



# 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



February 2013

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

Volume 7 (27) Number 2

### NYMS Open House at Clifton Sunday, February 24<sup>th</sup>, 2013 1:30pm to 5pm

A casual day for microscopy & fellowship for our members and guests.

Come in and enjoy a day looking through our prepared slide collection, our archived 35mm slides, our vast library, Use our microscopes, or bring in your own, bring your gadgets & things to observe.

Refreshments will be available

In case of inclement weather, please call  
Mel Pollinger before Noon:

H: (201) 791-9826, Cell: (201) 314-1354

### 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 by visiting the NYMS website, or emailing: [pollingmel@optonline.net](mailto:pollingmel@optonline.net)

### Flight Stability in Flies

**Anthony Thomas (Canada) describes and illustrates the halteres that are used in flight.**

As the scientific name (Order: Diptera) indicates, flies have 2 wings. Species in most other insect orders have 4 wings. Dragonflies (Order: Odonata) with 4 wings are skilful insect aeronauts that achieve such mastery of the air by being able to move the forewings independently of the hindwings. Other 4-winged insects normally lock the fore- and hind-wings such that all the wings move in unison. This likely results in more efficient flight in the sense of energy needed but limits maneuverability.



Dorsal view of a  
Winter Cranefly,  
halteres just visible  
below forewings.

Prepared slide of Squash Bug from the Warren Flint Collection – image by Mel Pollinger



## Board of Managers (updated)

<b>Diaczuk, Peter</b> , <a href="mailto:pedicopete@earthlink.net">pedicopete@earthlink.net</a> ; (212) 237-8896, ..... Expy June 2013, .....President
<b>Scott, John</b> , <a href="mailto:nyconsnfdn@aol.com">nyconsnfdn@aol.com</a> ; ..... Expy June 2015, .....Vice President, Program Chair
<b>Pollinger, Mel</b> , <a href="mailto:pollingmel@optonline.net">pollingmel@optonline.net</a> ; (201) 791-9826, ... Expy June 2014, .....Treasurer, Editor, Librarian
<b>Klaus, Angela</b> , Ph.D., <a href="mailto:klausang@shu.edu">klausang@shu.edu</a> ; ..... Expy June 2015, .....Secretary, Education Chair
<b>O'Leary, Don</b> , <a href="mailto:dkoleary@verizon.net">dkoleary@verizon.net</a> ; (201) 368-8849, .....Expy June 2013, .....Curator, Facilities Manager
<b>Reffner, John A.</b> , Ph.D., <a href="mailto:jareffner@cs.com">jareffner@cs.com</a> ; (203) 348-8098, .....Expy June 2014, Awards Chair...President
<b>McCann, Mary</b> , <a href="mailto:mccanns@tiac.net">mccanns@tiac.net</a> ; .....(617) 484-7865, .....Expy June 2015, .....Membership Chair
<b>Huemmer, Craig</b> , <a href="mailto:chuemmer@hotmail.com">chuemmer@hotmail.com</a> ; ..... Expy June 2015, .....Board member
<b>Mayer, Gary</b> , <a href="mailto:mayer@co.somerset.nj.us">mayer@co.somerset.nj.us</a> ; ..... Expy June 2014, .....Board member
<b>Perlowitz, Seymour</b> , <a href="mailto:perlowitzs@hotmail.com">perlowitzs@hotmail.com</a> ; ..... Expy June 2013, .....Board member
<b>Reffner, John Jr.</b> , <a href="mailto:jrr1lp@gmail.com">jrr1lp@gmail.com</a> ; (cell): (215) 527-1882, ..... Expy June 2014, .....Board member
<b>Scal, Roland</b> , Ph.D., <a href="mailto:rscal@qcc.cuny.edu">rscal@qcc.cuny.edu</a> ; (718) 631-6071, .....Expy June 2013, .....Board member

### Dues and Addresses

Please remember to mail in your Dues to:

Mary McCann,  
Membership Chair  
**McCann Imaging**  
161 Claflin Street  
Belmont, MA 02478

Junior (under age 18) \$10

Annually

Regular \$30

Student (age 18 or above) \$20

Annually

Supporting \$60 Annually

Corporate (includes one advertisement in NYMS News)

\$175 Annually

Life \$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 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

Chair: John A.  
Reffner

### Members

Jan Hinsch  
Don O'Leary  
Mel Pollinger



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

### 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.



### 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

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**Dues for 2013 are due!**

*Buy and Read a Good Book on Microscopy.*

## **24th ANNUAL NORTH JERSEY GEM, MINERAL & FOSSTL SHOW**

Sponsored by The North Jersey Mineralogical Society

One of the TOP shows in the NorthEast!  
Featuring Rock, Mineral, and Fossil  
specimens, as well as Crystals, Gemstones,  
Jewelry, Books, Rockhound and lapidary  
Supplies.

\*\*\*\*

FREE Paring-FREE Mineral Specimen for  
Kids-ALL Indoors-Door Prizes.

\*\*\*\*

Refreshments will be sold at the club table  
Saturday & Sunday, March 9 & 10, 2013 from  
10am till 5pm

at The Pope John Paul II Center, 775 Valley  
Road (just off Rt. 3/46), CLIFTON, NJ

ADMISSION: Adults - \$5 Seniors - \$4 Under  
18 - \$3 Under 12 and Scouts - FREE

For more information, visit our website -  
[www.nojms.webs.com](http://www.nojms.webs.com)

or call ffre Show Chairman, Jeff (973)293 -7911 or  
E-mail [bucsls,tood4@yahoo.com](mailto:bucsls,tood4@yahoo.com)

### **Inter/Micro 2013**

Inter/Micro is an internationally recognized  
conference that attracts microscopists from all  
areas of light and electron microscopy. Research  
presentations during the first three days cover  
techniques and instrumentation, environmental  
and industrial microscopy, and forensic and  
chemical microscopy. The final two days will be  
a hands on microscopy workshop,

#### Call for Papers

July 15-19, 2013 - Inter/Micro: 64th Annual  
Applied Microscopy Conference, Chicago, IL,  
USA

Titles & Abstracts due by April 15, 2013

#### Upcoming conferences

July 15-19, 2013

Inter/Micro: 64th Annual Applied Microscopy  
Conference, Chicago, IL, USA

Hosted by: McCrone Research Institute

Contact: Julie Antia

e-mail: [intermicro@mcricri.org](mailto:intermicro@mcricri.org)

[julie@mcricri.org](mailto:julie@mcricri.org)

[www.mcri.org](http://www.mcri.org)

Phone: 312-842-7100

Fax: 312-842-1078

As reported by Program Chair, John Scott

**Here is an abstract of the things Jan  
Hinsch would like to talk about at the  
March 2013 meeting in Clifton.**

"If you are an amateur microscopist in search of an  
inexhaustible source of specimens consider sand.  
Geologically sand is defined as particles > 0.0625  
and < 2mm. It may be of mineral origin or fragments  
of shells or corals. Sand is beautiful to look at, both  
in transmitted and in incident light with moderate  
to medium powers.

For a more analytical view of sand the polarized  
light microscope is essential. When equipped with a  
spindle stage it is possible to measure the two or  
three refractive indices by immersion methods.

With encouragement from Ben Glassman I like to  
show some micrographs of sand grains and how and  
where they were taken." Jan

From Julian C. Gray via Thom Hopen:

The memoir of Donald Bloss has been  
published by the Mineralogical Society of  
America:

<http://www.minsocam.org/MSA/Monographs/Mono06.html>

Dr. Bloss is one of the great optical mineralogist of our  
time. He is author of landmark references on  
mineralogy, including his classics on optical  
mineralogy and the spindle stage.

### **Website to Visit for Diatoms.**

<http://www.diatoms.co.uk/ad/index.htm>

### **Got News?**

**Send it to The Editor. 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 the Editor.**

### 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 must call Don O'Leary or Mel Pollinger to confirm. Don's cell-phone number is (201) 519-2176 or email: [dkoleary@verizon.net](mailto:dkoleary@verizon.net). Mel's Home phone number is (201) 791-9826 or email: [pollingmel@optonline.net](mailto:pollingmel@optonline.net)

### ***From The Editor... if you have email:***

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

**Dues for 2013 are 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 Jan. 2013



**Chironomus larva: A non-biting midge.** Guessed correctly by Dr. Angela V. Klaus. Polarized light image of living specimen by Mel Pollinger.

### Mystery Photo for Feb. 2013



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

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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](mailto:pollingmel@optonline.net) (images ok)

or

Mel Pollinger, Editor

NYMS Newsletter

18-04 Hillery Street

Fair Lawn, NJ 07410



**Supporting Member**

# **NYMS Newsletter Extended**

## **Section, February 2013**

### **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.

**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=TripPlannerItineraryTo)

[http://www.njtransit.com/sf/sf\\_servlet.srv?hdnPageAction=BusSchedulesP2PTo](http://www.njtransit.com/sf/sf_servlet.srv?hdnPageAction=BusSchedulesP2PTo)

[http://www.njtransit.com/sf/sf\\_servlet.srv?hdnPageAction=TrainTo](http://www.njtransit.com/sf/sf_servlet.srv?hdnPageAction=TrainTo)

**In This Section: Directions to NYMS**

**Donald Bloss Monograph**

•**Buying and Making Rheinberg Filters**

•**The Amateur Diatomist**

•**Flight Stability in Flies**

•**EAS Call for Papers, Show Information**

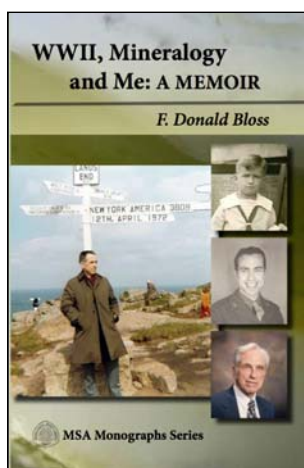
•**North Jersey Mineralogical Society**

•**Spring NYMS Microscope Courses**

•**Items for Sale by NYMS**

•**Membership Application**

•**Last page images**

[Home](#)[AmMin](#)[GMR](#)[RiMG](#)[Collectors Corner](#)[Directory](#)[Short Courses](#)

[Order \*WWII, Mineralogy and Me: A memoir\* here](#)

## Monograph 6

# WWII, Mineralogy and Me: A memoir

F. Donald Bloss

(this page revised 11/11/2012)

[Description](#)

[Table of Contents](#)

i-xxvi + 322 pages. ISBN 978-0-939950-89-8; 0-939950-89-8.

## Description

F. Donald Bloss is a distinguished mineralogist and is the leading proponent of and scholar in the field of optical crystallography of minerals. He is one of only two individuals to hold the positions of President of the Mineralogical Society of America and Editor-in-Chief of *American Mineralogist*. He is also the eponym of the mineral blossite.

*WWII, Mineralogy and Me: A Memoir* begins with Don growing up poor in Chicago before and during the Depression, weaves through his service as a Conscientious Objector during WWII, and follows his academic career from his early school days through his role in helping to establish perhaps the preeminent department in the mineral sciences in the world at Virginia Tech. Don traces his life through those things important to him, including family, students, colleagues, and, above all, Louise, his wife. As in most lives, there are triumphs and heart-breaking tragedies. Don also provides a front-row seat to anyone who wishes to see the evolution of optical mineralogy over the past half century.

## WWII, Mineralogy and Me: A Memoir

### TABLE OF CONTENTS

### FOREWORD

### PROLOGUE

### THE ROARING TWENTIES: 1920-1929

- Bundle of Joy?
- Addison Street and Newport Avenue
- Portage Park
- Giddings Street

### **THE DEPRESSION: OCTOBER 29, 1929 TO 1940**

- Waiting for the Rainbow
- Two Families: Cramped in One House
- Carl Schurz High School
- Enrolling at Chicago
- Cuddling Up with the Atomic Bomb
- Waiting to be Drafted

### **WORLD WAR II: 1941-1945**

- Camp Grant Here I Come
- General Hospital
- Ashford General Hospital
- At Last, My Love Has Come Along
- Fort Leonard Wood
- Back at Camp Grant
- Camp Myles Standish
- The 162d at Nocton
- I Shoulda Walked

### **BACK AT THE UNIVERSITY: 1946-1951**

- Hutchens' Breeding Hutches
- The Legendary J (no period) Harlen Bretz
- The Sorcerer's Apprentice
- Yellowstone: Life Among the Savages
- Wyoming Field Course
- My Dissertation

### **THE UNIVERSITY OF TENNESSEE: 1951-1957**

- Living on Love and Pale Moonlight
- In Sunshine or In Shadow
- To Harry and June Roberts, With Love
- I Dove You, I Dove You

### **AT SOUTHERN ILLINOIS UNIVERSITY: 1957-1967**

- Settling in at Carbondale
- N.S.F. Senior Postdoctoral Fellowship
- Our Lovely Months in England
- At the E.T.H. in Zurich
- Back in Carbondale

### **VIRGINIA TECH: 1967-PRESENT**

- Blacksburg and Albuquerque
- Lecturing in China
- Master of Applied Microscopy: Walter C. McCrone

# RHEINBERG Filters

## Hand Made and Precision Cut For Your Microscope

I'm Mike Shaw, and I've been selling Rheinberg filters all over the world for ten years.



You may have seen them auctioned on EBay, or read about them on a blog; heck, you might have bought a set from me.

In fact, just Google "Rheinberg Filters" right now. See whose name comes up, and which pages come up to the top of the list.

For ten years, I was the only one on the planet who made Rheinberg Filters for sale commercially. But all that's changed now. Why?

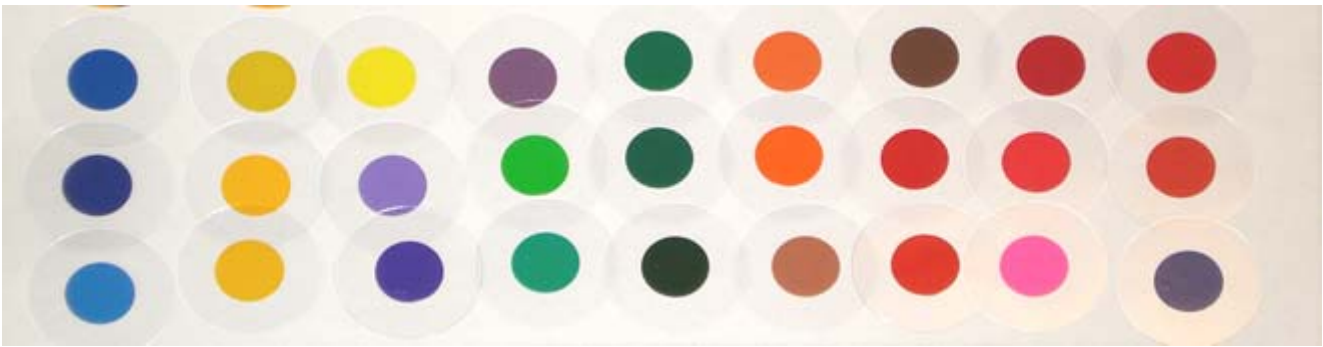
Because I wrote the book on Rheinberg filters.

Below, I'll tell you a bit about it, or you can click here for just information about the book: [www.rheinberg-filters.com/Ebook.htm](http://www.rheinberg-filters.com/Ebook.htm)

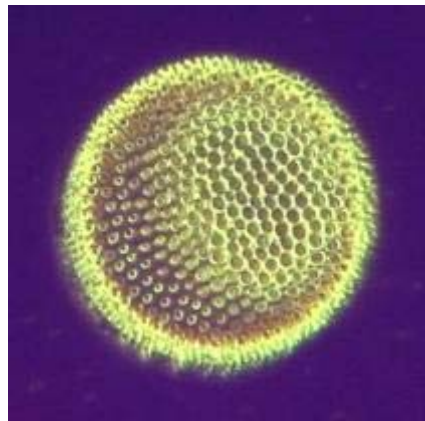
You can learn all about Rheinberg filters on this web site. If you would like me to make a customized set for you, that's fine. But think about making your own filters too!



This is a set of Annulus rings. These rings give color to the specimen only - not the background.



This is a set of Center Stop filters. These rings give color to the background only - not the specimen.



And here's what happens to an ordinary diatom when you use a violet center stop, and a yellow annulus filter.

These sets are available in any size- the most common being 32mm for Zeiss standard. Would you like me to make a set for you?

Step 1. Measure your typical filter- such as a daylight blue, or neutral density, and let me know the diameter. Measure as accurately as possible the diameter in mm. Also, it would be helpful to know the maximum thickness your filter holder can handle.

[This is a link to my email](#)

Step 2. I will send you a free test set (which you may keep) so we can determine the exact size for your microscope.

Step 3. Once I know the right size filter for you, I will build your complete full color set.

Step 4. When your set is ready for shipping, you can pay with PayPal, and I will ship it to you.

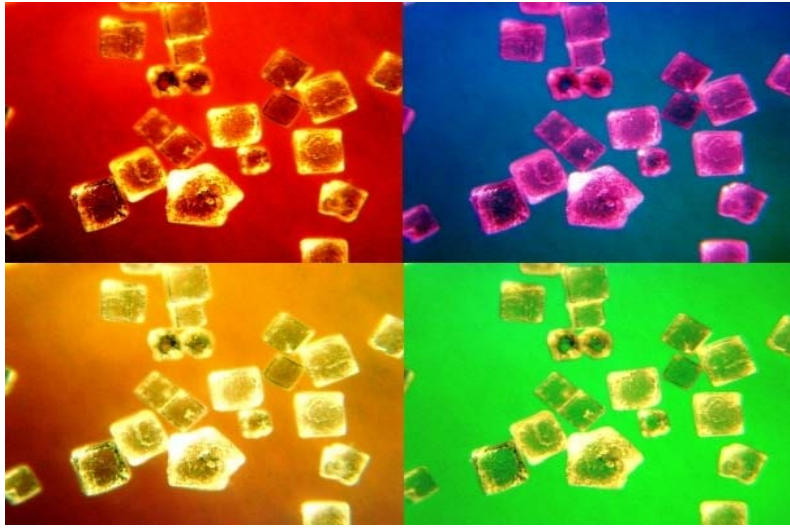
Price will vary depending upon the number of filters in your final set. Handling and shipping is via Priority Mail or International Priority Mail, and will vary depending upon

your mailing address.

You must send me an e-mail first, so I can send you your free test set, and we can determine your correct filter size.

[This is a link to my email](#)

After you receive your final filter set. You can mix and match center stops and annulus rings to give you many color combinations. Look at these salt crystals.



And, you can overlay annulus rings to give you different colors as well. In this case, I'm using bi-colored rings to better demonstrate the variety of colors possible.



Above, three bi-colored filters. Below- overlay combinations of the same filters.





Are you wondering about the book? Feeling up to the challenge of making your own filters?

The title is: How to Make Rheinberg Filters, for the Hobbyist and Professional

My book won't just tell you how Rheinberg works, and give you a couple of hints about making these very special filters. It's not a book about optics, or light theory, or about microscopy.

I'm offering to you all of my secrets- my suppliers of materials, the tools I use, time saving techniques, how to market your filters, and more. This is a handbook and a start -up business manual as well.

My book not only teaches you how to make filters, but how to set up an E-Business, and I show you how to build a website, and run a profitable home based business.

For the past ten years, I've made filters for universities around the world, for the Mayo Clinic, for professors, industrial scientists, hospital researchers, doctors and veterinarians on every continent, and for amateurs of course as well.

My book is loaded with dozens of photographs explaining every point, every nuance of this art. I could never offer you that with a traditionally published hard copy book. The book would cost as much as a college textbook, or more. You can order right now, or read on about Rheinberg filters.

It is priced right, at only \$9.95 More about the book [here...](#)

[Click here for a preview of the book on Amazon Kindle...](#)

More about the filters that I sell:

Are these high quality optical glass filters? NO. You normally pay about \$40.- *each* for a solid optical glass filter.

This is an affordable collection for the serious amateur, university student, or even creative professional- in thin plastic in a nice assortment.

***You simply can not purchase ready made optical glass cut into rings in these colors.*** When I find a way to do it- you will be the first to know.

Therefore- I highly recommend these- which are hand cut from various plastic laminates, filter materials, and adhesive films.

What is in a typical set? You get as many colors as I have in stock- that's about a dozen stops in various colors and shades, and a dozen or so annulus rings, and a matching set of solid colored filters.

When I send you the free test set, you will receive about four or five sizes of solid black center stop filters, which give you Darkfield. The different sizes of black allow you more flexibility to use different objectives from 2.5x through 20x. That's right, you get a free set of Darkfield filters to keep. They are yours just for the asking.

#### TESTIMONIAL:

*Received the set last weekend and am very pleased! A reasonably priced quality product above and beyond my expectations. I will be using them for years. A great addition to my microscopy accessories. Thanks again! Use me as a reference.*

*J. Wilhelm*



Blue Optical Glass  
31.8mm diameter, and  
1.33mm thick

\$10.00 incl. shipping  
Slightly darker than  
daylight blue, gives  
rich natural color



Clear Optical Glass 32.6mm  
diameter and 3mm thick

\$10.00 incl. shipping  
Thick glass can take some heat



Clear Optical Glass  
31.4mm diameter and  
4mm thick

\$10.00 incl. shipping  
Perfect for base  
illuminator of Lomo  
Multiscope

LIMITED  
QUANTITIES !!!

#### Glass Filters Dropdown Selector

Blue Glass 31.8 x 1.33mm \$10.00 USD

**Buy Now**



LIMITED  
QUANTITIES !!!

Want to be alerted to new additions to this  
site? Are you already a subscriber to this  
site?

Click either link below.

[Sign up](#) [Remove](#)

Have you ever heard of DIC? That's Differential Interference Contrast. It is an extremely high tech and expensive technique to look at microscope specimens. It basically creates "relief" in the image, giving it a 3D type depth.

An amateur microscopist, named Wim van Egmond, came up with what he calls DIY/DIC, or Do It Yourself DIC. It is actually a form of Oblique lighting which achieves almost the same effect as real DIC!

Do It Yourself Differential Interference Contrast

I make these filters as well. The DIY/DIC filters are not included with a Rheinberg set, and do cost extra. I can quote these separately for you.

Below is a link to Wim van Egmond's page explaining it all. Wim is a super microscopist and photographer.

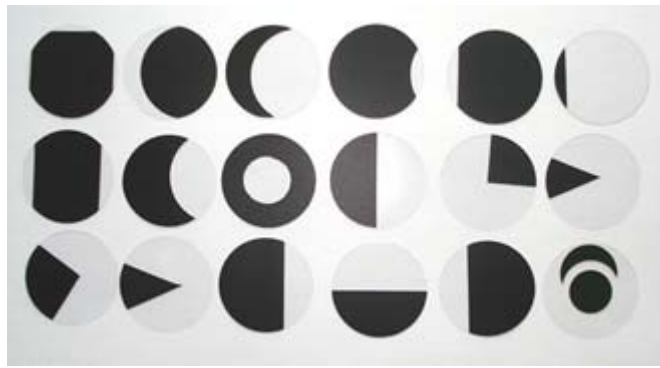
[DIY-DIC](#)

Different shapes work differently depending upon your microscope- so these are for experimentation, as I don't know what will work for you. No guarantee on this- but let me know what works for you and I will pass this information on to all. You get some basic printed info on how to create the DIC effect included with the filters.

Directly below is a photo of diatoms using 25X Zeiss objective, an orange center stop Rheinberg filter, and a DIY/DIC shape to produce the oblique illumination. These filters are experimental and work differently and unpredictably with each microscope and condenser combination. No guarantee you will get the same effect. But is it fun trying. There are at least six filters in each set I make.



Here is an example of Diatoms using an oblique illumination filter. These filters are experimental, and allow only a tiny part of the light beam to hit your specimen at an angle. the result is a 3D effect.



Above is a typical set of experimental DIY/DIC filters.

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### TESTIMONIAL:

*As a newbie to the field of microscopy, I found Mike Shaw online in searching for information on filters for my new 'scope. He has been just great, working closely with me to build a full set of filters to fit exactly, and providing great guidance along the way. You will find him most patient and very knowledgeable, as well as fair in his pricing and very responsive to questions. A great resource to amateur microscopists everywhere!*

*Pam R*

If you are thinking about ordering a set of filters from me, I'm going to ask you to wait a moment. Sure, I'd like to sell you a set, and maybe a set of DIY/DIC filters as well.

But - did you know that there is a kitchen utensil that is perfect for making Rheinberg center stops?

Did you know that one of the best materials for making high quality Darkfield filters is probably in your basement or garage right now?

Did you know you can make a complete set of Rheinberg filters AND a set of DIY/DIC filters for less than \$10.00?

All of this is in my book, plus more.

Included is a Bonus Section where I show you how to build a beautiful wooden filter case. I built and sold two of these cases for over \$100.00 each.

And yes, of course, I'm also including bonus material on making Oblique Illumination filters (DIY/DIC). I'll also show you how to make plant press,

for preserving leaves and flowers, and there is even a guide to building an objective lens holder.

AND - I've just added to the book "How to Make a Microscope Camera Adapter" - loaded with pictures.

And I'm going to tell you how to sell your microphotographs on-line, and in fact, how to sell anything on the internet. And while I'm on the subject of microphotography, I reveal the three professional secrets of good landscape photography. It's all in the Bonus Section of my book.

Why am I doing this?

Frankly, I'm getting on in years, and I don't have the kind of time I used to have for making and selling filters. I'm kind of hoping someone else out there might be as dedicated and skilled as I have been, and take over this business for me. I welcome it. That's how I roll.

But maybe you are just curious. You may not want to make and sell filters.

Then buy a set of filters from me, and you can still buy this book to add to your knowledge. The price is reasonable enough so you can own the be-all and end-all book on making Rheinberg filters.

And reasonable is \$9.95 More about the book [here...](#)  
[Click here for a preview of the book on Amazon Kindle](#)

Can your microscope handle Rheinberg Filters? Pictured below is a typical Abbe condenser.



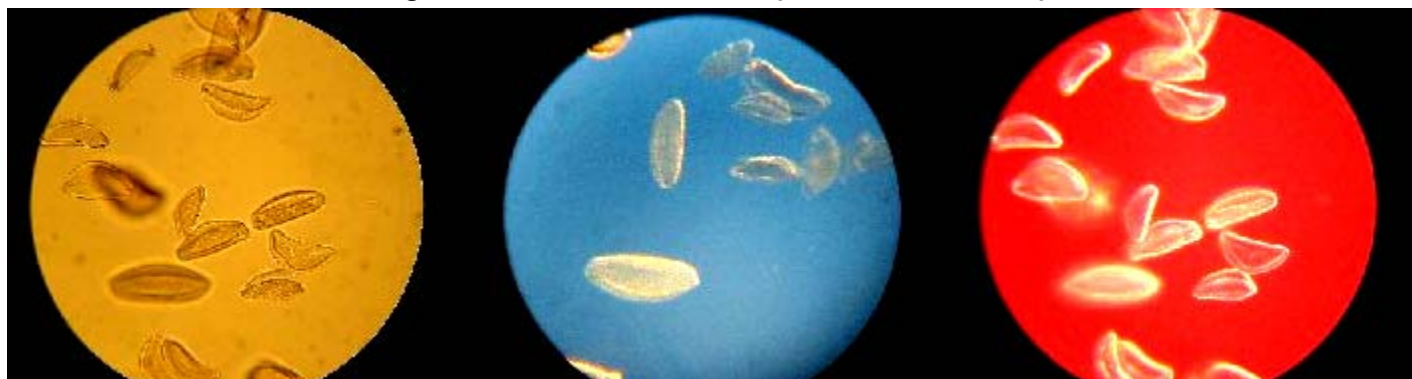
Above, you see a condenser with swing-out filter holder, having a white diffusion filter (just for photo clarity) in the place where your Rheinberg filters will be placed.

Note- you must not stop down your condenser diaphragm. You need as much light as possible, and stopping down interferes with Rheinberg effect. Likewise, you must not stop down your base illuminator field diaphragm. No stopping down below the

condenser, or you will lose the effect!

Also - you should not swing in the bottom lens as you would do with lower power objectives. No iris, no swing-in lens allowed.

Below are three examples of the same specimen of *Alstromeria* pollen. Left to right - Brightfield, blue center stop, red center stop.



**Question:** What do I do if I'm using a Rheinberg filter with my 2.5x objective, and I can see the bulb or illuminator?

You said I'm not allowed to swing in the bottom lens, which is what I normally would do. What now?

**Answer:** You will have to use a diffusing filter somewhere below the Rheinberg filter. You might have to place it as low as the base illuminator. Then turn up the wattage.



These are inexpensive plastic diffusing filters. Frosted plastic, they are available 31.25mm and are 3.5mm thick.

Price \$2.00. Free shipping on this item in continental USA.

Limited Quantities !

[Add to Cart](#)

Looking for clear acrylic filters?  
Available in 1.7mm thickness, hard acrylic. Perfect to make Darkfield filters with! \$2.00 each with free shipping in continental USA.



For 30mm diameter, use dropdown.

For 31mm diameter, use dropdown.

Clear Acrylic Dropdown Selector

30 x 1.7mm \$2.00 USD

[Add to Cart](#)[View Cart](#)

I have a limited number of solid colored non-Rheinberg filters for sale. These are 2.6mm in thickness. *See below photos.*

Some people don't have these colors in their filter collection. Available are 10 solid colors:

2 shades of green, 2 shades of blue, pink, 2 shades of yellow, amber, red, and 1 neutral density shade.

These are acrylic plastic, not high quality optical glass, but if you don't have some of these colors- it's an affordable way to be creative. When they are gone, they are gone. One set available.

Filters are 2.6mm thick, so your filter holder must take this thickness.

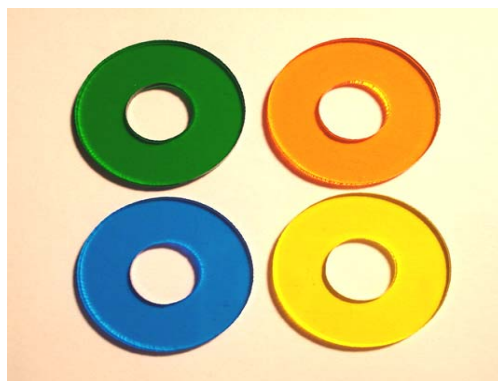
Priced at a closeout price \$35.00 per set

[Add to Cart](#)

[Click here for 29.5mm x 2.6mm set](#)

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Want the above in acrylic annulus rings?  
A few sets remaining.  
Set of four Yellow, Orange Green,  
Blue



Size 32.3mm x 2.5mm thick with  
center hole 1/2 in.

\$34.95 Free shipping in continental  
USA.

Size 30mm x 2.5mm thick with  
center hole 1/2 in.

\$34.95 Free shipping in continental  
USA.

Size 31mm x 2.5mm thick with  
center hole 1/2 in.

\$34.95 Free shipping in continental  
USA.

## Annulus Ring Drop Down Menu

32.3 x 2.5mm 1/2 in center hole\$34.95 USD

[Add to Cart](#)[View Cart](#)

A black center stop gives you a Darkfield effect. When used in combination with a light blue overlay ring, your subject has a natural color against a black background. See Vorticella below.



Hydra photos taken with green center stop and with violet center stop. Both used yellow annulus rings.





Technical Stuff: These center-stop and annulus rings work great using 10x objectives and below (i.e. 4x or 2.5x). Even using a 20x objective may give you very good results. But, you generally can not use these with a 40x objective and higher because the precision needed in matching your objective and the center stop size is very, very critical. this also varies between microscope and objective manufacturers. If you want a Darkfield effect using the higher objectives like 40x and 100x, you generally have to use a special Darkfield condenser. I always include with your test set a larger black darkfield stop you can try with a 40x objective- but no guarantee !



Above Daphnia photo was taken with green center stop, and daylight blue annulus ring.

### TESTIMONIAL:

*Hi Mike,*

*The filters just arrived and I have to say that I am ABSOLUTELY FLOORED and THRILLED at the quality and quantity of the product. I am completely blown away. You outdid yourself and I will recommend you to anyone and everyone I can.*

*THANK YOU!*

*Thanks for the article, magazine and case with foam inserts. Man! I did NOT expect all that!*

*Please add me to any email lists you have and keep me abreast of any new products you come out with.*

*Fantastic work! THANK YOU AGAIN!*

*Robb*

How did I come up with the price for my book?

Like I said, a book with so many full color photos and diagrams would normally be the price of a college text book, and that's in the \$150.00 to \$200.00 range.

Yet, I felt that amount might be unaffordable for most people, and then I thought about the price of a set of my custom made filters.

My filters typically sell on EBay for around \$100.00 or more. Well if a

person can buy my filters for that, why would they buy my book for a similar price?

At \$50.00, I felt my book might be too high priced for the average person. Don't get me wrong- the book is worth a lot more than \$50.00.

But there's a saying:

***No one ever really pays the price of a book, only the price of printing it.***

And since it is an E-book, I was originally selling it as pdf download only for \$29.95. But Amazon has capped the price I can sell it as a Kindle book. So the price is now \$9.95.

In essence, I'm selling my Rheinberg Filter business for that amount.

It's about sharing. Like I said, my dream now is to see someone else take on the challenge of supplying the world with high quality Rheinberg filters.

I am, in fact, encouraging my readers to set up their own business to compete against me. And I'm holding nothing back. You'll know that immediately when you read the book.

[Click here for a preview of the book on Amazon...](#)

So, go ahead. Enjoy the world of **RHEINBERG** filters now.

[\*\*E-Mail your questions here\*\*](#)

**Email address: [mike@mikeshawtoday.com](mailto:mike@mikeshawtoday.com)**

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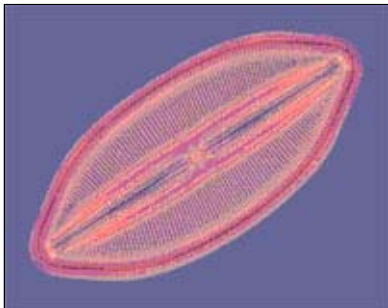
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# The Amateur Diatomist

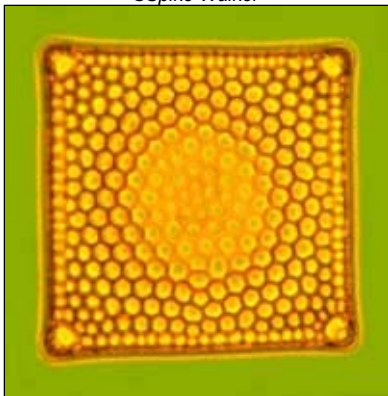
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**Welcome  
to The  
Amateur  
Diatomist**

Last updated  
8th September 2012



©Spike Walker



©Spike Walker

## Welcome to the The Amateur Diatomist Web Site.

This web site is a continuation of The Amateur Diatomist publication, printed between March 2002 and July 2009.

Though the cost of printing and postage ultimately forced us into suspending publication it was determined, upon its demise, that we would endeavour to continue the title via the Internet. Despite the passage of a number of years this desire to continue our efforts and provide a medium for interchange of ideas and publication of relevant articles, has not abated.

The editors welcome contributions to the site content, including articles, letters, photographs, exchanges etc. These should be submitted by email to the address found in the 'About' section of the site.

As previously we wish it known that there is no strict editorial policy and no adherence to any specific taxonomy. Rather, we think it important that the amateur be free to choose their reference material, particularly considering the prohibitive costs of current literature.

We cannot be held responsible for any mishaps related to methods or instructions for cleaning or mounting. Any persons undertaking any of the processes contained in any of the articles do so at their own risk. Where appropriate we will give guidance, but as in all things, common sense must prevail. Younger readers should always seek the advice of a responsible adult before embarking upon any procedure, and responsible adults should always be responsible.

*"We do not know what we do not know."*

# Flight Stability in Flies

**Anthony Thomas (Canada) describes and illustrates the halteres that are used in flight.**

As the scientific name (Order: Diptera) indicates, flies have 2 wings. Species in most other insect orders have 4 wings. Dragonflies (Order: Odonata) with 4 wings are skilful insect aeronauts that achieve such mastery of the air by being able to move the forewings independently of the hindwings. Other 4-winged insects normally lock the fore- and hind-wings such that all the wings move in unison. This likely results in more efficient flight in the sense of energy needed but limits maneuverability.

Flies have kept their forewings but have reduced and modified their hind wings into a pair of rigid rods each with a knob on the end. These are the halteres which function as sensory organs concerned with the maintenance of stability during flight. The centre of gravity for a haltere lies in the end knob so that during flight the knob vibrates and these vibrations pass along the rigid rods to the flexible base connected to the thorax. Mechanoreceptors in the form of groups of campaniform sensilla allow the fly to correct its flight to control pitch, roll and yaw.

Halteres are particularly large in the less specialized flies such as Crane Flies (Family: Tipulidae) and Winter Crane Flies (Family: Trichoceridae). These latter insects are active during the colder months in Canada and are common in my garden at this time of the year (December).

Below are some images of the halteres and their plates of sensilla.

Figure 1 is an image of a live **Winter Cranefly**, *Trichocera* sp., showing the large forewings and the just-visible halteres below the forewings.



Fig. 1. Dorsal view of a Winter Cranefly, halteres just visible below forewings.

Figure 2 is the same fly with the forewings moved forward to show the halteres.



Fig. 2. Dorsal view of a Winter Cranefly showing the relatively large halteres.

Figure 3 is a closeup of a haltere.

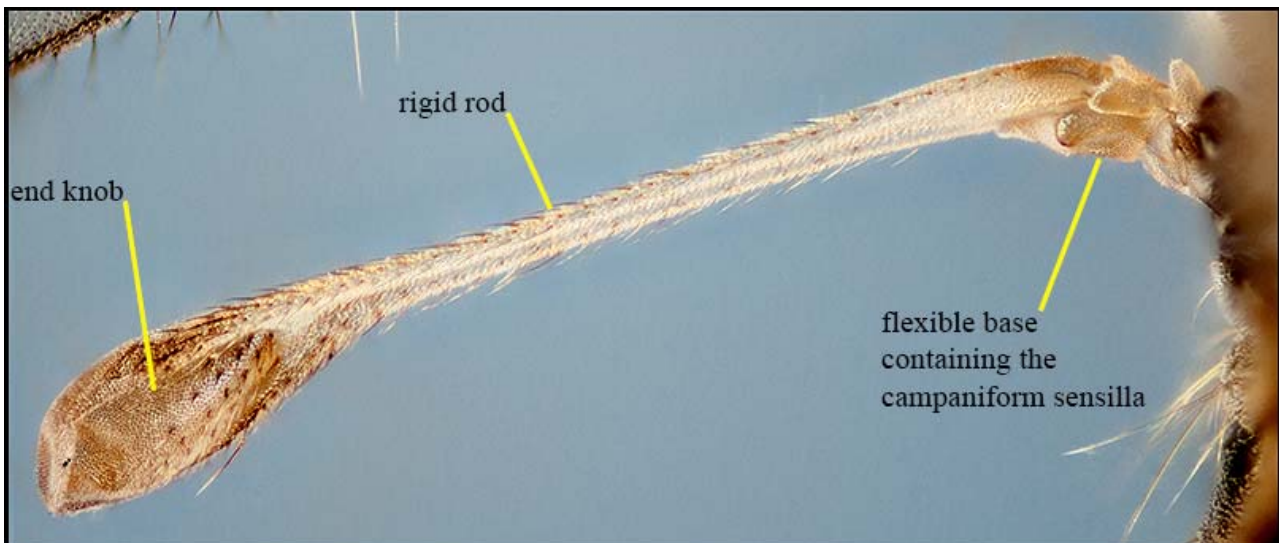


Fig. 3. Haltere of a Winter Cranefly

Figure 4 is a closeup of a haltere base showing the sensilla plates. Stacked image through the full depth of the base with underlying parts showing through (40x objective + 1.25x intermediate lens + 2.5x relay lens, Nikon D600 camera).

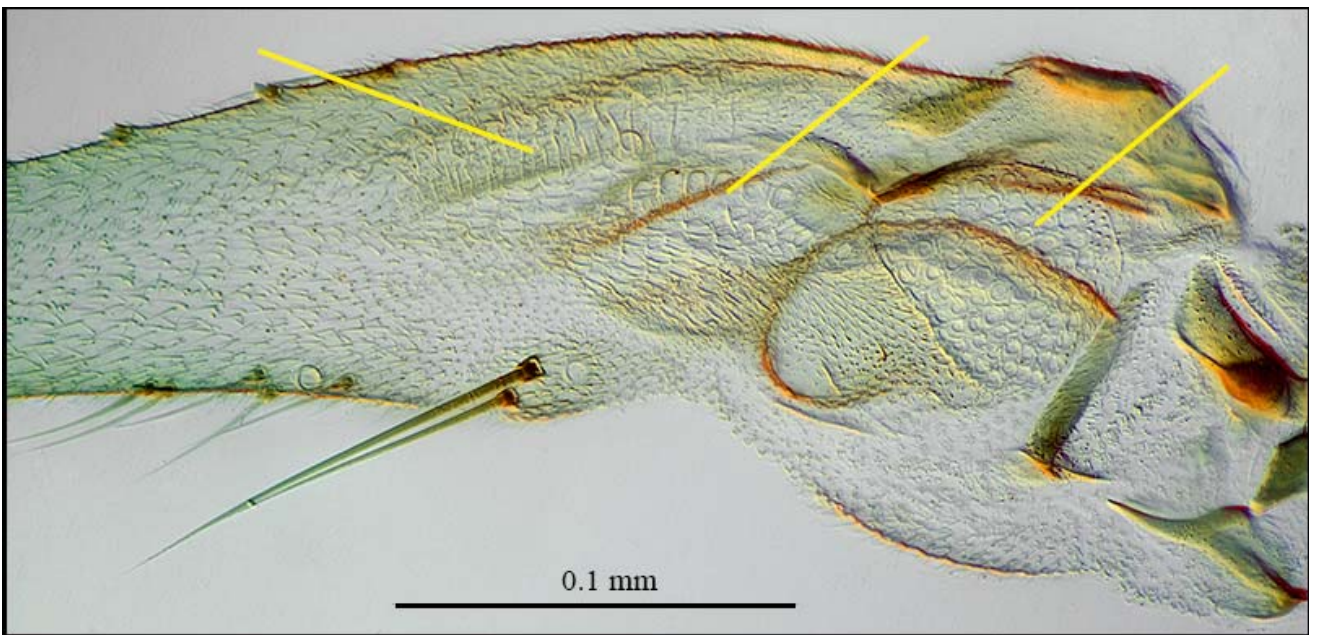


Fig. 4. Closeup of the base of a haltere, full depth, showing the plates of sensilla.

Figure 5 is a selective-focus of the ventral surface (as seen on the slide) of the haltere base emphasizing the lower sensilla plate.

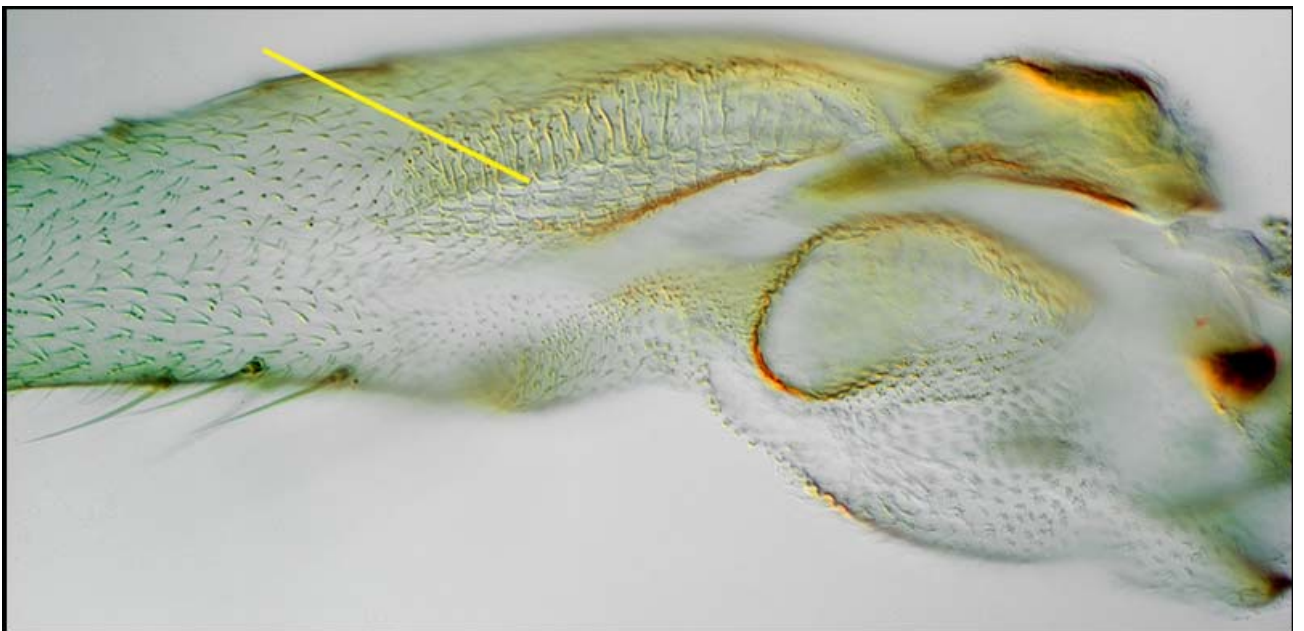


Fig. 5. Base of haltere, selective-focus of the ventral sensilla plate.

Figure 6 is a selective-focus of the dorsal surface (as seen on the slide) of the haltere base emphasizing the upper sensilla plates.



Fig. 6. Base of haltere, selective-focus on the dorsal sensilla plates.

## **Microscope and Photographic Equipment**

My basic equipment is an Olympus BH2 with 2x, 4x, 10x, 20x, 40x, 60x, and 100x objectives; Olympus 2.5x NFK relay lens. I also have the components for Phase Contrast, DIC and Polarization. Camera is a Nikon D600 with Nikon PB-6 bellows; Nikon flash in place of Olympus' halogen lamp. For reflected light images I use Nikon CF objectives, El-Nikkor enlarging lenses, and a MF 105mm Micro Nikkor with a Nikon D90 camera. Most images are stacks of several frames processed by Zerene Stacker.

Email author: [mothman@nbnet.nb.ca](mailto:mothman@nbnet.nb.ca)

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**New York Microscopical Society**  
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**Use of the Microscope & Polarized Light Microscopy**  
**April 27, May 4, 11, 18, 25, June 1, 8, 2013**

A basic course on light microscopy which will cover the following topics:

*Theory of microscopy, Kohler Illumination*  
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The workshop will consist of seven consecutive Saturdays of lectures and hands on labs to cover the theoretical and practical aspects of microscopy. The course instructors are *Jan Hinsch* formerly of Leica Microsystems, Inc., *Dennis O'Leary* of Micro-Optical Methods, *Mary McCann* of McCann Imaging, *John Reffner* of John Jay College and N.Y.M.S. Instructor *Don O'Leary*.

**WHEN:** April 27, May 4, 11, 18, 25, June 1, 8, 2013. 10AM to 4 PM

**WHERE:** One Prospect Village Plaza, Clifton, NJ 07013, accessible by public transportation. Information on car pools and transportation will be provided.)

**COST:** \$695 for NYMS members, \$725 for non-members (includes membership) Lunch and course materials are included. Checks made out to NYMS.

**HOW:** Register using form below. Limited to the first 12 registrants.  
Send form to: Mel Pollinger, 18-04 Hillery Street, Fairlawn, NJ 07410-5207

**FURTHER INFORMATION:** Call Angela Klaus, 973-761-1840, avklaus2@yahoo.com

**PLEASE MAIL THIS APPLICATION WITH YOUR PAYMENT**

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## N.Y.M.S. Microscope Covers

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MT-003	Small Microscope or Stereo	\$18.00	\$20.00
MT-004	Lab Microscope or Large Stereo	\$23.00	\$25.00
MT-005	Large Lab Scope	\$28.00	\$30.00
MT-009	Large Lab Scope with Camera	\$31.00	\$33.00
MT-010	Universal Scope with Camera	\$36.00	\$40.00
MT-012	X-large Scope	\$45.00	\$50.00

## N.Y.M.S. Microscopes (see next page 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
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NYMS Glossary of Microscopical Terms	\$20.00
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Model 131: Tungsten

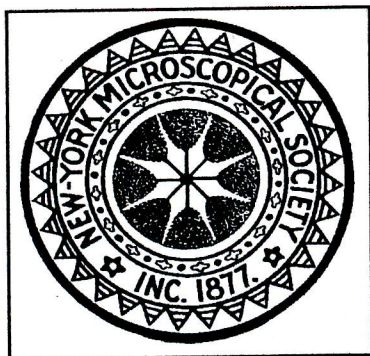
Model 131-FLU: Fluorescent



Model 185: 20x



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