



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

Feb 2016

Editor: (201) 791-9826

Volume 10 (30) Number 2

NYMS Meeting at Clifton on February 28, 2016

John Scott will lead another NYMS Open Lab at Clifton. His talk will be mainly about the history and donors of the instruments. Microscopes and subject material will be available for use by members and guests. Doors will be open from Noon to 5pm

Some images from the Jan 31st, 2016 meeting



Paramecium from email newsletter Jan 31st 2016 article by Anthony Thomas!



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For additional information contact the Editor: Mel Pollinger at (201) 791-9826, or pollingmel@optonline.net

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

Regular \$30

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Annually

Supporting \$60 Annually

Corporate (includes one advertisement in NYMS News)

\$175 Annually

Life \$300 (payable within the year)

To avoid missing notices:

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

Awards Given by the New York Microscopical Society

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

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Members

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To Order Your NYMS Lapel Pins

Send a check in the amount of \$12.00 per pin to:
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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.



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

Please remember to pay your dues

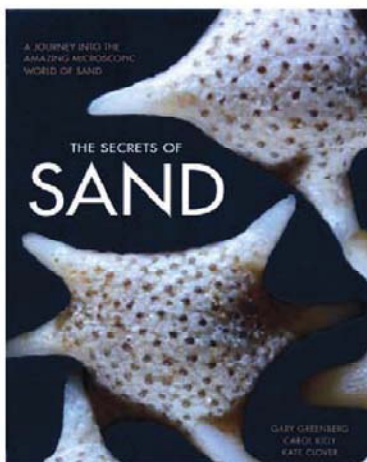
Buy and Read a Good Book on Microscopy.

New From the NYMS Library:

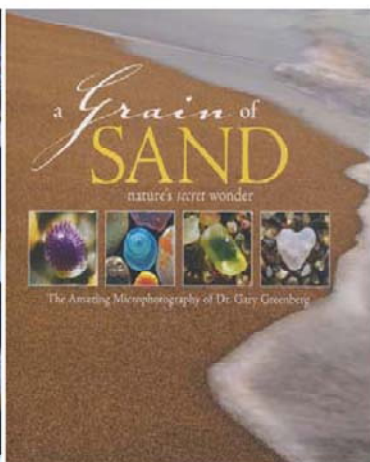
The NYMS Library contains over 3,700 cataloged volumes, among these is a full set of McCrone's Particle Atlas and copies of Microbe Hunter Magazine.

Come on down and read!

Contact: Mel Pollinger (201) 791-9826, or email Mel at pollingmel@optonline.net



NYMS 7130



NYMS 7131



Microbe Hunter Magazine is produced for amateur microscopists of all ages. It is a serious work for the serious hobbyist.

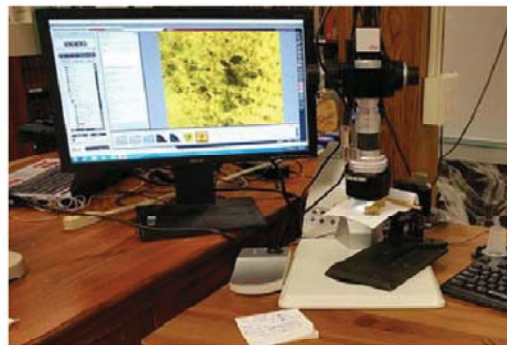
Available at the NYMS Library and from the publisher :
<http://www.microbehunter.com/>

Out-Of_Archive NYMS Bulletins and Journal can be purchased by NYMS members.

The bulletins are limited in number and can be purchased, while they last, at \$1.00 each. Also available in limited supply are original-print NYMS journals. While they last at \$2.00 each. The journals date back to 1896.

The bulletins,

Journals and other out-of-archive publications may be viewed at the NYMS Library in Clifton, New Jersey. If interested in owning a part of NYMS history, please contact Mel Pollinger by email: pollingmel@optonline.net or by daytime phone at (201) 791-9826



Latest addition to our microscopy classroom: by Leica

The Continental Microscope

The horseshoe base microscope was evolved beginning about 1840 by Hartnack, from his drum type microscope. This design set the stage for the production of microscopes on an industrial scale which science demanded. Ernst Abbe at Carl Zeiss adopted it and perfected the condenser. The fine focus was accomplished by a micrometer spindle of 0.5 mm pitch which was sufficiently free from play to do justice to Abbe's high aperture optics (apochromats). By the end of the 19th century more than 100,000 instruments were in use, produced by at least a dozen makers internationally. To distinguish it from the larger and often more complex microscopes from England it was called the continental microscope. *Text by Jan Hinsch, photo by Mel Pollinger*



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Be A Volunteer – There's Always Something to do and see at NYMS.

If you wish to contribute some of your time to NYMS, please contact me at (201) 791-9826 or by email at pollingmel@optonline.net

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 **extended pdf version** 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?

The various microscopes that are presently set up on the main floor of the New York Microscopical Society building in Clifton, N.J. are there for the use of its members.

From Gary Mayer: In need of parts for older Olympus Microscopes? Contact J.C. Ricky in Ohio at (740) 862-9252

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).

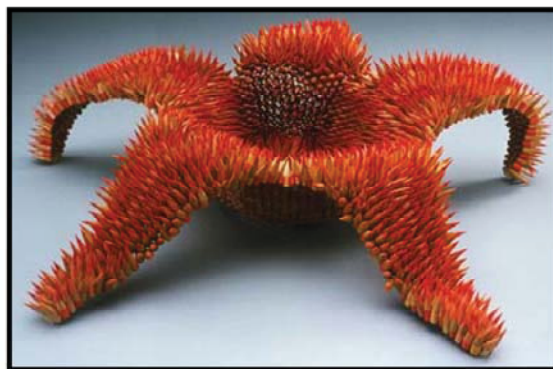
NYMS Meeting Dates

Most meetings of NYMS are usually held in Clifton on the last Sunday of the months of Jan., Feb., Mar., Apr., May, Sep., Oct. Exceptions will be noted in the Newsletter.

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

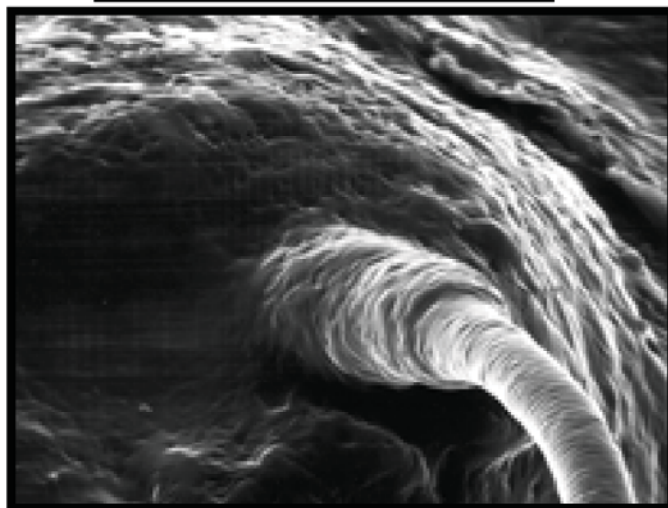
Please be aware that our website is continuously updated.

Answer to Mystery Photo for Jan 2016



Starfish sculpture in pencil points
Did you guess correctly?

Mystery Photo for Feb 2016



Want to take a guess? Send it to me by email or call me: pollingmel@optonline.net, (201) 791-9826

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

N.Y.M.S. Supplement Section

February 2016

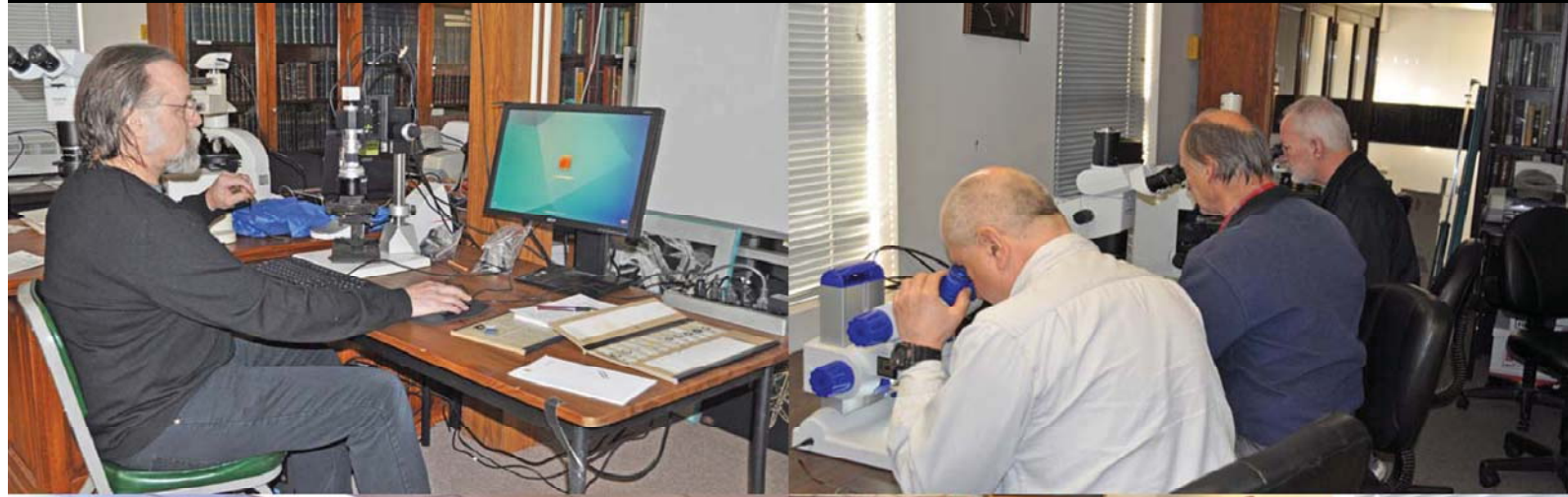


In This Section:

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- ◇ NYMS Items for Sale
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- ◇ Last page images

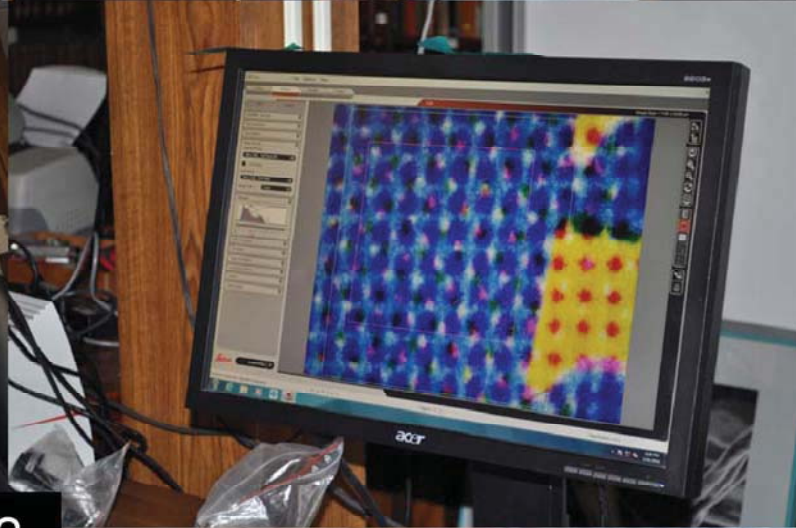
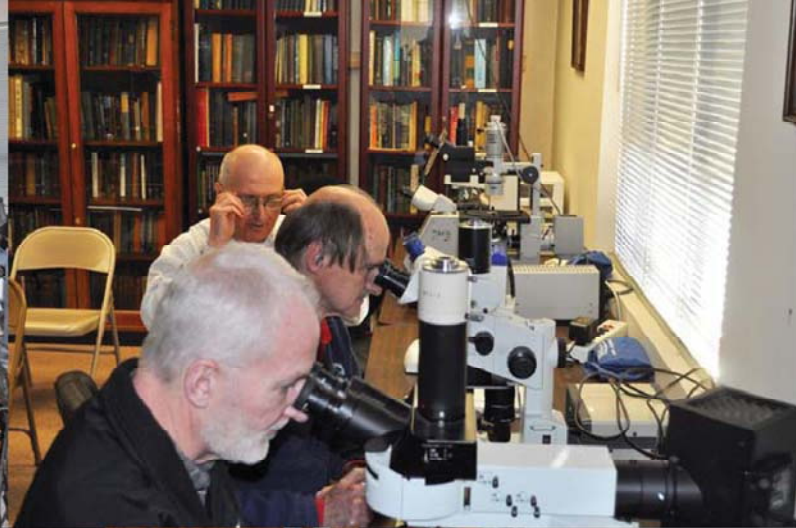
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Open Lab Meeting at Clifton on January 31, 2016

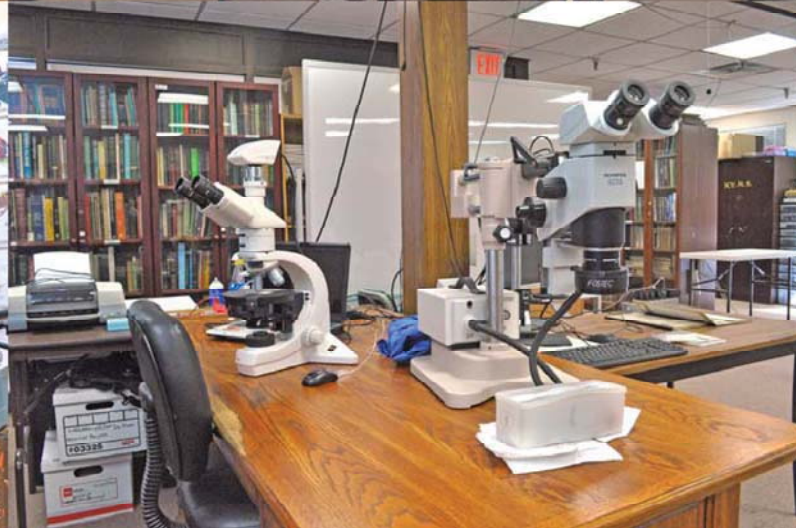


1





2



THE FIRST STUDENT LENS: AND THE FUN SPREADS



Jay Holmes
jholmes@igc.org



Figure 1:
Lilly's lens in a Bancks lens holder for a test view.

Last August I started working with a Lilly, a New York City 9th Grader who was interested in making her own lens and microscope. In September I shared the start of that project, since then Lilly has made great progress and we have both learned a few things along the way. When we left off we were starting to polish the lens. We started out with cerium oxide as a polish, and after a while with that, we thought we would experiment with Diamond Pastes. We found working from 28 micron to 5.0 to 2.5 and ending with 1.0 micron paste produced a nice result (Figure 2). We went back to the cerium oxide for a final little buff. These pastes were used in wooden laps made from maple.

This experimenting took us a while... about 16 hours of work. Lilly finished her lens on October 15th, 2015! It

was a pretty thrilling moment for both of us. We placed her lens in the empty Bancks lens holder (1825) (Figure 1) and found some pond water in a jar in the office and took a look... an ostracod was our first observation. It was spectacular! We were only seeing about half of its body due to the magnification and field of view, but the lens was doing a great job! The bristles in the carapace were beautifully resolved, sharp and clear! What a thrill!

MEASURING UP:

The next step was to measure the magnification. We followed the technique described by Patrick Keeling of the University of British Columbia in his publication "Make Your Own Van Leeuwenhoek Microscope" found at <http://www3.botany.ubc.ca/keeling/resomicr1.html>. We set up a little projection screen and shown our laser through the SEM grid and lens sandwich and recorded the size of the grid. I think you can see by Lilly's calculations she was very happy, 122x!



Figure 2: Diamond Lapping Pastes we used.



Figure 3: Magnification measuring set-up.



Figure 4: Lilly's calculations.

MOVING ON TO BRASS

Our goal was to come up with a design that could be made with mostly hand tool work, so students could work on this at the Museum. We would try to minimize the lathe work so that the students could do most of the fabrication. We looked at a variety of designs starting with compass microscopes from the 1700... we finally ran across a design that Lilly liked in *The Discoverers' Lens: A Photographic History of the Simple Microscope 1680-1880* by Raymond V. Giordano (Classical Science Press, Talmadge, Ohio, 2012). It was John Clark's Second Silver Microscope 1754-1755. The body of the microscope is a flat piece of metal (silver in his case) so that part would not require a lathe, and the whole thing was fitted onto a box. Lilly liked the box as opposed to the hand held arrangement of the compass microscope. We mocked up a couple ideas with cardboard (Figure 5) and then started working on the brass.

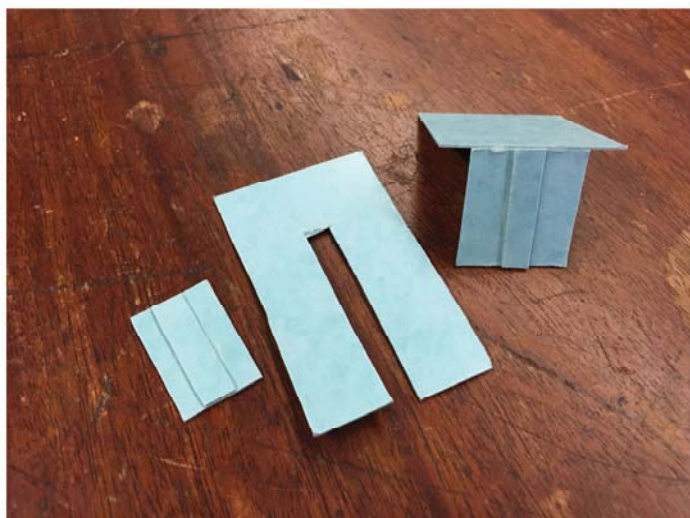


Figure 5: Cardboard prototype of the stage and focusing mechanism.

After coming up with the design, the material to be cut is coated with layout bluing or "Sharpie" ink and scribes, compasses and combination squares were used to scratch the design into the colored surface (Figure 6 shows Lilly working on the stage). The first big cuts were by hacksaw (Figure 7).



Figure 7: Using a scribe, combination square, bar compass and layout bluing to mark the layout.

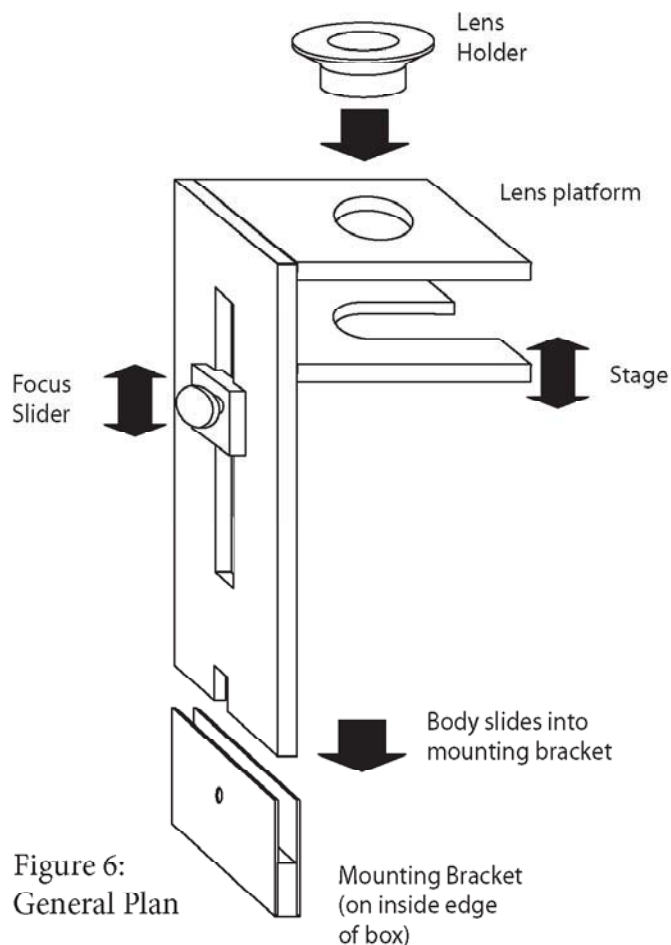


Figure 6:
General Plan



Figure 8: The first cut!

We have amassed a nice collection of hand tools and measuring tools (and safety glasses). We have:

- | | | | |
|----------------|----------------------|-----------------------|------------------|
| - Hacksaw | - Coping saw | - C-clamps | - Bar compass |
| - Hand drill | - A variety of files | - Combination Squares | - Calipers |
| - Piercing saw | - 3 vises | - Scribes | - blocks of wood |

I think Lilly used them all the first night, or at least close to it! The following images are a sampling taken on several different evenings as the work has progressed over the last few months.



Figure 9: Jay holding while Lilly drilled. Note wood to protect carpet in the office.



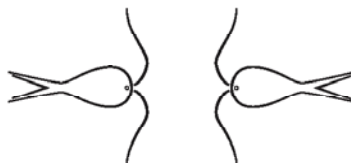
Figure 10: This is the starting hole for the piercing saw which will be used to cut the long rectangular slot for the focus mechanism, followed by filing.



Figure 11: Piercing saw work on the microscope stage.



Figure 12: Filing work on the Lens Platform. C-clamps holding scrap wood onto conference room table.



There are a few parts that I will have to make at home on the lathe, the lens holder and a couple screws. But other than that it will be student handy work.

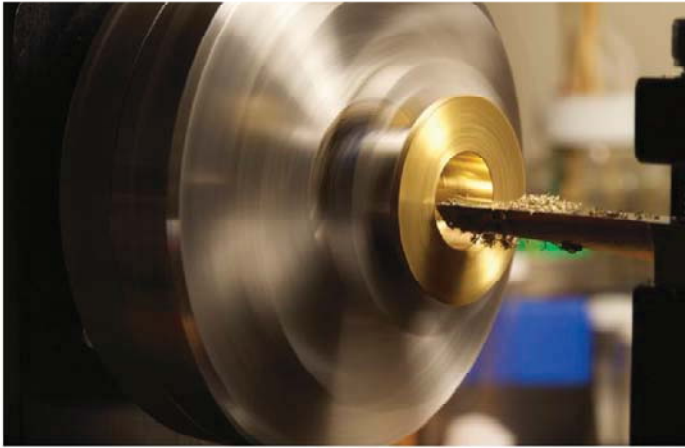


Figure 13: The boring bar hollowing out the lens holder.



Figure 14: The lens holder (center), plug (right) and spanner wrench (left).

WORD IS SPREADING: THE SHOP TEAM GROWS

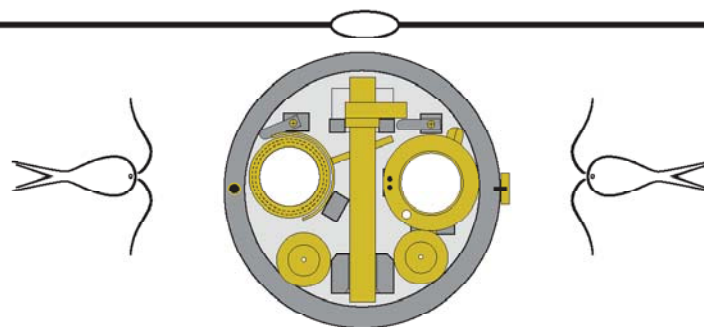
Over the holiday season we had a few more students join our shop. We now have five microscope makers, and others asking about this “secret microscope making thing!” I had to add some tools and make another electric motor housing and lap fixture set so we can have two people working on lenses (grinding and polishing) and three working on metal parts. I am looking forward to seeing how they all come out! The line art illustration in figure 6 is the general concept, there is talk about personal touches and variations. Looking forward to a fun Summer exploring the outdoors!



Figure 15: New shop member Tea shaping the glass blanks.



Figure 16: Will at the lens lap station.



NEW YORK MICROSCOPICAL SOCIETY BULLETINS

The following original-print bulletins can be purchased by NYMS members. The bulletins are limited in number and can be purchased, while they last, at \$1.00 each. Also available in limited supply are original-print NYMS journals While they last at \$2.00 each. The journals date back to 1896. The bulletins, Journals 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 pollingm@bsci.com or by daytime phone at 973-709-7336.

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
PREPARATION 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



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McCRONE 2016 FORENSIC MICROSCOPY COURSES

Microscopy of Explosives (1722)*

March 28–April 1, 2016

This is an advanced course in the microscopy of bulk explosives, pyrotechnics and explosive residues. Organic, inorganic, military, commercial and improvised explosives are covered. Using chemical microscopy to identify explosives was one of Dr. Walter McCrone's first research projects, and McCrone Research Institute continues to teach the methods he developed.



Forensic Dust Analysis (1750)*

April 11–15, 2016

This course is an introduction to the analysis of dust traces for trace evidence analysts and is based on instructor Skip Palenik's experience of more than 50 years in studying dust in a forensic context. Beginning with the history of dust analysis and the work of Locard, Popp, Schneider, Heinrich, Frei-Sulzer and others, the course will explore the techniques for collecting, separating, analyzing and interpreting dust evidence.

Introduction to Basic Human Body Tissues (1557)

April 26–28, 2016

Taught by Lynne D. Herold, Ph.D., this course will introduce the seven basic human body tissues: nerve, muscle, bone, epithelium, connective tissue, blood and cartilage. The instructional methods will include lectures, group viewing of prepared and unprepared body tissues, and individual hands-on laboratory exercises for simple preparations and observations of body tissue.

Forensic Fiber Analysis: Advanced Microscopy and Microchemistry (1507)*

June 20–24, 2016

This is an advanced course in microscopy and microchemical methods used for the characterization and identification of natural, regenerated and synthetic fibers. Methods for the collection of fibers are considered and practiced.

Microcrystal Tests for Illicit Drugs and Diverted Pharmaceuticals (1725)*

August 15–19, 2016

This course teaches basic and advanced techniques for the identification of illicit drugs and diverted pharmaceuticals. The course will emphasize the methods used in polarized light microscopy and optical crystallography, allowing the microscopist to recognize and identify specific microcrystals formed in the presence of targeted drugs.

Animal Hair Identification (1208)

August 30–September 1, 2016

This course will introduce mammalian taxonomy, the importance and establishment of reference collections and hair atlases. Lectures explain the morphological and anatomical features of hairs that may be used for their identification. Demonstrations show how hairs can be sequentially prepared so that all of these characteristics can best be observed, if necessary, on a single hair.

*The prerequisite for this course is McCrone's Applied Polarized Light Microscopy (1201)/Forensic Microscopy (1204) course or equivalent.

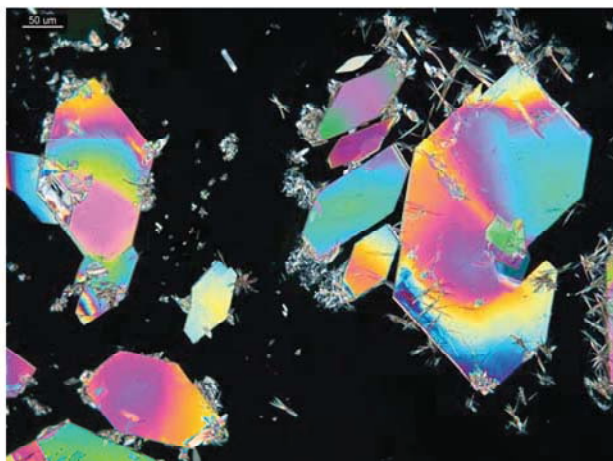
Visit www.mcric.org for a complete course calendar,
full course descriptions and online registration.

McCrone Research Institute presents...

A Modern Compendium of Microcrystal Tests for Illicit Drugs and Diverted Pharmaceuticals

McCrone Research Institute announces its new online publication, *A Modern Compendium of Microcrystal Tests for Illicit Drugs and Diverted Pharmaceuticals*, which fulfills a critical need for reliable analytical methods and assists forensic scientists and other researchers in their work.

This compendium contains 19 drugs for which microcrystal tests using various reagents have been previously developed. It describes in detail the microcrystals formed from each test and includes photomicrographs, morphology illustrations, optical properties, notes and infrared (IR) spectra of the microcrystals.



Microcrystal tests, using polarized light microscopy (PLM), can identify most illicit drugs specifically and quickly, and they are inexpensive compared to other methods. In addition, proper use of the light microscope and microcrystal tests can check and confirm the results obtained by alternative methods.

The photomicrograph (above) shows a microcrystal test for pseudoephedrine with dinituric acid.

Learn more and download the Modern Compendium of Microcrystal Tests at www.mcric.org.

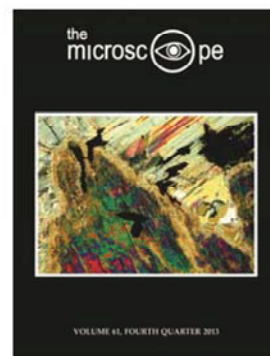


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Principal work or interest in Microscopy

On what topic are you available as a speaker?

Would you like information about NYMS committees? Yes ☐ No ☐ Awards ☐ Membership ☐

Education ☐ Library ☐ Finance ☐ Curator ☐ Housing ☐ Program ☐ Publications ☐ History ☐

Who referred you to NYMS?

Academic and Honorary Degrees:

Degree Conferring Institution Date

Scientific Publications

Membership in Scientific Societies

Date of birth (optional if over 18)

I have enclosed a check for \$..... to cover my application fees for membership {Annual

\$30, Supporting \$60, Life \$300 (payable within the year), Corporate \$175 (includes one

advertisement in NYMS News), Junior \$5 (under 18 years old). Student (over 18) \$20

I understand portions of the above information may be used in NYMS publications.

I would prefer my home ☐ work ☐ address/ phone included in the NYMS Directory.

Signature Date

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

New York Microscopical Society Items For Sale

01-Jan-2016

N.Y.M.S. Microscope Covers

Item #	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 images)

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	\$7.00	\$10.00

*When available



Model 131

Model 131: Tungsten

Model 131-FLU: Fluorescent

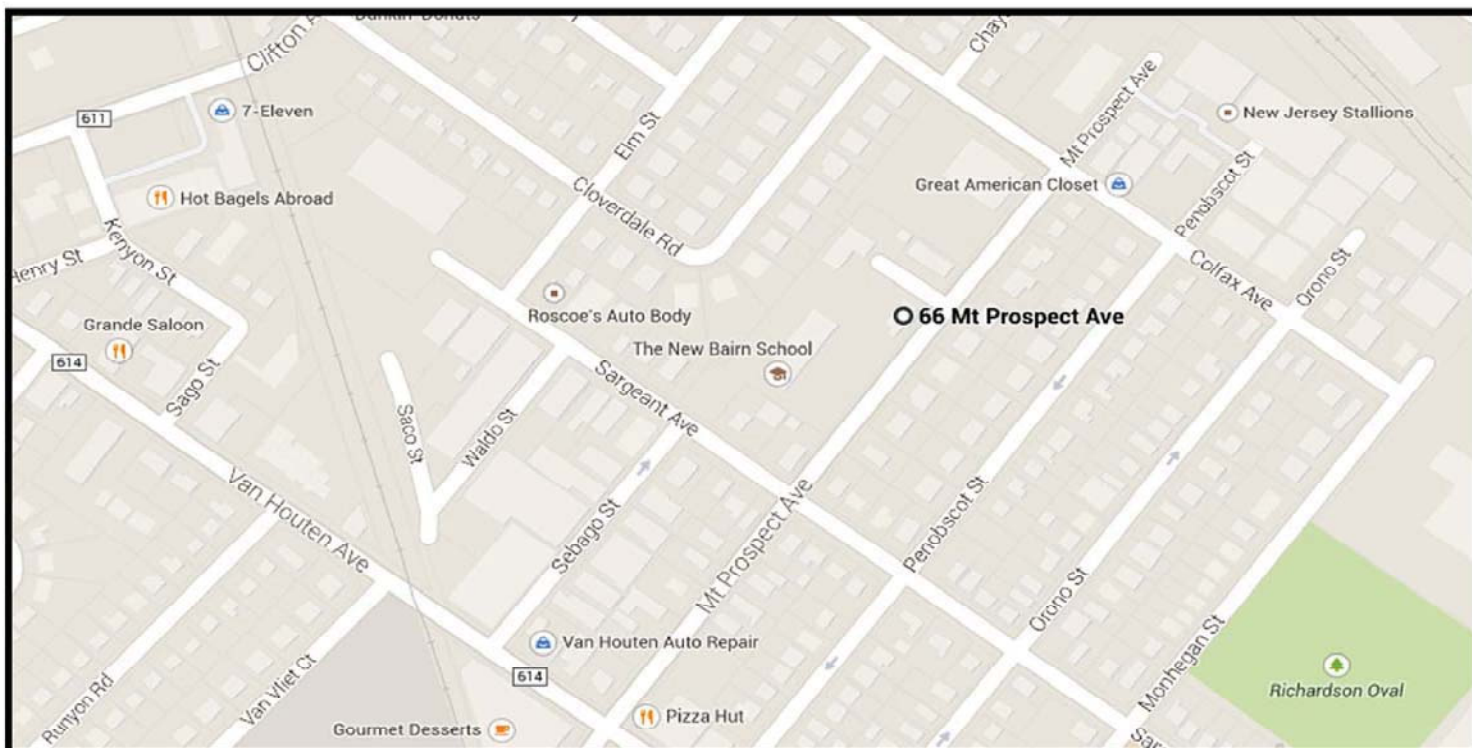


Model 185

Model 185: 20x



Model 125-LED Cordless



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 Houton.

From Route 46 coming from west:

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

From route 46 coming from East: 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:

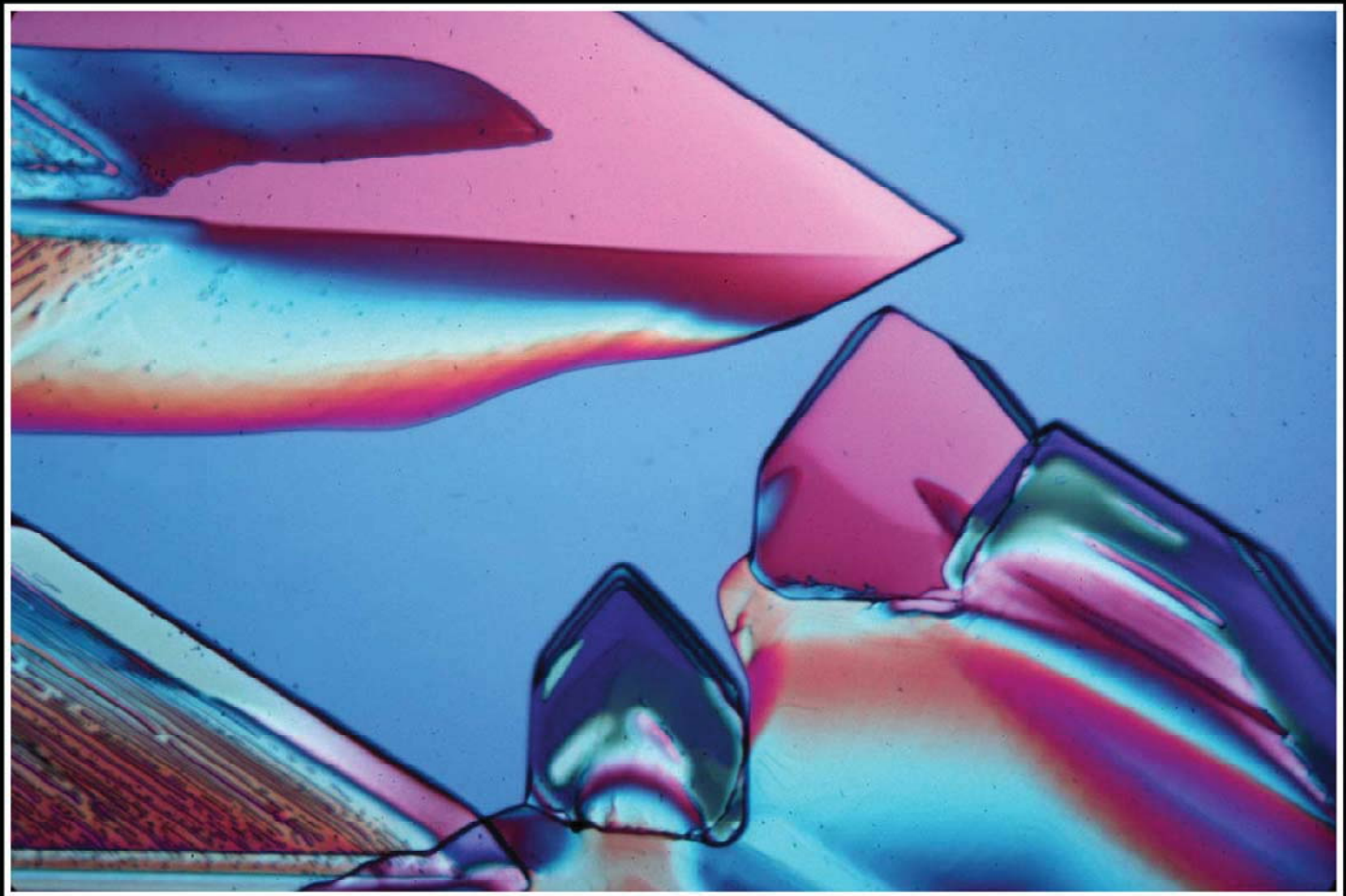
Take NJ Transit train from Penn Station to Secaucus Transfer Station. Change trains to Bergen Line to Clifton (call NJ Transit for schedules). From Clifton Station cross under tracks to first street and go left one block to Mount Prospect Street, turn right and Building 66F is one half block on Right.

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

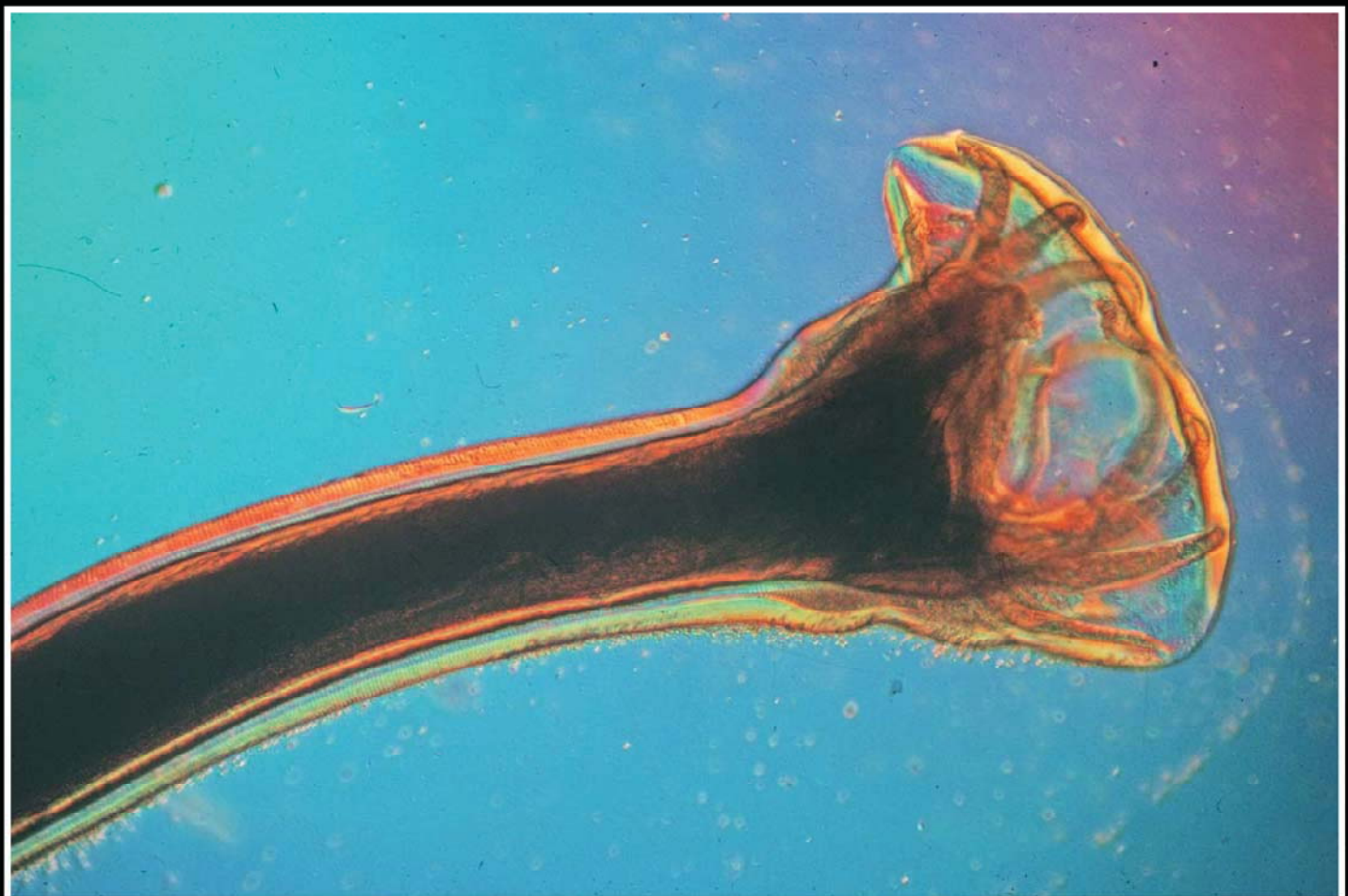
http://www.njtransit.com/sf/sf_servlet.srv?hdnPageAction=TripPlannerItineraryTo

http://www.njtransit.com/sf/sf_servlet.srv?hdnPageAction=BusSchedulesP2PTTo

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



Mono & Tri Sodium Phosphate, 25x (P1430130), polarized light & Rheinberg illumination: Mel Pollinger



Hookworm, (*Ancylostoma caninum*), 18x Jan75 fr21 a6x4x200, imaged by Eric Gravé