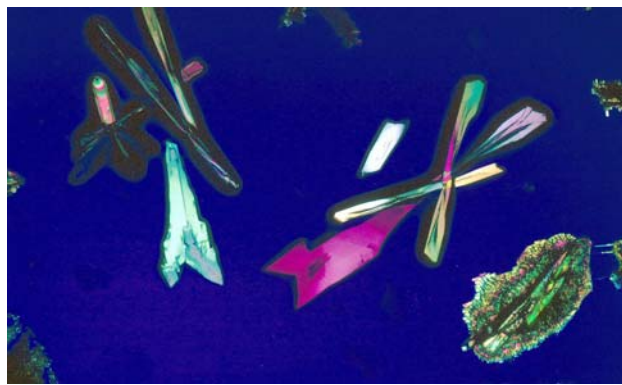
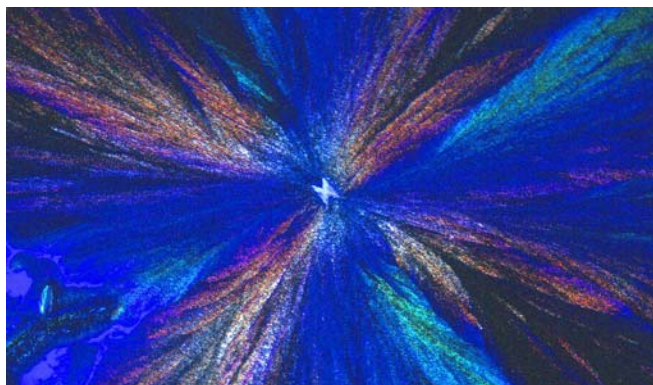
**Thursday, October 25th, 2007, 7:30 pm
American Museum of Natural History, Kaufman
Theatre, New York, NY**

Micro techniques have several benefits in the laboratory: cost savings, speed, simplicity, and safety when working with corrosive or hazardous materials. We will take a microscopic look at some explosive compounds exploiting the advantages cited above to examine their identifying characteristics using the stereomicroscope and the polarized light microscope.

Peter Diaczuk is active in several professional organizations including the New York Microscopical Society (Life member, Fellow and current President), Northeastern Association of Forensic Scientists (Board of Directors), Diplomate of the American Board of Criminalistics, and Full Member of the American Academy of Forensic Sciences. He has given over 30 presentations on forensic science topics, and conducted five workshops on scientific firearm and toolmark examination.

NYMS Members and their guests are welcome to join the speaker for dinner (\$25.00 all inclusive) at 5:45 p.m. at Calle Ocho (<http://www.calleochonyc.com/>), 446 Columbus Ave, between 81st and 82nd streets. Please reserve your place(s) with Angela Klaus by noon on Oct. 24th. Angela can be contacted by email (avklaus2@yahoo.com) or by phone (201-988-6251).

Typical crystallizations – melt and precipitate, polarized light



Fifty Years Ago – Microscopy Talks

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The Mission of the New York Microscopical Society is the promotion of theoretical and applied microscopy and the promotion of education and interest in all phases of microscopy.

Dues and Addresses

Please remember to mail in your Dues to Mary McCann, Membership Chair (see this page for address).

Junior (less than 18 years old) \$10

Annual \$30 (students ≥ 18 years old \$20)

Supporting \$60

Life \$300 (payable within the year)

Corporate \$175 (includes one advertisement in NYMS News)

To avoid missing notices:

Notify Mary if you have changed your address, phone or email.

Alternate Meeting Notifications

Please note that due to time constraints in publishing, some meeting notices may be available by calling Mel Pollinger at 201-791-9826, or by visiting the NYMS website.

Buy and Read a Good Book on Microscopy.

NYMS Lectures More than 50 Years Ago.

The Year Books of the New York Microscopical Society contain many gems of information about microscopy and microscopists. Members listened to exciting lectures given by amateur and professional alike. The following abstracts were scanned from the 1957 NYMS Yearbook.

ABSTRACTS OF PAPERS

The following abstracts are of talks given before the New York Microscopical Society from October 1956 to May 1957. More detailed information may be found in the Minutes of the Society.

PHOTOMICROGRAPHY

Philip Feinberg October 5, 1956

Mr. Feinberg directed his talk to the amateurs of the group, and discussed necessary equipment for taking good photomicrographs. Among other things a good heavy stand, a microscope with condenser, fine and coarse focus, apochromatic or (with a green filter) achromatic objectives, and a ribbon filament lamp were recommended. As camera equipment a ground glass viewing plate, a long bellows camera, film holders and a focussing lens were described. A 35mm camera was considered best for color slide micrographs, while a $3\frac{1}{4} \times 4\frac{1}{4}$ or a 4×5 camera was considered preferable for black and white work. Some excellent examples of photomicrographs were shown.

OPTICAL AND ELECTRON TEXTILE MICROSCOPY

F. Morehead October 19, 1956

The skin effect of viscose fibers as studied by cross section was discussed, and various staining methods demonstrated. Some of the newer fibers used in tire cords were shown to consist entirely of the skin portion. The skin effect was shown not to be caused by stretching of the fiber but rather by differences in crystal growth. For this investigation both light and electron microscopy was used and found to complement each other. The value of serial sections was stressed in the investigation of some of the skin effects. The value of the electron microscope in studying dope dyeing and soiling of carpets was also demonstrated.

VARIOUS TYPES OF MICROSCOPE ILLUMINATION

J. Lawrence November 16, 1956

Six rules for photomicrography were given by the speaker, and a very extensive illustrated presentation was made of many types of lamps and illumination systems. High and low voltage and wattage lamps were described in full, including data on lumen, filament, and length of life. The cost of these lamps ranged from 10 cents to \$400. Flat and concave mirrors were discussed with respect to optics and magnification used. Koehler illumination is adequate for low, medium and high magnifications, although critical illumination is best at very high power if a ribbon filament or zirconium lamp is used. Rod or lucite type illumination was discussed at length and demonstrated, and methods of making such a lamp were detailed.

TRICKS AND TREATS OF MICROSCOPY

W. Zieler December 7, 1956

Correct illuminations - the tricks - were discussed in order to obtain good results in microscopy - the treats. A detailed discussion of the different steps of the Koehler principle of illumination was given, and this technique was compared with the critical method of lighting. Since in the latter each individual light point of the object is received point by point from the source, the back lens of the objective is necessarily filled with light; on the other hand, with the Koehler method, a point of light on the back lens of the objective is sufficient. The Circle of least confusion was explained, and the importance of color of the light, and the effect of light waves in the microscope was brought out.

FERN SPORES AND MICROTOMY FOR MICROSCOPY

Dr. N. P. Marengo

February 1, 1957

Several fern spores which develop tetrahedral forms in the spore mother cell were discussed, and difficulties of sectioning the spores of *Onoclea sensibilis* were explained to be due to the high concentration of silicone in the cell wall. Slides of sections of the *osmundia* type spores showed that they can be cut by good micro techniques. Sections of four microns provide the desired orientation to show the internal structure of the cells. Growth of the individual spores in the spore mother cell was discussed, also the development of the nucleus and the arrangement of the plastids from the earliest plate form through to the final tetrahedral form. A method of fixation was discussed in addition to staining techniques.

THE STUDY OF METALLIC AEROSOLS

Dr. P. Till

March 1, 1957

This was a joint meeting with the New York Society of Electron Microscopists. Dr. Till discussed evaporation of metals to form aerosols, by using a metal evaporation unit flushed with helium gas. The aerosols were collected at distances of 6, 9 and 10cm from the evaporation basket. Metals used were aluminum, manganese, gold, silver, arsenic, cadmium and zinc. The size of the aerosol particle varied with rate of evaporation and distance from the source. The data was used to perform a number of intricate calculations and to develop a theory of nucleation.

MICROSCOPY OF CEMENT AND CERAMICS

H. Insley

April 5, 1957

The polarizing microscope is used in determining optical properties of ceramics, and samples are prepared by thin section in order to study texture, or by powder preparations in order to study refractive index. The metallurgical microscope is used for observation under reflected light conditions. Here thin sections are not necessary, only grinding of the surface. Slides demonstrated faults in ceramics and cements. Polished specimen slides showed the presence and location of the various components in cement clinkers, ceramics and various glasses.

DYE STUDIES WITH THE MICRODYSCOPE

H. E. Millson

May 3, 1957

The microscope is an essential aid in solving the many dyeing problems. The construction and use of the microdyescope, an invention of the speaker, was carefully described and explained. This instrument makes it possible to study the processes of dyeing, finishing, rinsing and scouring under the microscope without removing the fibers. The levelling of dyes is one subject which can be studied with this apparatus. Others are removal of lanolin from wool fibers, shrinkproofing of fibers and the formation of sacs on wool fibers. For the investigation of fibers at extremes of temperature and pressure the high temperature microdyescope was constructed. This instrument operates at 60-65 pounds pressure at 325°F and yields much important information on the behaviour of fibers under these conditions. By observing the deleterious effect these temperatures and pressures have on many fibers, other methods of dyeing have been developed which are less harmful to the fibers.

The various types of microscopy during this pre-digital, non-computerized period is unique to the technology of that day and represents, in its fullness, the cutting-edge of optical science of that time and for some, a revealing glimpse of the future.

PLM Workshop: by Peter Diaczuk

I am pleased to announce that Skip Palenik of Microtrace, LLC will be conducting an advanced PLM workshop at the annual meeting of the Northeastern Association of Forensic Scientists (NEAFS) on Wednesday 31-Oct and Thursday 01-Nov-2007. Interested parties may get full information, directions and cost at the NEAFS website, www.neafs.org (continued on page 4)

(continued from page 3)

Seating is limited but there are still some seats available. Leica is supplying the microscopes for use during the workshop. This is a great opportunity for folks in the area that would like some advanced PLM instruction and its application to forensic dust examination.

This two day hands-on workshop will introduce the intermediate and advanced forensic microscopist to the methods of forensic dust analysis. Locard's Exchange Principle was based on the results of Dr. Edmond Locard's exhaustive studies of dust: their transfer, composition and sources. By means of lectures, demonstrations and laboratory exercises, students will be introduced to the microscopical and microchemical techniques available for analyzing and identifying the components of dusts from a variety of sources. Loose dusts, indoor vs. outdoor dusts, dust from clothing, from under the fingernails, earwax and other even less-savory dusts will be examined.

The ultimate goal of this short introduction is to awaken the student to the value of dust in revealing its source and, by inference, that of the person or object from which it was collected. Students are invited to bring dusts of all varieties as examples to use for demonstration and analysis in the class.

The course will be conducted by Skip Palenik a student of Dr. Max Frei-Sulzer¹, late director of the Scientific Service of the City Police of Zurich, Switzerland and a student, himself, of Dr. Locard.

¹ Thorwald, Jürgen, Crime and Science, Harcourt, Brace & World, Inc., New York (1967) p. 382 *et seq.*



1st grader, Serena, discovering a new world on her 6th birthday.

NYMS Holiday Banquet 2007 at EAS

Answer to September 2007 Mystery photo



Skipper butterfly, Berks Co., PA

Winners were Dr. Ben Glassman and Joe Rainone

October 2007 Mystery Photo



Mystery Photo – Do you think you know what it is? Email or phone me your answer. > Mel

Got something you want to sell, trade or publish in the Newsletter? Write, call or send an email message to: 201-791-9826 or pollingmel@verizon.net or
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1. Regular mail, gray scale images: Do nothing. Color may continue.
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