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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



October 2012

N.Y.M.S. (973) 470-8733

Volume 6 (26) Number 8

November 2, 2012 Special Evening Event in New York City

November 2, 2012 at 6:30 PM in the President's Gallery at the New York Academy of Medicine in Manhattan, New York City. Open event, free admission.

The New York Microscopical Society, New York Academy of Medicine, and New York Conservation Foundation, are cosponsors:

Internet Collaborative Multidisciplinary Research and Information Sharing Systems including High Resolution Imaging--Web Applications for Microscopy and other Analytical Methods

In this highly visual program, Dr Austin Nevin of CNR, the Italian National Research Council, and Ruven Pillay of C2RMF, France's national research and restoration center for art, will share and discuss truly eye-opening developments from recent successes and ongoing work on organizing systems, analytical methods and engineering software, for enabling and enhancing internet collaboration in scientific research. Examples will focus both on art conservation, and biomedicine and astronomy.

Ruven Pillay opens with "Acquisition and visualization of high resolution scientific imagery with IIPImage: from the microscopic to the galactic".

Austin Nevin proceeds with "Advances in the technical study of Renaissance Italian paintings: multidisciplinary research and on-line collaboration"

This event, the second in The New York Microscopical Society's 2012-2013 program of invited lectures, is cosponsored with the Gladys Brooks Book & Paper Conservation Laboratory at The New York Academy of Medicine, and the New York Conservation Foundation. Open to all; free admission.

The President's Gallery at New York Academy of Medicine is on the first floor at 1216 Fifth Avenue (103rd St.) in Manhattan, New York City New York, NY 10029. <u>www.nyam.org</u> Subway: 6 local to 103 St. Bus: M1, M2, M3, M4, M106 Fifth Ave stops. <u>(Parking suggestions: see page 3)</u>



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Pollinger, Mel, pollingmel@optonline.net; (201) 791-982	<u>.6, Expy June 2014,Tre</u>	<u>easurer, Editor, Librarian</u>
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Dues and Addresses

Please remember to mail in your Dues to: Mary McCann, Membership Chair **McCann Imaging 161 Claflin Street Belmont, MA 02478**

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

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 Don O'Leary Mel Pollinger

To Order Your

Send a check in the

pin to:

Society

\$10.00.

amount of \$12.00 per

New York Microscopical

c/o Mel Pollinger, 18-04

Hillery Street, Fair Lawn,

NJ 07410. To avoid

purchased directly at

any NYMS meeting for

shipping & handling charges, pins may be

NYMS Lapel Pins



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



The Mission of the New York Microscopical Society is the promotion of

theoretical and applied microscopy and the promotion of 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 by visiting the NYMS website, or emailing: pollingmel@optonline.net **********************************

Dues for 2012 is past due!

Buy and Read a Good Book on Microscopy.

A Not-For-Profit Educational Organization, nyms.org, Page 2 of 4

Visit Our New Website

From page One...



Stentor 100x. Imaged living from a pondwater sample taken from Barbour Pond in Wayne NJ. Olympus Camedia C5060 WZ digital camera on an Olympus BHT microscope using Rheinberg filtration slightly offset. (Image by Mel Pollinger)

NYC Parking Suggestions Parking is indeed an issue in New York including up in the meeting area. look for ICON and /or Central Paring, which have very many parking lots in the city. *Program Chair John Scott*

How ToFind Tardigrades

Check out Mike Shaw's New Book on Amazon.com

http://www.amazon.com/How-To-Find-Tardigradesebook/dp/B009D7VHXK/ref=sr_1_1?s=digitaltext&ie=UTF8&qid=1348047766&sr=1-1&keywords=how+to+find+tardigrades

and

With +9 million views of my tardigrade video on the same topic (below), I thought there might be some interest.

Also go to: http://youtu.be/7W194GQ6fHI

Want To Write For The NYMS Newsletter?

If you have images and/or article related to microscopy, or a letter to the editor, please send it to me. It could be an interesting book, mystery photo, website or anything else you believe may be of interest to your fellow NYMS members, don't be shy, send it to me

shy, send it to me.



September 2012 speaker Dr. Angela V. Klaus being congratulated by NYMS V.P. & Program Chair John Scott for her dynamic presentation at NYMS in Clifton, N.J.

A Renewed Connection with the other NYMS, the <u>Mycological</u> one and a Little History with a Mystery

By Guy De Baere

Last Spring my interest in mushrooms started. Not just because mushrooms can be so delicious or that New York Mycological Society would often show up on google when I was looking to see if our NYMS's web site had been upgraded. Rather because my family knew Gary Lincoff who teaches courses on mushroom identification at the New York Botanical Garden, continues to write books and been the editor of several field hand guides. He continues leading mushroom study trips and forays around the world. My first such explorations in several public City Parks located in Queens were with groups led by him. The Society also offers a series of workshops for microscopical identification methods. I took one on mold spore identification four years ago at the McCrone Research Institute in Chicago. The two approaches to the discipline seem very different.

For article contributions and/or responses to the Editor, please email Mel Pollinger:

pollingmel@optonline.net

<u>NYMS website</u> The new NYMS website went live on July 17th 2012!

NYMS Welcomes Visitors

Although most NYMS events and meetings are held in Clifton, New Jersey on Sundays, the building may be opened for visitors at other times providing an appointment is made with Don O'Leary or Mel Pollinger at least two days prior to the desired appointment time. NYMS Headquarters at Clifton, NJ will be open by appointment only to members from 8:00pm to 10:00 pm most Tuesday evenings.

Those members wishing to visit <u>must call</u> Don O'Leary or Mel Pollinger to confirm. Don's cellphone number is (201) 519-2176 or email: dkoleary@verizon.net. Mel's Home phone number is (201) 791-9826 or email: pollingmel@optonline.net

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

Dues for 2012 is Past due!

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.

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 Curator/Educational Chairman and available directly from NYMS for only \$35.00 plus shipping & handling, or may be purchased at a meeting. Call or email Mel Pollinger or Don O'Leary for details (see page two for contact numbers).

Also: Slide boxes 100 capacity, used: \$5.00 while they last

Answer to Mystery Photo for September 2012



Pond scum of various composition from local duck pond. Image by Mel Pollinger. Correctly guessed by: J. Terry Fisk, Seymour Perlowitz, Dr. Ben Glassman and others too numerous to mention.

Mystery Photo for October 2012



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 will also be getting copies of NYMS Newsletter pdf back-Issues from 2007. Copies of older newsletters will be sent as I convert them.

Got something you want to sell, trade or publish in the Newsletter and/or on the website? Write, call or send an email message to: 201-791-9826 or pollingmel@optonline.net (images ok) or Mel Pollinger, Editor NYMS Newsletter 18-04 Hillery Street Fair Lawn, NJ 07410





Supporting Member

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

NYMS Newsletter Extended Section, October 2012

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: In This Section: Directions to NYMS

Pickled Plankton

NYC Gem & Mineral Show

Renewed Mushroom Connection

EAS Update

EAS Mini-Conferences

ANYMS Items for Sale

Cry-SEM Workshop

Last page images

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.

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

Pickled Plankton, Polychaetes, Platyhelminths, Phoronids, Pisaster, Porifera, Placozoa, Protozoa, and Pyrosoma by Richard L. Howey, Wyoming, USA

After long critical and careful consideration, you may have concluded that I love literate alliteration. What I really want to discuss in this essay are the marvels and mysteries one can discover in preserved samples, especially those of marine life. Although more and more of the human population already inhabits or is migrating to coastal areas, there are still many of us for whom a trip to the ocean is a major undertaking. For me the closest seacoast is 1,100 miles away. Over the years, I have collected along shores in Maine, California, and Oregon, have contacted marine biologists who kindly sent samples from Hawaii, Alaska, Mississippi, Alabama, California, Texas, South Carolina and even the Antarctic; and I have purchased preserved specimens from Florida, Maine, California, the Philippines, and Thailand–mostly by means of research grants.

This afternoon, I opened up a pint plastic container from Maine with all kinds of bits and pieces in it. One thing I have learned over the years is to always examine carefully the broken odds and ends, the detritus, and the micro-muck. The broken pieces often save one from having to sacrifice intact specimens and in the detritus and bits associated with other organisms, there are all sorts of wonders to be unearthed. (Why can't we say "unwatered"?)

I took a shallow, white plastic dish about 4 inches square of the sort that airlines used to use to serve "food" in before the Bush administration crippled the economy and made people choose between fuel and "food-at ever increasing cost. I took a pair of forceps and extracted 10 or 12 small pieces from the larger dish and transferred them out of the alcohol into water in the smaller dish. It was getting late in the afternoon, so I only had about ¹/₂ hour to look at these bits and pieces. I found several pieces of arms from brittle stars and a central disk from one; 3 small polychaete worms with lovely, iridescent setae (bristles) extending out of each of the dozens of "feet"; nematodes, a nemeritine, a ferny bryozoan with numerous specimens of Spirorbus shells on it; a small worm that looks rather like Glycera, the "beak thrower" which was preserved with its proboscis extended; a colonial tunicate spreading over a shell fragment; 3 nudibranchs; a wee *Mytilus* (purple mussel) shell; and then there was a nearly spherical lump about 1 ¹/₂ inches in diameter and it had all kinds of intriguing small things attached to it-at least 3 species of tiny crustaceans, some small worms, bits of bryozoa, a few centric diatoms, and some odd thing with tapering projections of what appeared to be tissue. The only way in which I will have even the remotest chance of determining what this strange spheroid is, is to slice it open, but I don't want to do that until I have carefully removed all the creatures I can that are attached to its surface and try to photograph as many of them as I can for future reference when trying to identify them.

As it turned out, as I began removing the organisms, I decided that I could

use a small stiff brush to get rid of detritus from the surface. As I did so, this small spherical creature began to seem familiar and the projections turned out to be instrumental in triggering my memory. I checked the wonderful Ralph Waldo Miner book *Field Book of Seashore Life*, and it was indeed what I thought– a small tunicate called *Boltenia echinata*. Solving one puzzle like this is quite gratifying, especially when one is confronting 47 other organisms that one may very well not succeed in identifying beyond some general rubric like "polychaete worm".

I also will save as much of the detritus and adhering muck as possible for later disassociation and examination under higher magnifications to look for diatoms, spicules, forams, etc. It is astounding how much information can still be gleaned from organisms that have been maimed and distorted by the action of preservatives. The great 19th Century expeditions might well have had a naturalist aboard, but the great quantities of material being collected demanded that most of it be quickly preserved, often in bulk, to prevent decay.

Let's use the occasion of this essay to just ramble and explore a bit beginning with some protists. Diatoms and other micro-algae are very likely to show up because of their extraordinary adaptability and exponential reproductive potential. Diatom "shells" are primarily composed of silica and so are very hard and can survive even the ministrations of mad diatomists who boil them in concentrated acids. Many types of micro-algae have quite resistant sheaths of organic compounds including cellulose.

First, let's look at a few diatoms: This first one is a pennate type of the genus *Cymbella*:



As you can see there are all kinds of tiny "pores" through which protoplasm moves creating a slow gliding motion of the organism through the water.

Another common type is the centric diatom which can have a considerable variation in pattern. Here are 2 examples and the second one which is wheel-like is especially attractive to my mind.



A somewhat less common type is the triangular form and below we have an example of *Etogonia*.



Another common, but striking genus with its elongated central cross is Stauroneis:



Next we will look at 2 examples of algae. The first is a desmid and the second is a lovely filamentous algae with a coil of chloroplasts running through the transparent, encasing tube. It is of the genus *Spirogyra*.



A very interesting type of micro-algae often survives the preservation process well, provided the liquid is not acidic, and these are the calcareous algae in which the tissue is overlaid with layers of calcium carbonate which is often reddish, pink, or white.



Protozoa are much harder to find in preserved samples with 2¹/₂ exceptions. Radiolaria (siliceous), Foraminifera (calcareous), and certain flagellates and ciliates that have organic "tubes' or "vases" in which they reside. *Folliculina* is a fairly common example. When alive the organisms have a slight bluish-green cast and an elongate "U" shaped structure covered with cilia extend from the end for food gathering. These organisms are highly contractile and here, in an old Polaroid image which I took years ago, we can see the upper part of 2 separate tubes and a portion of the contracted organisms.



In fairness, one should also mention the Acantharians (closely related to Radiolaria) which have skeletons composed of Strontium sulfate.

Porifera (sponges) usually preserve well, are highly opportunistic, and will colonize virtually any niche that provides currents of water containing nanoplankton. In studying the micro-structure, one again has to be concerned about the preservative having a neutral pH. There are many forms of sponges that have calcareous spicules which in an acidic medium will etch and gradually dissolve. So, my recommendations are 1) when feasible, transfer specimens out of formaldehyde (or any other acidic medium) and into alcohol, 2) if that is not feasible, buffer the formaldehyde to keep it a neutral or slight alkaline pH, 3) if

you have several pieces of the same material, I suggest preserving at least one in strong alcohol (but please don't use single malt), place another piece or two in a tube of distilled water, and another one or two in small tubes or plastic boxes and let them dry.

As for Placozoa, don't even bother looking for them in preserved samples; finding them in live samples is tricky enough. In this entire phylum, there is only one species, *Trichoplax adhaerens* which is an intriguingly strange organism and may represent a transitional form from the protists to the Metazoa. If you want to know a bit more about it, you can look at my <u>short article</u> on Micscape or if you want to know quite a lot more about it, you can read Karl Grell's article in *Microscopic Anatomy of Invertebrates*, Vol. 2.

Platyhelminths are, of course, flat worms. If you're interested in the verbosity of insects–etymological entomology–then you know that "plateau" means "flat place" and "platypus" means "flat cat". (Just kidding.) In general, flatworms don't preserve well; in fact very few worms or worm-like creatures are easy to preserve well. For almost 2 centuries, naturalists have tried to devise effective techniques for narcotizing and preserving such creatures, as well as other contractile organisms, with only moderate success.

One of the reasons that samples that have a rich assortment of organisms which have been rather haphazardly preserved are of such a source of fascination for me is that, over and over again, I encounter those happy accidents, those serendipitous occasions when, in spite of all the odds, I find superb examples of organisms in splendid condition when they should be massively distorted. Mind you, this is not something that you should rely on in general and if you are interested in preserving specific groups of organisms for study, you should by all means learn the basic protocols for preserving them.

Platyhelminths, phoronids, sipunculids and other worm-like creatures can be narcotized and preserved reasonably well and studied to good effect but, one must always remember that there is no substitute for investigating these creatures live if at all possible.

In the title of this essay, I mentioned *Pleurobrachia*. These creatures belong to the phylum *Ctenophora* which consists of indescribably beautiful, transparent, luminescent multi-colored jellies that make Times Square, Las Vegas, and all the other Neo-Neon cities look like the monstrous vulgarities that they are. Virtually every preserved organism is but a pale reflection of what it was in its living state, but ctenophores are dazzling. <u>Go to this site</u> and look at some photographs of living specimens or better yet some <u>video</u>.

These fascinating beings are ones which very, very few of us will ever see in their natural habitats. So much of the life on our planet lives in hidden, secret places and, as a consequence, we often miss wonderfully mysterious marvels.

Phoronids are small worm-like creatures often grouped with entoprocts and ectroprocts (Bryozoa). Like many of the rather unusual organisms in small phyla, their placement taxonomically has been an issue of disagreement. They are exclusively marine, build chitinous tubes, and have tentacles for feeding. There are only about a dozen species. You can see some images of them <u>here</u>:

Polychaetes, on the other hand, occur in vast number and in a large variety

of species. Larval forms of polychaetes are abundant in plankton, but are often very difficult to classify. There are, however, a few species that spend their adulthood as members of the planktonic community and one of the most interesting is *Tomopteris* and, to my eye, visually pleasing.



If you're squeamish about worms, then you might not want to have a "sea mouse", (*Aphrodite*) but they are fascinating and I have written about them elsewhere, so I won't repeat myself, except to say that they are not candidates for any beauty contests. I'll show you the dorsal view first and then the underside where you can see the segmentation which demonstrates that it is a true worm.



However, here under all this muck and slime there is still some beauty hidden. Sea mice have setae (bristles) which are remarkably efficient transmitters of light, even more efficient that our best fiber optics and here is one that has been cleaned and photographed under polarized light.



Some of the polychaete worms are quite beautiful, especially the Sabellids which include the <u>"feather duster" worms</u>.

A wonderful group of creatures which appear somewhat worm-like are the nudibranchs which, in reality are mollusks and are among the most stunningly colorful and splendiferous organisms on the planet. Explore <u>these links</u>, because they reveal not only the richness, but the remarkable variety of these remarkable creatures.

Another splendidly colorful group is the starfish and they have remarkable powers of regeneration. Many people are familiar only with common dried specimens sold in craft and shell shops which are typically a rather dull brown and give virtually no sense of the extraordinary variety and subtle ranges of color. However, be warned, there are suppliers and merchants who sell dried specimens which have been dyed and sometimes in grotesque, phoney, fluorescent hues which have none of the delicacy and subtlety which nature presents us with.

There are blue starfish, ones that are bright red, orange ones, purples one, lemon-yellow ones, black ones, white ones, some that are a lovely milky beige color with brilliant scarlet spines, and among the *Dermasterias* the so-called "leather stars' named for the texture of the skin membrane not because they are into sado-masochism and leather bars, there is often a display of intricate, variegated color patternings.

Here is an example of a tropical thorny starfish with brightly colored spines.



And here we can see a specimen of *Linkia laevigata* which even though it is dried has retained its natural color; in other words, this is NOT a dyed specimen.



Next is a bright orange "Bat star" which as you can see on close observation has some unusual "plates" which form the outer surface.



Finally, here is a formidable creature, *Acanthaster plancii*, the "Crown of Thorns" starfish which has devastated large sections of tropical coral reefs. It feeds on coral and its population has greatly increased in the last couple of decades in significant part due to the over collecting of one of its major predators, the large gastropod *Triton* whose shell collectors prize. Efforts to control this starfish have been difficult in part because the spines contain a toxin which not only discourages predation, but makes it a challenge for divers to collect and destroy them from heavily infested reef areas.



Regarding regeneration, commercial oyster fisherman in the 19th Century learned about this extraordinary phenomenon in an economically painful way. Many starfish are predators on shellfish and satisfy their appetites in an astounding fashion. They attach to an oyster or clam with their tube feet and use the powerful muscles in their arms to pry open a small slit between the two valves (shell halves, thus the term, bivalve) and then evert their stomach through this narrow opening and digest all the delicious internal parts leaving behind a useless pile of shells from the point of view of the oyster fishermen.

In the title, I mentioned *Pyrosoma, (*a pelagic tunicate), which means "fire body". This incredible creature 1) appears like a long, slender glassy nearly transparent gelatinous tube, 2) is composed in significant part of cellulose compounds even though it is an animal, 3) is colonial and can be several feet in length, and 4) possesses bioluminescent bacteria so that if you were to run your finger along its surface on a ship's deck at night, you would observe its reaction as a luminescent stripe.

These are truly very strange and fascinating creatures as you can see by exploring some of the images <u>here</u>:

The ocean is full of countless mysteries which can be explored, living or preserved, in many ways using simple tools, a good stereo-microscope, a good compound microscope, and a few basic reagents. In return, you will reap a lifetime of pleasure, learning, and wonder.

Richard Howey, email tunicate@wyoming.com

Fall 2012 New York City Gem & Mineral Show

A Show & Sale of Minerals, Gems, Jewelry, Crystals, Fossils & Meteorites

Saturday, November 10, 2012 10:00 am - 6:00 p.m.

Sunday, November 11, 2012 11:00 am - 5:00 p.m.

at the

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Holiday Inn Midtown Manhattan 440 West 57th Street (Between 9th and 10th Avenues) New York City, New York 10019 Hotel, Parking & Restaurant on Premises Retail & Wholesale Dealers Lectures O Door Prizes O Kid's Events & Gifts Souvenir Show Card O Club Booth O Top Dealers

Admission \$6.00

This ticket good for\$1.00 off adult admission Children under 12 accompanied by adult admitted free

An Excalibur Mineral Corp. Production Hosted by The New York Mineralogical Club Call (914) 739-1134 for Show Information www.excaliburmineral.com

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A Renewed Connection with the other NYMS, the <u>Mycological</u> one and a Little History with a Mystery

By Guy De Baere

Last Spring my interest in mushrooms started. Not just because mushrooms can be so delicious or that New York Mycological Society would often show up on google when I was looking to see if our NYMS's web site had been upgraded. Rather because my family knew Gary Lincoff who teaches courses on mushroom identification at the New York Botanical Garden, continues to write books and been the editor of several field hand guides. He continues leading mushroom study trips and forays around the world. My first such explorations in several public City Parks located in Queens were with groups led by him. The Society also offers a series of workshops for microscopical identification methods. I took one on mold spore identification four years ago at the McCrone Research Institute in Chicago. The two approaches to the discipline seem very different.

Before the end of that season after a morning mushroom foray with Gary again, in Central Park, we took the impressive collection to the yearly John Cage memorial musical celebration in Brooklyn. A major passion in Cage's life was mushrooms. He played perhaps the principal role in the New York Mycological Society's revival. My daughter and I also brought along some Society's brochures and a couple of the microscopes used for outreach. That afternoon a number of artists, musicians, dancers, and others were marvelled and very satisfied with their microscopical observations. See below a few images from that that day. Because of time constraints, please forgive me for not showing the featured Acryria Denudata's spores. I will present them with some comments in the future. The fungi is also known as "Red Cotton Candy Slime Mold"

One day this new interest of mine took on a new and unexpected turn at the New York Historical Society Library where I was looking up copies of our Society's archives. I came across twoTorey Botanical Club Field Committee Meeting reports from 1935 and 1938. Both NYMS organizations "had a long cooperative" relationship with a "joint publication and operation of scheduled field meetings". The 1938 issue reported a Cooperation with the New York Mycological Society and of being "again indepted this year for offering five field trips for the study of fleshy and woody fungi..."

However what drew my attention even more was the New York Microscopical's Fiftieth Anniversary Exhibition brochure from 1927. On the first page a particular the listing. 4c: "140 species and varieties in the fungi stage" exhibited by Robert Hagelstein, Joseph Rispaud and Leon Chabot. Robert Hagelstein was listed as the New York Microscopical Society Field Committee Chairman in both Torey Botanical Club (TBC) publications. In the 1935 issue under the caption "COLLECTION OF SLIME MOLDS REQUESTED" Hagelstein, the "Honorary Curator of Myxomycetes, at the New York Botanical Garden and where he has [d] a permanent exhibit of these curious and beautiful beings", and also a TBC member "invites those who attend field meetings of these groups to search for and collect Myxomycetes or Slime Moulds during the 1935 season"

While I was talking about this with Don O'Leary in Clifton a few weeks ago, he told me of a Hagelstein slide collection of NYMS once shared with the TBC. that had been looked for and that no one could find. Does anyone know more on this story or if the collection still exists and where it might be?



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<u>Main Identity</u>

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The following 20 exhibitors will be participating in the Technology Tour. Visit them to find out about the latest in analytical instrumentation and services while also getting a special gift. Additional details will be provided in the Final Program.

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For additional information please contact the relevant exhibiting company directly. You can also check the EAS web site as we will post pertinent information as we receive it.

Follow-up Links

Registration

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2012 EAS **Conferences-in-Miniature**

ART CONSERVATION **Technical Sessions**

- · Current Applications of Mass Spectrometry in Heritage Studies, I (11/12 AM) invited
- · Current Applications of Mass Spectrometry in Heritage Studies, II (11/12 PM) invited
- Cleaning of Modern Paint, I (11/13 AM) invited
- Cleaning of Modern Paint, II (11/13 PM) invited
- Diverse Industrial and Cultural Applications (11/13 PM) contributed

Short Course

The Modular Cleaning Program – An Accelerated Course for Conservators (11/14-11/15)

BIOANALYSIS

Technical Sessions

- Analytical Solutions for Characterization of Biologics and Quantification in Biological Matrices (11/12 PM) contributed
- Poster Session: Analytical Solutions for Characterization of Biologics and Quantification in Biological Matrices (11/12)
- Dried Blood Spot Analysis (11/13 AM) invited
- EAS Award for Outstanding Achievements in Mass Spectrometry, Honoring Dr. Fred McLafferty (11/14 AM) invited

Short Courses

- Essentials of Modern HPLC/UHPLC | and || (11/11-11/12)
- Essentials of Modern HPLC/UHPLC I: Fundamentals and Applications (11/11)
- Essentials of Modern HPLC/UHPLC II: Practice, Operation, Troubleshooting and Method Development (11/12)
- The Analysis and Characterization of Protein Therapeutic Drugs (11/13 - 11/14)
- The Role of Chromatography in the Analysis and Characterization of Protein Therapeutic Drugs (11/13)

CHEMOMETRICS

Technical Sessions

- · EAS Award for Outstanding Achievements in Chemometrics, Honoring Lutgarde Buydens (11/12 AM) invited
- Modeling and Classification with Chemometrics (11/12 PM) invited

Short Courses

- Chemometrics Without Equations I & II (11/11-11/12)
- Introduction to Chemometrics Without Equations (11/11)
- Intermediate Chemometrics Without Equations (11/12)

CHROMATOGRAPHY

Technical Sessions

Liquid Chromatography

- American Microchemical Society Benedetti-Pichler Award, Honoring Luis Colon (11/12 AM) invited
- HPLC Technologies and Pharmaceutical Applications (11/12 AM) contributed
- Pharmaceutical Analyses: Is your Column Equivalent? (11/12 AM) contributed
- EAS Award for Outstanding Achievements in Separation Science, Honoring Robert Kennedy (11/12 PM) invited
- Poster Session: High Pressure Liquid Chromatography Technologies and Pharmaceutical Applications (11/12)
- Poster Session: Novel Applications of LC/MS and GC/MS (11/12)
- Poster Session: Novel Liquid Chromatography Phases and Instruments (11/12)
- Successful Applications of Fast Liquid Chromatography in Various Industries (11/13 AM) invited
- Poster Session: Separation Anxiety from Capillaries to Columns (11/13)
- Counter(feit) Attack- Strategies and Technologies to Fight Counterfeits (11/14 AM) invited

CHROMATOGRAPHY continued

- Supercritical Fluid Chromatography
- Supercritical Fluid Chromatography: Advances and Applications in Pharmaceutical Analysis I (11/14 AM) invited
- Supercritical Fluid Chromatography: Advances and Applications in Pharmaceutical Analysis II (11/14 PM) invited
- Poster Session: Gas Chromatography Intro, Assay and Detection (11/14)

Gas Chromatography

- Gas Chromatography Intro, Assay and Detection (11/15 AM) contributed
- Separation Anxiety from Capillaries to Columns (11/15 AM) contributed
- Novel Liquid Chromatography Phases and Instruments (11/15 AM) contributed
- Novel Applications of LC/MS and GC/MS (11/15 PM) contributed

Short Courses

Liquid Chromatography

- Anatomy of Modern Reversed-Phase Columns: Understanding Their Role in HPLC (11/11)
- LC/MS: Theory, Instruments, and Applications (11/12-11/13)
- How to Develop Validated HPLC Methods: Rational Design with Practical Statistics and Troubleshooting (11/12-11/13)
- Essentials of Modern HPLC/UHPLC | and || (11/12-11/13)
- Essentials of Modern HPLC/UHPLC I: Fundamentals & Applications (11/12)
- Essentials of Modern HPLC/UHPLC II: Practice, Operation, Troubleshooting and Method Development (11/13)

Supercritical Fluid Chromatography

- Practical Knowledge and Recent Advances in Developing Supercritical Fluid Chromatography (SFC) Applications (11/14)
- Gas Chromatography
- Practical Gas Chromatography (11/11 11/12)
- Practical Headspace Gas Chromatography (11/14)
- General
- Sample Preparation: The Chemistry Behind the Techniques (11/13)
- Critical cGMP and ICH Guidances for Analytical Laboratories (11/13)

CONSUMER PRODUCTS

Technical Sessions

- Poster Session: Product Analysis of Us and Our World (11/13) contributed
- Counter(feit) Attack- Strategies and Technologies to Fight Counterfeits (11/14 AM) invited
- Product Analysis of Us and Our World (11/14 AM) contributed

DATA ANALYSIS

Technical Sessions

- Spectral Analysis from Pharmaceutical Process to Production (11/12 PM) contributed
- · Poster Session: Pharmaceutical Analysis of Quality-by-Design and Automation (11/12)
- Poster Session: Spectral Analysis from Pharmaceutical Process to Production (11/12)
- Pharmaceutical Analysis of Quality-by-Design and Automation (11/13 PM) contributed

Short Courses

- Introduction to Chemometrics Without Equations I (11/11)
- Intermediate Chemometrics Without Equations (11/12)
- Chemometrics Without Equations (I & II) (11/11-11/12)
 Laboratory Data Analysis Using EXCEL[®]: New Uses for a Familiar Tool (11/13)
- Hands-on FTIR, NIR and Data Analysis What is the Right Tool to Solve Your Problem (11/14-11/15)
- Quality-by-Design: A New Paradigm for the Analytical Laboratory I & II (11/14 - 11/15)
- Quality-by-Design Fundamentals for Analytical Chemist I (11/14)
- Quality-by-Design: Design of Experiments for Analytical Chemist II (11/15)

EDUCATION

Technical Sessions

• Insights into Grants and Funding (11/14 PM) invited

Seminars

- Kitchen Chemistry (11/11 PM)
- Chemical Identity via Mass Spectrometry (11/12 AM)
- What Does an Analytical Chemist Do in Industry (11/13 AM)
- Analytical Chemistry and Forensic Science (11/14 AM)

ENVIRONMENTAL

Technical Sessions

- Analysis for a Greener World (11/14 AM) contributed
- Poster Session: Analysis for a Greener World (11/14)

Short Course

• Sample Preparation: The Chemistry Behind the Techniques (11/13)

FOOD ANALYSIS

Technical Sessions

- Poster Session: Product Analysis of Us and Our World (11/13 PM)
- Product Analysis of Us and Our World (11/14 AM) contributed

FORENSIC ANALYSIS

Technical Sessions

- Advances in Forensic Toxicology (11/12 AM) invited
- Dried Blood Spot Analysis (11/12 AM) invited
- Novel Approaches to Forensic Spectroscopy (11/12 PM) contributed
- Designer Drugs: 2012 (11/13 AM) invited
- Drugs and Counterfeiting: 2012 (11/13 PM) invited
- Counter(feit) Attack- Strategies and Technologies to Fight Counterfeits (11/14 AM) *invited*
- Forensic Microscopy VI "What is it? Who does it?" (11/14 PM) invited

GAS CHROMATOGRAPHY

Technical Sessions

- Poster Session: Novel Applications of LC/MS and GC/MS (11/12)
- Poster Session: Gas Chromatography Intro, Assay and Detection (11/14 PM)
- Gas Chromatography Intro, Assay and Detection (11/15 AM) contributed
- Novel Applications of LC/MS and GC/MS (11/15 PM) contributed

Short Course

- Practical Gas Chromatography (11/11 11/12)
- Sample Preparation: The Chemistry Behind the Techniques (11/13)
- Practical Headspace Gas Chromatography (11/14)

INFRARED SPECTROSCOPY

Technical Sessions

EAS Award for Outstanding Achievements in NIR, Honoring Joseph

- Hodges (11/13 AM) invited
- Poster Session: The Full Spectrum of Infrared Spectroscopic Techniques (11/13)
- The Full Spectrum of Infrared Spectroscopic Techniques (11/15 PM) contributed

Short Courses

- Infrared Spectral (IR) Interpretation I and II (11/12-11/13)
- Infrared Spectral (IR) Interpretation I (11/12)
- Infrared Spectral (IR) Interpretation II (11/13)
- Introduction to Near-Infrared Spectroscopy: Applications in the Pharmaceutical and Biotech Industries (11/13)
- Hands-on FTIR, NIR and Data Analysis What is the Right Tool to Solve Your Problem (11/14-11/15)

LABORATORY MANAGEMENT

Technical Sessions

- Outsourcing: Perspectives from Sponsors and CROs (11/13 AM) invited
- Innovation and Creativity in Management (11/14 PM) invited
- Poster Session: Innovation and Creativity in Management (11/14)

Short Courses

- Critical cGMP and ICH Guidances for Analytical Laboratories (11/13)
- Fundamentals of Laboratory Management for New Managers (11/13-11/14)
- Quantitative Analysis for Managers, Auditors and Data Reviewers (11/15)

LIQUID CHROMATOGRAPHY

Technical Sessions

- HPLC Technologies and Pharmaceutical Applications (11/12 AM)
- Pharmaceutical Analyses: Is your Column Equivalent? (11/12 AM)
- EAS Award for Outstanding Achievements in Separation Science, Honoring Robert Kennedy (11/12 PM)
- Poster Session: HPLC Technologies and Pharmaceutical Applications (11/12)
- Poster: Novel Applications of LC/MS and GC/MS (11/12)
- Poster Session: Novel LC Phases and Instruments (11/12)
- Successful Applications of Fast LC in Various Industries (11/13 AM)
- Poster Session: Separation Anxiety from Capillaries to Columns (11/13)
- Counter(feit) Attack- Strategies and Technologies to Fight Counterfeits (11/14 AM)
- Separation Anxiety from Capillaries to Columns (11/15 AM)
- Novel LC Phases and Instruments (11/15 AM)
- Novel Applications of LC/MS and GC/MS (11/15 PM)

Short Courses

- Anatomy of Modern Reversed-Phase Columns: Understanding Their Role in HPLC (11/11)
- LC/MS: Theory, Instruments, and Applications (11/12-11/13)
- How to Develop Validated HPLC Methods: Rational Design with Practical Statistics and Troubleshooting (11/12-11/13)
- Essentials of Modern HPLC/UHPLC I and II (11/12-11/13)
- Essentials of Modern HPLC/UHPLC I: Fundamentals and Applications (11/12)
- Essentials of Modern HPLC/UHPLC II: Practice, Operation, Troubleshooting and Method Development (11/13)
- Critical cGMP and ICH Guidances for Analytical Laboratories (11/13)

MASS SPECTROMETRY

Technical Sessions

- American Microchemical Society Benedetti-Pichler Award, Honoring Luis Colon (11/12 AM) *invited*
- Dry Blood Spot Analysis (11/12 AM) invited
- Poster Session: Novel Applications of LC/MS and GC/MS (11/12)
- Analytical Solutions for Characterization of Biologics and Quantification in Biological Matrices (11/12 PM) contributed
- EAS Award for Outstanding Achievements in the Fields of Analytical Chemistry, Honoring Mary Wirth (11/13 AM) *invited*
- MS of Large and Biomolecules Session I (11/13 AM) invited
- MS of Large and Biomolecules Session II (11/13 PM) invited
- EAS Award for Outstanding Achievements in Mass Spectrometry, Honoring Fred McLafferty (11/14 AM) *invited*
- Real or Imaginary? Demystifying Artifactual Peaks in HPLC Analysis of Pharmaceutical Products (11/14 PM) *invited*
- Solving Chemical Structure: Structure Elucidation Answers (11/14 PM) invited
- Structure Elucidation In Mass Spectrometry (11/14 PM) invited
- Novel Applications of LC/MS and GC/MS (11/15 PM) contributed

Short Courses

- Impurities and Degradants Identification: Strategies for Structure Elucidation via Chromatography, MS and NMR (11/11)
- LC/MS: Theory, Instruments, and Applications (11/11-11/12)
- Interpretation of Mass Spectra with Practical Solutions to Problems (11/13)
- The Chemistry of Drug Degradation (11/15)

MICROSCOPY

Technical Sessions

- New York Microscopical Society Ernst Abbe Award, Honoring Skip Palenik (11/14 AM) *invited*
- Forensic Microscopy VI "What is it? Who does it?" (11/14 PM) invited
- Industrial Microscopy (11/14 PM) invited

NMR SPECTROSCOPY

Technical Sessions

- New York Section of the Society for Applied Spectroscopy Gold Medal Award, Honoring Richard Mendelsohn (11/12 PM) *invited*
- EAS NMR New Faculty Award (11/13 PM) invited
- NMR Techniques for Metabolite ID (11/14 AM) invited
- NMR Analysis of Biological Systems and Materials: Structure (11/14 PM) invited/contributed
- EAS Award for Outstanding Achievements in Magnetic Resonance, Honoring Jeffrey Reimer (11/15 AM) *invited*
- NMR Analysis of Biological Systems and Materials: Dynamics (11/15 PM) invited/contributed
- Frontiers in EPR Spectroscopy (11/15 PM) invited/contributed

Short Course

• Impurities and Degradants Identification: Strategies for Structure Elucidation via Chromatography, MS and NMR (11/11)

PHARMACEUTICAL ANALYSIS

Technical Sessions

- Dry Blood Spot Analysis (11/12 AM) invited
- Quality-by-Design in Pharmaceutical Analysis I (11/12 AM) invited
- Pharmaceutical Analyses: Is your Column Equivalent? (11/12 AM) *invited* Poster Session: Spectral Analysis from Pharmaceutical Process to
- Production (11/12)
- Poster Session: Pharmaceutical Analysis of Quality-by-Design and Automation (11/12)
- Quality-by-Design in Pharmaceutical Development II (11/12 PM) invited
- Spectral Analysis from Pharmaceutical Process to Production (11/12 PM) invited
- Applications of Microdose Strategy in Preclinical and Clinical Studies (11/12 PM) invited
- Analysis of Consumer Products (11/13 AM) invited
- Outsourcing: Perspectives from Sponsors and CROs (11/13 AM) invited
- Applications and New Instrumentation for Process Analyzers and PAT (11/13 PM) *invited*
- Product Analysis of Us and Our World (11/13 PM) contributed
- Pharmaceutical Analysis of Quality-by-Design and Automation
- (11/13 PM) contributed
 Poster Session: Separation Science Cures in Pharmaceutical Analysis (11/13)
- Counter(feit) Attack- Strategies and Technologies to Fight Counterfeits (11/14 AM) invited
- Real or Imaginary? Demystifying Artifactual Peaks in HPLC Analysis of Pharmaceutical Products (11/14 PM) invited
- Separation Science Cures in Pharmaceutical Analysis (11/15 PM) contributed

Short Courses

(Please also see MS and LC listings for additional courses)

- Impurities and Degradants Identification: Strategies for Structure Elucidation via Chromatography, MS and NMR (11/11)
- Physical Characterization and Analytical Test of Pharmaceutical Solids I & II: Essential Knowledge & Advanced Applications (11/11-11/12)
- Physical Characterization and Analytical Test of Pharmaceutical Solids I: Essential Knowledge (11/11)
- Physical Characterization and Analytical Test of Pharmaceutical Solids II: Advanced Applications (11/12)
- Critical cGMP and ICH Guidances for Analytical Laboratories (11/13)
- Introduction to Drug Discovery and Development Processes for Analytical Scientists (11/13)
- The Role of Chromatography in the Analysis and Characterization of Protein Therapeutic Drugs (11/13)
- The Analysis and Characterization of Protein Therapeutic Drugs (11/13-11/14)
- Development, Validation, Verification and Transfer of Analytical Methods: A Lifecycle Approach of Analytical Methods (11/14)

PHARMACEUTICAL ANALYSIS continued

- Extractables and Leachables Studies for Biologicals and Other 'High Risk' Dosage Forms (11/14)
- Hands-on FTIR, NIR and Data Analysis What is the Right Tool to Solve Your Problem (11/14-11/15)
- Impurities in Pharmaceuticals A Survey Course (11/15)
- Dissolution: A Rational Approach to Developing and Validating Methods for a Variety of Purposes (11/15)
- The Chemistry of Drug Degradation (11/15)

POLYMERS

Technical Sessions

 Real or Imaginary? Demystifying Artifactual Peaks in HPLC Analysis of Pharmaceutical Products (11/14 PM) *invited*

Short Course

• Polymers: An Introduction and Characterization Techniques (11/11)

RAMAN SPECTROSCOPY

- Technical Sessions
- Poster Session: The Full Spectrum of Infrared Spectroscopic Techniques (11/13)
- Applications of Surface-Enhanced Raman Spectroscopy (11/15 AM) invited

Short Course

Practical Introduction to Raman Spectroscopy (11/15)

SAMPLE PREPARATION

Technical Sessions

- Novel Sample Preparation Techniques (11/14 AM) contributed
- Poster Session: Novel Sample Preparation Techniques (11/14)

Short Course

• Sample Preparation: The Chemistry Behind the Techniques (11/13)

SPECTROSCOPY

Technical Sessions

- Infrared Spectroscopy
- EAS Award for Outstanding Achievements in NIR, Honoring Joseph Hodges (11/13 AM) invited
- Poster Session: The Full Spectrum of Infrared Spectroscopic Techniques (11/13)
- The Full Spectrum of Infrared Spectroscopic Techniques (11/15 PM) contributed

Raman Spectroscopy

- Poster Session: The Full Spectrum of Infrared Spectroscopic Techniques (11/13)
- Applications of Surface-Enhanced Raman Spectroscopy (11/15 AM) invited

Spectroscopy

- Bringing Home the Bacon Vibrational Spectroscopy gets the Job Done (11/12 AM) *invited*
- Poster Session: Spectral Analysis from Pharmaceutical Process to Production (11/12)
- Spectral Analysis from Pharmaceutical Process to Production (11/12 PM) *invited*
- Spectroscopy in the Palm of your Hand (11/13 AM) invited
- The Role of Spectroscopy for Enabling Quality-by-Design and RTR (11/13 AM) *invited*
- Applications and New Instrumentation for Process Analyzers and PAT (11/13 PM)
- Counter(feit) Attack- Strategies and Technologies to Fight Counterfeits (11/14 AM) *invited*
- Àdvances in Vibrational Spectroscopy: Instrumentation and Applications I (11/14 AM) *invited*
- Advances in Vibrational Spectroscopy: Instrumentation and Applications II (11/14 PM) *invited*

SPECTROSCOPY continued

Short Courses

Infrared Spectroscopy

- Infrared Spectral (IR) Interpretation I and II (11/12-11/13)
- Infrared Spectral (IR) Interpretation I (11/12)
- Infrared Spectral (IR) Interpretation II (11/13)
- Introduction to Near-Infrared Spectroscopy: Applications in the Pharmaceutical and Biotech Industries (11/13)
- Hands-on FTIR, NIR and Data Analysis What is the Right Tool to Solve Your Problem (11/14-11/15)

Raman Spectroscopy

• Practical Introduction to Raman Spectroscopy (11/15)

Spectroscopy

• Practical Applications of Laser-Induced Breakdown Spectroscopy (11/14)

SUPERCRITICAL FLUID CHROMATOGRAPHY

Technical Sessions

- EAS Award for Outstanding Achievements in Separation Science, Honoring Robert Kennedy (11/12 PM)
- Supercritical Fluid Chromatography: Advances and Applications in Pharmaceutical Analysis I (11/14 AM)
- Supercritical Fluid Chromatography: Advances and Applications in Pharmaceutical Analysis II (11/14 PM)

Short Courses

• Practical Knowledge and Recent Advances in Developing Supercritical Fluid Chromatography (SFC) Applications (11/14)

SURFACE ANALYSIS

Technical Sessions

- Real or Imaginary? Demystifying Artifactual Peaks in HPLC Analysis of Pharmaceutical Products (11/14 PM) *invited*
- Soft Surfaces and Interfaces (11/14 PM) invited/contributed
- Environmental Surface Chemistry (11/15 AM) invited/contributed
- Surface Spectroscopy (11/15 PM) invited/contributed



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Short Courses At-A-Glance

EAS's one-day and two-day short Courses emphasize practical and econor solving topics which will include material that you can take home and imme daily work. These courses will be taught by a group of distinguished instruc recognized in their fields. See course list below. Click here for complete <u>cc</u>

Two-Day Courses

Code	~ 2-Day Courses ~ Sunday - Monday 8:30am - 5:30pm (Holiday Inn)	Instru
E12-01	Practical Gas Chromatography	Eugene Barry, Univ Massachusetts Low Thomas Brettell, Ce
E12-02	LC/MS: Theory, Instruments, and Applications	Guodong Chen, Bri Michael Balogh, Wa Ragu Ramanathan Birendra Pramanik,
E12-03	Physical Characterization and Analytical Test of Pharmaceutical Solids I & II: Essential Knowledge & Advanced Applications	Steve Byrn, Purdue Xiaoming Chen, OS
E12-06	Chemometrics Without Equations I & II (combined course)	Donald Dahlberg, L Barry Wise, Eigenv
E12-08	Essentials of Modern HPLC I & II (combined course)	Michael Dong, Gen
E12-12	Troubleshooting Chromatographic Systems	Merlin Bicking, ACC Douglas Raynie, SI
Code	~ 2-Day Courses ~ Monday - Tuesday 8:30am - 5:30pm (Holiday Inn)	Instru
E12-13	How to Develop Validated HPLC Methods: Rational Design with Practical Statistics and Troubleshooting	Brian Bidlingmeyer Stanley Deming, St
E12-14	Infrared Spectral Interpretation I & II	Brian Smith, Specto

	(combined course)	
Code	~ 2-Day Courses ~ Tuesday - Wednesday 8:30am - 5:30pm (Holiday Inn)	Instructor(s)
E12-25	Cancelled	
E12-26	Fundamentals of Laboratory Management for New Managers	Claude Lucchesi, Northwestern Univ.
Code	~ 2-Day Courses ~ Wednesday - Thursday 8:30am - 5:00pm (Holiday Inn)	Instructor(s)
E12-30	The Modular Cleaning Program - An Accelerated Course for Conservators, organized in cooperation with the New York Conservation Foundation	Christopher Stavroudis, Paintings Conservator
E12-31	Quality-by-Design: A New Paradigm for the Analytical Laboratory I & II (combined course)	Zenaida Otero Gephardt, Rowan Univ.
E12-37	Hands-on FTIR, NIR and Data Analysis - What is the Right Tool to Solve Your Problem	Katherine Bakeev, CAMO Software Brian Smith, Spectros Associates

One-Day Courses

Code	~ One-Day Courses ~ Sunday 8:30am - 5:00pm (Holiday Inn)	Instructor(s)
E12-04	Physical Characterization and Analytical Test of Pharmaceutical Solids I: Essential Knowledge	Steve Byrn, Purdue University Xiaoming Chen, OSI Pharmaceuticals
E12-05	Impurities and Degradants Identification: Strategies for Structure Elucidation via Chromatography, MS and NMR	Thomas Sharp, Pfizer Brian Marquez, Pfizer Todd Zelesky, Pfizer
E12-07	Introduction to Chemometrics Without Equations I	Donald Dahlberg, Lebanon Valley Coll. Barry Wise, Eigenvector Research
E12-09	Essentials of Modern HPLC I: Fundamentals and Applications	Michael Dong, Genentech
E12-10	10 Anatomy of Modern Reversed-Phase Columns: Understanding Their Role in HPLC Richard Henry, Penn S	
E12-11	Polymers: An Introduction and Characterization Techniques	Diep Nguyen, Illinois Institute of Tech.
Code	~ One-Day Courses ~ Monday 8:30am - 5:00pm (Holiday Inn)	Instructor(s)
E12-15	Infrared Spectral Interpretation I	Brian Smith, Spectros Associates
E12-16	Intermediate Chemometrics Without Equations II	Donald Dahlberg, Lebanon Valley Coll. Barry Wise, Eigenvector Research
E12-17	Physical Characterization and Analytical Test of Pharmaceutical Solids II: Advanced Applications	Steve Byrn, Purdue University Xiaoming Chen, OSI Pharmaceuticals
E12-18	Essentials of Modern HPLC II: Practice, Operation, Troubleshooting & Method Development	Michael Dong, Genentech
Code	~ One-Day Courses ~ Tuesday 8:30am - 5:00pm (Holiday Inn)	Instructor(s)
E12-19	Sample Preparation: The Chemistry Behind the Techniques	Merlin Bicking, ACCTA, Inc. Douglas Raynie, SD State University
E12-20	Introduction to Near-Infrared Spectroscopy: Applications in the Pharmaceutical and Biotech Industries	Emil Ciurczak, Doramaxx Consulting
E12-21	Interpretation of Mass Spectra with Practical Solutions to Problems	Birendra Pramanik, Merck Mike Lee, Milestone Development

E12-23	Infrared Spectral Interpretation II	Brian Smith, Spectros Associates
E12-24	Cancelled	
E12-27	Data Analysis with EXCEL [©] for Improved Productivity in the Analytical Laboratory: New Uses for a Familiar Tool	Zenaida Otero Gephardt, Rowan Univ.
E12-28	Introduction to Drug Discovery & Development Processes for Analytical Scientists	Michael Dong, Genentech
Code	~ One-Day Courses ~ Wednesday 8:30am - 5:00pm (Holiday Inn)	Instructor(s)
E12-29	Development, Validation, Verification and Transfer of Analytical Methods: A Lifecycle Approach of Analytical Methods	Gregory Martin, Complectors Consulting
E12-32	Quality-by-Design (QbD): A New Paradigm for the Analytical Laboratory I: QbD Fundamentals for Analytical Chemists	Zenaida Otero Gephardt, Rowan Univ.
E12-33	Practical Applications of Laser-Induced Breakdown Spectroscopy	Lydia Breckenridge, Bristol-Myers Squibb
E12-34	Practical Headspace Gas Chromatography	Mary Ellen McNally, DuPont Thomas Brettell, Cedar Crest College
E12-35	Extractables & Leachables Studies for Biologicals & Other 'High Risk' Dosage Forms	Thomas Feinberg, Catalent Pharma Solutions
E12-36	Practical Knowledge and Recent Advances in Developing Supercritical Fluid Chroma- tography Applications	Yingru Zhang, Bristol-Myers Squibb
Code	~ One-Day Courses ~ Thursday 8:30am - 5:00pm (Holiday Inn)	Instructor(s)
E12-38	Quality-by-Design (QbD): A New Paradigm for the Analytical Laboratory II: Design of Experiments (DOE) for Analytical Chemists	Zenaida Otero Gephardt, Rowan Univ.
E12-39	The Chemistry of Drug Degradation	Christopher Foti, Pfizer
E12-40	Dissolution: A Rational Approach to Developing and Validating Methods for a Variety of Purposes	Gregory Martin, Complectors Consulting
E12-41	Cancelled	
E12-42	Quantitative Analysis for Managers, Auditors and Data Reviewers	Nicholas Snow, Seton Hall University Gregory Slack, Clarkson University
E12-43	Practical Introduction to Raman Spectroscopy	Frederick Long, Spectroscopic Solutions



<u>Register</u> on-line now! Visit <u>www.EAS.org</u> for the Preliminary Program and more details

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Cryo-SEM Workshop

Sponsored by Gatan Analytical Imaging Facility Albert Einstein College of Medicine, Bronx NY October 24 or 25, 2012

WORKSHOP SCHEDULE

Lectures are open to all

Located in Forchheimer room 614 Wednesday, October 24

or

Thursday, October 25

9:00-9:15	Welcome and Introductions
9:15-10:15	Marilyn Carey: Introduction to Cryo-SEM
10:15-10:45	Q&A
10:45-11:00	Break
11:00 – 12:00	Cameron Ackerley: Cryo techniques for Biological Applications
12:00-1:15	Lunch (provided to registered participants)
1:15-2:30	Lab session: Zeiss Supra 40 with Gatan Alto 2500 cryo system Demonstration of Instrumentation
2:30-2:45	Break
:45-4:00	Lab session: Demonstration of samples

REGISTRATION:

The Workshop will be held at the Analytical Imaging Facility, of the Albert Einstein College of Medicine 1300 Morris Park Ave., Bronx, NY 10461

To register, email Frank Macaluso (frank.macaluso@einstein.yu.edu) by October 19, with your full contact information and which day you will attend. **Lectures are open to all.** The afternoon workshop is limited to 15 students each day. Registration is on a first come, first serve basis.

PROGRAM:

We are holding two one-day workshops on cryo SEM applications. Two presentations on the use and application of cryo-techniques, will be followed by live demonstration of the instrumentation with samples on the Zeiss Supra 40 field emission SEM with the Gatan Alto 2500 cryo system.

SPEAKERS:

Marilyn Carey, Cryo-SEM Specialist, Gatan UK

Cameron Ackerley, EM Application Specialist, Hospital for Sick Children, Toronto





Benzoic acid, 25x Polarized light (P0542716) Photomicrograph by Mel Pollinger



Araboascorbic acid, 50x Polarized light (P1162830) Photomicrograph by Mel Pollinger