

Newsletter

Of the

New York Microscopical Society

1 Prospect Village Plaza (66F Mt. Prospect Avenue) Clifton, New Jersey 07013-1918 GPS: Latitude 40.8648N, Longitude 74.1540W



Nov-Dec 2016

Editor: (201) 791-9826

Volume 10 (30) Number 9

NYMS ANNUAL BANQUET DECEMBER 11, 2016

What: Enjoy a wonderful Buffet Luncheon, including soft beverages (cash bar available) and desserts, with your fellow-members and guests.

Enjoy an exciting presentation by Asst. Professor Nicholas Petraco, MS, D-ABC John Jay College of Criminal Justice (See page 3 for add'l info).

An overall jolly time at one of the oldest restaurants in mid-town Manhattan; The Landmark Tavern.

When: Sunday December 11, 2016, from noon until 3:30pm. Where: Landmark Tavern, 626 11th Ave., at W. 46th St New York City, NY Tel: 212-247-2562.

Cost: \$35.00 per person.

How: Reserve your place now* by filling in the Reservation Request form below and mailing it along with your check to the Treasurer (see address below).

*Reservation requests must be received on or before November 28, 2016

Number attending ______ @ \$35/each = (write check amount) _____ Member name Address _____eMail

Phone

Send this form and payment to:

NYMS Banquet 2016 c/o Mel Pollinger, Treasurer **18-04 Hillery Street** Fair Lawn, NJ 07410-5207

For additional information contact Mel Pollinger (201) 791-9826 or email: pollingmel@optonline.net Space is limited, so rush your reservation request in to reserve your place(s) asap.

A Not-For-Profit Educational Organization, (nyms.org)

Save a Tree: Get The Extended Newsletter: By Email Only

New York Microscopical Society Board of Managers

(Officers Term 2016-2017)

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Dues and Addresses Please remember to mail in your Dues to: Mel Pollinger Treasurer, NYMS 18-04 Hillery St. Fair Lawn, NJ 07410-5207

Junior (under age 18) \$10 Annually <u>Regular</u> \$30 <u>Student (age 18 or above) \$20</u> Annually <u>Supporting</u> \$60 Annually <u>Corporate (includes one</u> advertisement in NYMS News) \$175 Annually <u>Life</u> \$300 (payable within the year) To avoid missing notices: Notify Mel Pollinger if you have changed your address, phone or email.

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.

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 emailing: pollingmel@optonline.net

Awards Given by the New York <u>Microscopical Society</u>

The New York

microscopical Society takes great pleasure in recognizing and rewarding individuals who have contributed to either the activities of the society or to furthering microscopy. These awards are described in our website and in a pdf file for our email newsletter recipients. All members are eligible to nominate individuals for these various awards, and are encouraged to do so. John A. Reffner, Awards Committee Chairperson

Awards Committee Chair: John A. Reffner Members

Jan Hinsch Peter Diaczuk Angela Klaus John R. Reffner

To Order Your NYMS Lapel Pins Send a check in the amount of \$12.00 per pin to: New York Microscopical Society c/o Mel Pollinger, 18-04 Hillery Street, Fair Lawn, NJ 07410. To avoid shipping & handling charges, pins may be purchased directly at any NYMS meeting for \$10.00.



Mel Pollinger, Editor 18-04 Hillery St. Fair Lawn, NJ 07410-5207



Please remember to pay your dues

Buy and Read a Good Book on Microscopy.

Library New Addition



"Teaching Microscopy," edited by John Gustav Delly NYMS Library No. 7149

From page 1...

Banquet Speaker Nicholas Petraco, Lecture Title: The Factual Story of the Authentication of the Lost 9/11 Flag.



Nicholas Petraco Examining Dust from Flag

Coming Up in January, or February,2017 We will meet in in Manhattan together with the New York Society for Experimental Microscopy (NYSEM).

Mystery Photo for Nov-Dec 2016



Answer on pg 4

<u>On September 29 in Manhattan</u> at the very hospitable Shevchenko Scientific Society's very up to date lecture hall, we opened NYMS' 2016-17 program of monthly lectures by hosting Sally Warring, ABD, the protistologist and international media sensation. John Scott



See Supplement for additional images & report

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Visitors Always Welcome to NYMS

Although most of our lecture meetings, workshops and classes are held in the NYMS Clifton facility on the last Sunday of the month, the building may be opened for special purposes at other times, by appointment only. For such an appointment, please contact Mel Pollinger by phone at (201) 791-9826, M-F noon to 9:30pm, or by email at pollingmel@optonline.net.

From The Editor...

if you have an email address: Getting the newsletter by email means you can receive an <u>extended pdf version</u> that cannot be sent by "snail mail." Even if you only continue your USPS delivery of the newsletter, NYMS needs your email address for reporting priority events and special news. Being able to contact you quickly by email means better communication between you & NYMS= Mel

Need to use a Microscope or Book?

The various microscopes and library are presently for use on the main floor of the New York Microscopical Society building in Clifton, N.J. To arrange for a visit, please contact John Scott, or Mel Pollinger (see pg 2 for details)

Microscope Cleaning Kit

A complete set of tools and accessories to keep your microscope in optimum operating condition. The kit is put together by our previous Curator/Educational Chairman, Don O'Leary, and available directly from NYMS, while they last, for only \$40.00 plus shipping & handling, or may be purchased at a meeting. Call or email Mel Pollinger for details (see page two for contact numbers).

NYMS Meeting Dates

Most lecture meetings of NYMS are usually held in Clifton on the last Sunday of the months of Jan., Feb., Mar., May, Sep., Oct. Exceptions and additions will be noted in the Newsletter, or by email..

NYMS microscope slide collections are available for study at meetings and by appointment.

Answer to Mystery Photo from page 3 Foraminifera Nummulites Photo by Eric Grave

Pictures by NYMS Members



Crocoite micromount, f.w 3: Mel Pollinger



Radiolarian,b3x2x100; Eric Gravé (see supplement)

Additional Historical NYMS Supplements Email Newsletter recipients can also receive copies of NYMS Newsletter pdf back-Issues from 2007. Copies of older newsletters will be included in the supplement section as I convert them.

Attention NYMS Members

Got something to sell? Article to publish? Pictures for the newsletter? Looking to buy something? Want to use the library? Want to use a NYMS microscope? For any of the above, contact the Editor, Mel Pollinger.





Supporting Member

A Not-For-Profit Educational Organization, (nyms.org) Page 4 of 4

N.Y.N.S. Supplement Section

November-December 2016

In This Section:

Warring Talk 29Sep2016
 Identification with Polarized-light
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 Membership Application
 NYMS Items for Sale
 Directions to NYMS
 Last page images

Radiolarian Photo by Eric Gravé

Michel-Lévy Color Chart

Identification of minerals in polarized light

Reprinted here by permission of Carl Zeiss Microscopy



Information on Polarization Microscopy



We make it visible.

Polarization in transmitted light



* Field of view diaphragm

Determination of birefringence by means of the Michel-Lévy Color Chart

When a ray of light enters an anisotropic medium, it is almost always split into two linearly polarized waves; the ordinary and the extraordinary ray. Both partial rays are characterized by different propagation rates due to different refraction indices. This characteristic is called birefringence. The oscillation planes of these two partial rays are perpendicular to each other.

The superposition of the two partial waves (constructive or destructive) is called interference; the colors which appear under crossed (90°) polarizers are called interference colors.

3



Rotating the mineral into the position of extinction

Total extinction (darkest position of mineral)





Rotating the mineral into a diagonal position

(45° from position of extinction)

- Maximum brightness
- Identification of interference color: blue

This amounts to two distinct possibilities:

- second order blue (path difference ca 655 nm)
- third order blue (path difference ca 1150 nm)



Inserting the lambda compensator (Addition of a path difference of 551 nm) Assumption: second order blue (path difference ca 655 nm)

Effect: In subtraction position the mineral appears lavender- to bluegrey (655 nm - 551 nm = 104 nm)



Rotating the mineral by a further 90° Effect: In this position (addition position) the mineral appears greenish blue (655 nm + 551 nm = 1206 nm)

Result: The interference color has been identified as a second order blue.



Determining the birefringence with the Michel-Lévy Color Chart

Follow the 655 nm line of the path difference across to find the intersection with the corresponding thickness line (usually $25-30 \,\mu$ m). From this intersection, follow the "sun line" downwards towards the bottom right to pinpoint

the respective birefringence magnitude on the scale on the right. In this case this leads to a birefringence value of 0.024; the mineral has been identified as an **augite**.



Rotation of the microscope stage of the light 0° 45° 90° 135° 180° Inear Inear

Linearly and circularly polarized light

In contrast to linear polarization, circularly polarized light allows minerals to display their interference colors devoid of extinction. For that reason, circular polarization is the preferred method for image analytical procedures.

Behavior of optically anisotropic crystals in linearly and circularly polarized light, orthoscopy and conoscopy.

Determination of the optical character

| | State of polarization of the light | | | | |
|---------------------|------------------------------------|------|----------|------|--|
| uniaxial | line | ar | circular | | |
| | compensator λ | | | | |
| | without | with | without | with | |
| positive quartz | \Rightarrow | | | | |
| negative calcite | | | 0 | | |

Determination of the optical character of uniaxial and biaxial minerals in linearly

and circularly polarized light. The reference direction ny of the λ -compensator is aligned in NE-SW.

| | State of polarization of the light | | | | | | | | |
|-----------------------|------------------------------------|----------|----------|----------|---------|----------|----------|----------|--|
| | linear | | | circular | | | | | |
| biaxial | compensator λ | | | | | | | | |
| | without | with | without | with | without | with | without | with | |
| | normal | position | diagonal | position | normal | position | diagonal | position | |
| positive barite | | | | | | | | | |
| negative muskovite | | | | | | | P | P | |

Highlights of minerals analysis

Auguste Michel-Lévy (1844-1911)

French geologist, Inspector General of Mining and director of the Geological Survey in France, made a name for himself by his research into extrusive rocks, their microscopic structure and origin.

Until this day, the interference color chart proposed by him in 1888 remains an important tool in the identification of thin sections of minerals with polarization microscopy.

Then as now, Carl Zeiss sets benchmarks with their polarized light microscopes, in mineralogy and petrography as well as materialography and other application fields.



Mineralogical microscope stand of 1906.



Plagioclase (feldspar) Twin lamination



Pyroxene Cleavage angle ca. 87°



Amphibole Cleavage angle ca. 124°



Kindly supported by TU Bergakademie Freiberg

Dr. M. Magnus

Institute of Geology and Paleontology



Carl Zeiss Microscopy GmbH 07745 Jena, Germany Materials microscopy@zeiss.com www.zeiss.com/microscopy

Information subject to change. Printed on environmentally friendly paper bleached without cholorine. 70-2-0100/e – printed 02.2011

News of our Sept 29, 2016 meeting

(Images in the proceeding pages were made in the order of Ms. Warring's presentation)

Our opening program, reported by NYMS President John Scott:

On September 29 in Manhattan at the very hospitable Shevchenko Scientific Society's very up to date lecture hall, we opened NYMS' 2016-17 program of monthly lectures by hosting Sally Warring, ABD, the protistologist and international media sensation. Warring is an innovative and engaging New York University doctoral student in biology, who's been attracting attention and admiration for writing and illustrating her 'Pondlife' Instagram page, Twitter feed, and website, replete with striking and captivating images, videos, tech tips, commentary and links. Warring's topic: 'Pondlife: popularizing protists on social media platforms.'

Addressing a rapt audience, Warring sketched her personal background and her professional research on protists living within human and similar organisms. She outlined the ubiquity, profusion, and taxonomy of microbes in general, returning to protists throughout. Sally seems an avid student of history, too, and read to us directly from Antonie van Leeuwenhoek's amazingly diverse and prolific correspondence. At the same time she skillfully illustrated and well described not only v. Leeuwenhoek's scientific life and legacy, but also the arcane production and straightforward use of the famous microscope, and some of the many protists he (and she) have collected, studied, and documented in images and in prose.

Giving our energetic and erudite guide a well deserved break, we welcomed Cornell/Rockefeller/Sloan-Kettering dual-doctoral student Du Cheng of his iDU Optics enterprise (www.iDuOptics.com), who kindly stepped up to introduce and demonstrate an iDU mechanicooptical accessory used by Warring and others in Apple iPhone photomacrography. Our audience clustered eagerly around Du's demonstration.

Soon Sally Warring stood among us as we thronged her podium, completely engaged, and gently deluging her with questions and comments. Sally showed us the portable microscope she often takes along while collecting protists, and described how she herself finds protists in slime and water of local streams and ponds. Warring elegantly demonstrated preparation of live-specimen slides for the microscope stage, explained and implemented simple air-interfacing to her smartphone, and 'Pondlife live,' sending moving images of living protists directly from microscope to PC and the Shevchenko Society's digital audiovisual system, across the Internet via her phone.

As Warring gathered her materials to leave, we opened a folio she had brought along, and enjoyed selections of prints from 'Pondlife' editions, available via the website. Afterward, a number of us walked to the gourmet Dining Room at NYMS President John Scott's nearby Salmagundi Art Club, where we toasted Sally Warring in convivial conversation and over sumptuous fare. Here's to Sally Warring, to Du Cheng, to NYMS members and all who attended on the 29th. Here's to the Shevchenko Scientific Society, and here's to all who helped publicise and produce our 2016-17 Program-opening event! -JS

Photos & Report by John Scott

Warring Presentation, N.Y.C. 29-Sep-2016











Precisely crafted as an user friendly, high quality iPhone to microscope adapter, Superior performance with high quality optical components, Plug and use straight from the box, no adjustments needed!



Historical NYMS Bulletins For Sale

The bulletins are limited in number and can be purchased, while they last, as a set of 8 Bulletins for \$10.00/set plus mailing. Individual copies are \$2.00/ea

The bulletins and other out-of-archive publications may be viewed at the NYMS Library in Montclair, New Jersey.

If interested in owning a part of NYMS history, please contact Mel Pollinger by email at <u>pollingmel@optonline.net</u> or simply pick up a set at the next NYMS meeting in Clifton, N.J.

Each set of NYMS Bulletins is comprised of the following:

Vol. 1 New York, N. Y., January, 1937 No.3 COLLECTING RECENT DIATOMS by JOSEPH F. BURKE

Vol. 1 New York, N. Y., February, 1937 No. -4 PREPARING RECENT DIATOMS By JOSEPH F. BURKE

Vol. 1 New York, N. Y., November, 1937 No.5 MOUNTING RECENT DIATOMS By JOSEPH F. BURKE

Vol. 3 New York, N. Y. June, 1951 No: 1 PREPARA TION OF METAL FOR MICROSCOPICAL EXAMINATION by F. Gordon Foster Fellow, New York Microscopical Society

Vol. 1 New York, N. Y., December, 1936 No.2 MAKING A ROCK SECTION By GEORGE E. ASHBY

Vol. 1 New York, N. Y., February, 1936 No.1 THE MYCETOZOA By ROBERT HAGELSTEIN

Vol. 2 New York, N. Y., April, 1944 No.1 THE HISTORY OF THE MICROSCOPE By ROBERT HAGELSTEIN

Vol. 1 New York, N. Y., January, 1940 No.6 MOUNTING INSECTS BY THE PRESSURE METHOD By Roy M. ALLEN From: "McCrone Research Institute" <courses@mcri.org>

To: <pollingmel@optonline.net>

Sent: Thursday, October 20, 2016 11:03 AM

Subject: 2017 Microscopy Courses at McCrone Research Institute, Chicago



in microscopy that emphasize the proper use of the microscope and more specialized microscopy, focusing on a particular technique, material or field of application. All courses are hands-on, featuring lectures, demonstrations and <text><text><text><image><text><text>

McCrone Research Institute, 2820 S. Michigan Avenue, Chicago, IL 60616

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1

New York Microscopical Society



Please Print

Please send with payment directly to: New York Microscopical Society c/o Mel Pollinger, Treasurer 18-04 Hillery Street Fair Lawn, NJ 07410-5207

I hereby apply for membership in the New York Microscopical Society

| Name: (Dr., Ms., Mr., Home Address |) | Nickname |
|---|---|--|
| Phone Work: Company | Fax | E-Mail |
| Phone Would you prefer t Principal work or it | o receive NYMS mail at hom nterest in Microscopy | E-Mail e 🏼 At work 🖾 By e-mail (best way) |
| On what topic are y | ou available as a speaker? . | |
| Would you like info Education D Librar Who referred you to Academic and Hon Degree | rmation about NYMS comminy T Finance NYMS? NYMS? Conferring Institution | ttees? Yes No Awards Membership Iousing Program Publications History Date |
| | | |
| Scientific Publicatio | ons | |
| Membership in Scie | ntific Societies | |
| Date of birth (option I have enclosed a c \$30, Supporting \$60 advertisement in NI I understand portion I would prefer my h | nal if over 18) heck for \$ to cover if heck for \$ to cover if heck for \$ to cover if heck for \$ to cover if within if MS News), Junior \$5 (under MS News), Junior \$5 (under her box for address/ ome \$\Box\$ work \$\Dot\$ address/ | ny application fees for membership {Annual the year), Corporate \$175(includes one r 18 years old)}.Student (over 18) \$20 may be used in NYMS publications. phone included in the NYMS Directory. |
| Signatura | | Date |

Signature......Date..... NYMS Headquarters: One Prospect Village Plaza, Clifton, NJ 07013 Telephone (973) 470-8733

New York Microscopical Society Items For Sale

29-Feb-2016

N.Y.M.S. Microscope Covers

| ltem # | Size | Member Price | List Price |
|--------|--|--------------|------------|
| MT-003 | Small Microscope or Stereo, 15"W x 17"H | \$18.00 | \$20.00 |
| MT-004 | Lab Microscope or Large Stereo, 20"W x 18"H | \$23.00 | \$25.00 |
| MT-005 | Large Lab Scope, 22"W x 21"H | \$28.00 | \$30.00 |
| MT-009 | Large Lab Scope with Camera, 9"W x 19"Deep x 23"H | \$31.00 | \$33.00 |
| MT-010 | Universal Scope with Camera, 11"W x 25"Deep x 23"H | \$36.00 | \$40.00 |
| MT-012 | X-large Scope | \$45.00 | \$50.00 |
| | N.Y.M.S. Microscopes (see below for im | ages) | |

| 185 | Monocular Dissecting Microscope | \$85.00 | \$99.00 |
|---------|---------------------------------------|----------|----------|
| 131 | H.S. Student Microscope | \$190.00 | \$245.00 |
| 131-FLU | H.S. Student Microscope (Fluorescent) | \$200.00 | \$255.00 |
| 125-LED | H.S. Student Microscope (LED) | \$240.00 | \$309.00 |
| | Other Items | | |
| | NYMS Glossary of Microscopical Terms | \$30.00 | \$35.00 |
| | NYMS Patch | \$5.00 | \$7.00 |
| | Microscope Cleaning Kit* | \$40.00 | \$45.00 |
| | NYMS Lapel Pin | \$10.00 | \$15.00 |



NYMS Engraved Pen



Model 131: Tungsten Model 131-FLU: Fluorescent





\$10.00

\$40.00

\$7.00

\$20.00

Model 125-LED Cordless

Model 185: 20x



Directions to NYMS Headquarters

One Prospect Village Plaza (66F Mount Prospect Avenue) Clifton, NJ 07013 GPS: Intersection of Colfax & Mt. Prospect: Latitude 40.8656 N, Longitude 74.1531W, GPS: Our building: Latitude 40.8648 N, Longitude 74.1540 W

From George Washington Bridge:

Take Interstate Route 80 west to Exit 57A, Route 19 South. Take Route 19 to Broad Street and continue two lights to Van Houten Avenue. Turn Left. Go to second light, Mount Prospect Avenue and turn left. Building 66F is on the left side , one and a half blocks from Van Houton.

From Lincoln Tunnel:

Follow exit road to NJ route three west. Continue to Bloomfield Avenue exit. Turn right to Circle and go three quarters to Allwood Road West. Mount Prospect Avenue is a few blocks on the right (a small street) Turn right and go to first light (Van Houton) continue. Building 66F is on the left side , one and a half blocks from Van Houton.

From North:

Take Garden state Parkway South to Route 46 Clifton Exit. On 46 Make second exit to Van Houton Ave. Continue to third light Mount Prospect Avenue and turn left. Building 66F is on the left side , one and a half blocks from Van Houten.

From Route 46 coming from west:

Take Broad Street Exit in Clifton and follow Directions above from GW Bridge.

<u>From route 46 coming from East:</u> Take Paulson Avenue Exit in Clifton and follow to Second light, Clifton Ave turn right. Go to next light, Colfax, turn left, go three blocks and turn right on Mount Prospect Ave.. Building 66F is half block on right.

Public transportation from NY:

Take NJ Transit train from Penn Station to Secaucus Transfer Station. Change trains to Bergen Line to Clifton (call NJ Transit for schedules). From Clifton Station cross under tracks to first street and go left one block to Mount Prospect Street, turn right and Building 66F is one half block on Right.

If you plan to come by bus or train, please copy the links below into your browser:

http://www.njtransit.com/sf/sf_servlet.srv?hdnPageAction=TripPlannerItineraryTo http://www.njtransit.com/sf/sf_servlet.srv?hdnPageAction=BusSchedulesP2PTo http://www.njtransit.com/sf/sf_servlet.srv?hdnPageAction=TrainTo



Homocysteine, 100x (P1722601)a6x4x200: by Mel Pollinger



Mite, 48x: by Eric Gravé