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Volume 7 Number 8 August, 2002

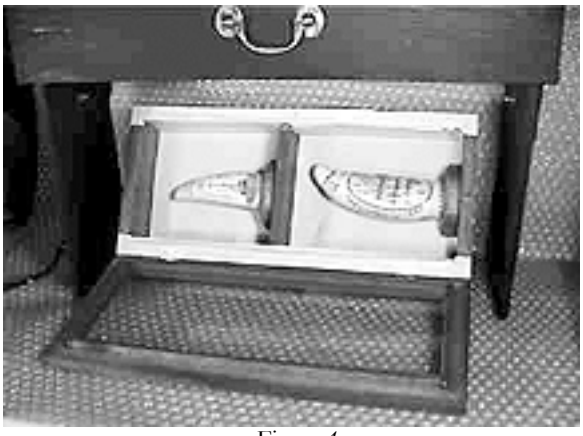
BLACKLIGHT: BUILD YOUR OWN

DUAL 15 WATT PORTABLE BLACKLIGHT SOURCE

By Dave Hirsch

Ultra violet light, also referred to as UV and "black light" , is invisible to the naked eye. UV lies toward the middle of the electromagnetic spectrum which is defined as "the entire range of wavelengths or frequencies of electromagnetic radiation extending from gamma rays to the longest radio waves and including visible light"

The entire electromagnetic spectrum is based on the speed of light. How fast is the speed of light? Experiments by Michelson and others have established the speed of light to be: 297,792,458 meters/second or 186,355 miles/second. These values are constant throughout the electromagnetic spectrum. Students who stayed awake during lectures in Physics class will recall the equation: V = N times Lambda, where V is the velocity of light, N is the frequency in vibrations per second or HZ (hertz), and Lambda is the wave length in meters. Conversely, frequency is velocity divided by the wave length N = V/Lambda) and the wave length is the velocity divided by the frequency (lambda = V/N). The spectrum ranges



Fig*ure 4*

from X-rays of high frequency and short wave lengths to tv/radio which are low frequency and long wave lengths. The ultraviolet portion of the electromagnetic spectrum is the basis for the discussion here. The approximate range in meters./ hertz for ultraviolet is: 10 to the minus seven to 10 to the minus 8 meters and 10 to the plus 15 to ten to the plus 16 hertz.

The following table shows the relationships between wave lengths as the UV range decreases:

Wavelength Range, nanometers	Condition
400-315	UV-A (least harmful)
315-280	UV B (more harmful, absorbed by ozone)
280-100	UV-C (Intense emission. Used in germicidal lamps. (Most harmful: can cause severe burns to eyes and skin, but is absorbed by air)
400-300	near UV ("black light")
400-200	far UV
200-100	vacuum uv

Unless one is engaged in high-level research whereby the wave length and frequency of the UV radiation must be defined and controlled quantitatively, an apparatus of simple construction discussed here should fill the need in a qualitative sense, serving as a convenient source of UV. The microscopist, mineralogist, criminalist, art researcher, etc., may have need for a UV source for investigating dyes, pharmaceuticals, textiles and other venues where a source of UV would facilitate related tasks. Let's now dust off the drawing board., lay out our shop tools and get the project under way!

Preliminary sketches and basic layouts were followed in rapid succession by procurement of material including the UV source, then, by the

Fig*ure 1*

fabrication. The finished product is shown in figs. 1, 2 and 3 . Fully assembled, the portable ultra violet source weighs nine pounds. The case may be stored flat or on end. The case is constructed from one half inch thick shop grade plywood, finished two sides. Overall dimensions are given as a guide, allowing the builders to set their own sizes and configuration. Basically, the interior of the

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case should have sufficient room for the UV units to fit well within the case to assure that the UV radiation does not shine into the eyes of the observer.. The external dimensions selected for the closed case were: 21 inches long x.7 inches wide x 5 inches deep, as shown in fig 1.

The arrangement of components within the case is shown in fig 2. UV is supplied by a pair of fluorescent type fixture assemblies placed parallel to each other. Each fixture has an integral rocker switch and six feet of conductor cord. The switches are located facing in the same direction and close to one end of the case. Sufficient clearance must be allowed to provide access to each switch. The individual rocker type switches permit the fixtures to be lit singly or in unison. Rather than cutting and splicing the cords to a common conductor, both cords are bound together and terminate in a single connector block which can be plugged into an outlet. The plugs are polarized. An aluminum coated mylar sheet is located beneath both UV tubes and the sheets extend part way toward the open surface. The sheet serves as a reflector, causing a maximum amount of UV to be transmitted rather than being absorbed by the inner surfaces of the case.

Fig*ure 2*

The fixture and UV tube were procured as a unit. The easily mounted black light assembly is available locally for about $30.00 per fixture through major hardware supply stores such as Home Depot. NOTE: Other black light fixtures are available up to 36 " in length. The manufacturer of the fixture featured here is: Lampi LLC, 7272 Governors West, Huntsville, Alabama, Phone

Fig*ure 3*

number; (205) 837-3110. Their fax number is: (205) 830-3110.

The self-filtering tube is a GE Blacklite blue tube, type T8, designated: BLB . According to T.S. Warren, blacklight tubes are suitable for examining substances such as fluorescent paints, inks, fabrics, etc., rather than minerals. The self filtering tube cited here allows too much blue light to pass through the filter, thereby altering the perceived color of most minerals. To achieve optimum results when examining minerals with long-wave fluorescence, the experimenter should use a lamp with a separate tube and filter. The fluorescent tube used here has an internal coating of a long wave ultraviolet light emitting phosphor and is rated at 118 volts, 15 watts, 360 milliamps. The emission has a wave length of 350 nanometers which is in the long wave range.

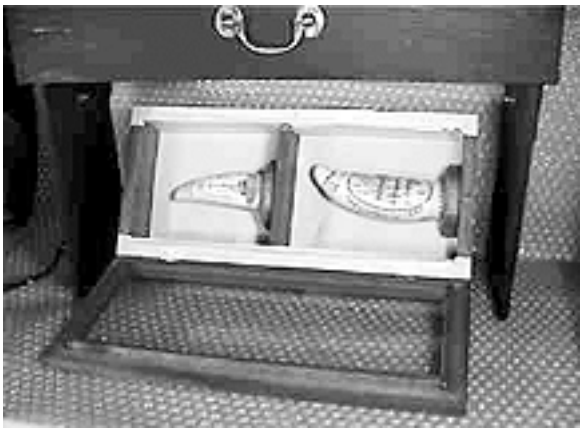
To set up the UV unit, the inset covers are opened and secured in position by means of the support bracing bars as shown in fig. 3. When locked into the open position, the covers serve as legs for the case.

For more effective viewing of minerals, a short wave UV source of approximately 254 nm would be preferable. The cost would be much higher than that of a long wave device. CAUTION!!! *Regardless of the wave length, be advised that UV emission is detrimental to the eyes!* Just as one would not stare directly into the sun or the light from an electric arc, it is extremely hazardous to stare into any

source of ultra violet light. Short wave UV (250-300nm) is the most harmful. Prolonged staring into short wave UV will result in 'sunburned' eyes. Short wave UV reflected from objects should also be observed with caution. Long wave UV (350-400 nm) will cause the eyes to fluoresce but will not cause sunburn.

Objects which fluoresce under blacklight may be examined under the microscope with the precaution that the fluorescent substance be observed rather than the UV source itself. A source of white light should also be available. When used alternatively with UV, the relationships between fluorescing and non-fluorescing substances may be observed. An interesting application for long-wave UV is illustrated in figs. 4 and 5 using a pair of 'scrimshawed' whale teeth. One of the teeth is genuine and the other a plastic reproduction. Both materials appear similar under visible light as shown in fig. 4. The smaller tooth, being of natural ivory will fluoresce when exposed to a source of long-wave UV, whereas plastic will not, as shown in fig. 5.

Ultraviolet light and the light microscope come together in the area of fluorescence microscopy. Unlike the conventional microscope which uses light to illuminate the sample and produce a magnified image of the sample, the fluorescence microscope uses a much higher intensity of light to illuminate the sample. This intensified light excites fluorescence species in the sample, which then emit light of a longer wave length. The fluorescent microscope also produces a magnified image. This image is based on the second light source - the light emanating from the fluorescent species - rather than from the light originally used to illuminate, and excite, the sample.



Fig*ure 4*

Fig*ure 5*

Additional information on optics of a fluorescence microscope is cited in the bibliography. The fluorescence microscope is used to detect chemical bonding between certain substances. The reaction is made visible by treating one of the substances in the reaction with a fluorescent dye. The fluorescence microscope enables medical diagnosticians to make a rapid and accurate identification of certain communicable diseases.

Bibliography

Warren, Thomas S., et. al. *Fluorescent Light and Fluorescent Minerals*. 1995.

Thomas S. Warren, Publisher Healey, Peter. *Microscopes and Microscopic Life*. London. 1979.

C&L Instruments, Inc. Optics of a Fluorescent Microscope. 2002. http://www.fluorescence.com/tutorial/fm-optics □

WORKSHOP OF THE MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA

by: George G. Vitt, Jr.

Date: Saturday, 3rd August 2002
Location: Izzy Leiberman's Residence

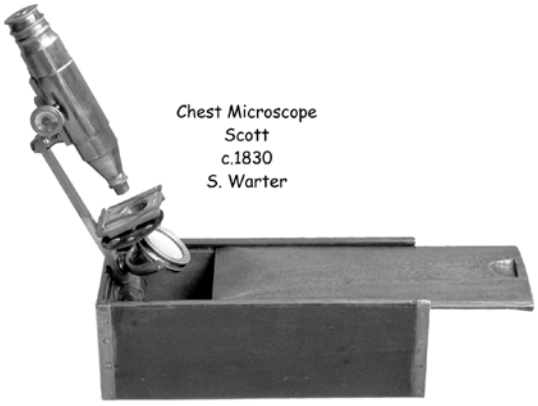
1. Jim Solliday announced that the next workshop will be at Ken Gregory's residence on 7 Sept 2002, and that there will be a guest from England, Graham Marsh, a dealer in antique microscopes and instruments. He passed out copies of an L.A. Times article on the life and accomplishments of Walter McCrone, who died on 10 July 2002. Jim said that Ed Tarvyd has recuperated and will be giving us a talk on Darwin. Charles Fox was introduced as a guest, and became a member by meeting's end.

2. Peter Fischer told an anecdote about Walter McCrone. It seems that he was being treated in a hospital and was told to keep both of his legs elevated by about one foot. McCrone protested, saying that he would raise only one leg and then compare it to the other to see if there was any improvement. (There was none.) This was yet another of his controlled experiments.

3. Stuart Warter displayed two microscopes:
a) A box microscope signed "Scott, maker, Bath" c.1800-1840 (see photo). The microscope is hinged to an inside wall of the mahogany box, which has a sliding lid.

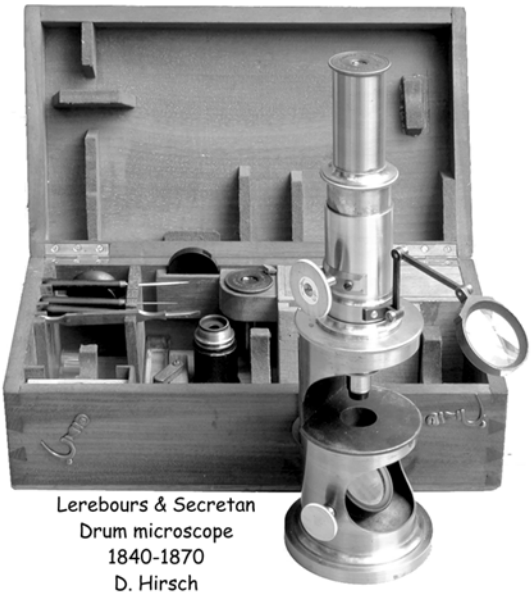
b) An unsigned Carey type microscope, boxed, with a pocket field kit for making slides. (See photos). All of the items are dogged down to prevent

Field Microscope, cased; Cary; c.1830; S. Warter



their being dislodged and harmed during transportation. This was an absolutely unique item!

4. Dave Hirsch displayed a cased drum-type microscope by Lerebours, Paris that he had obtained some years ago in Glasgow from Arthur Frank, a prominent dealer in antique microscopes. (See photo). This is a fully achromatic instrument with coarse focus by rack & pinion. The Frank collection is now in the Glasgow museum.



Lerebours & Secretan
Drum microscope
1840-1870
D. Hirsch

5. Jim Solliday told an anecdote of Frank's motto: "We buy Junk and sell Antiques".

6. Ken Gregory displayed two examples of early 20th Century microscopes and a darkfield condenser by Otto Himmler (See photos).

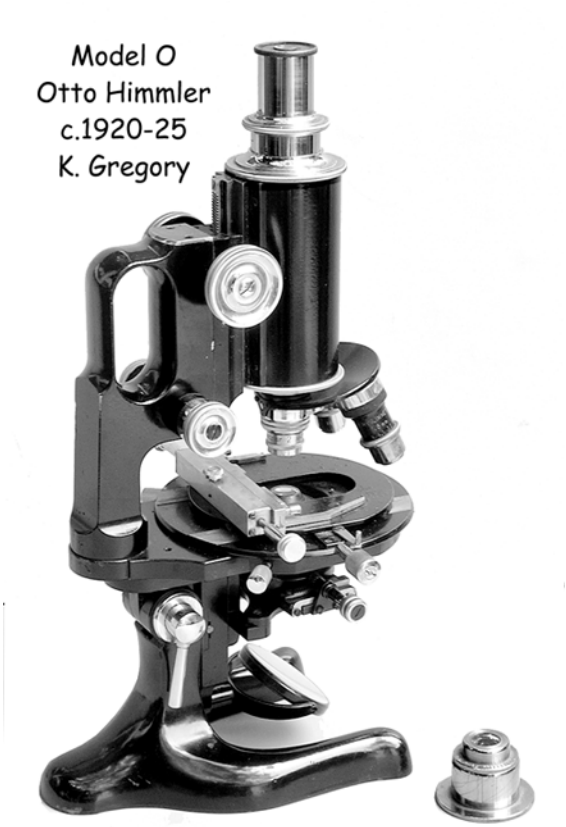
a) Large, wide body tube, research model "O" with "jug handle" design, s/n 25260. This model is very similar to the Zeiss jug-handled scopes. Circular, rotating stage with built-in mechanical X-Y stage. Triple clover leaf nosepiece with two Otto Himmler objectives (30 and 1.8mm.), and one E. Leitz objective. Substage condenser with decenterable diaphragm. Black enameled with nickel plated knobs. Case, key, name on tag "Dr.William Pollin, NIMH.

b) Dark field condenser, cased, by Otto Himmler.

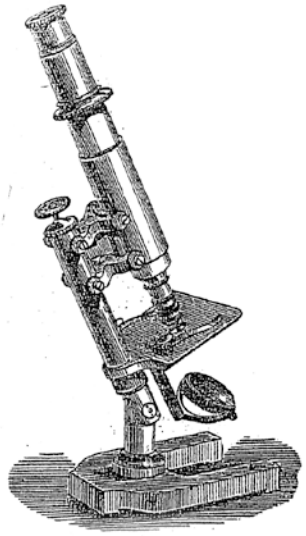
c) Model "E", s/n 22131, medium-sized monocular with triple objective nosepiece with three Otto Himmler objectives Nos 2, 4 and 7. Fine focus is in back of unit at 45-degrees to the stage. Swing out condenser. Centerable rotating stage with stage clips. Original case with 3 objective cannisters, 3 eyepieces and a magnification table card. This stand came from the Ewart collection.

Otto Himmler, S.W. Simeonstrasse No.27, Berlin. According to Bracegirdle, "Notes on Modern Microscope Manufacturers" (Quekett Microscopical Club, 1996):

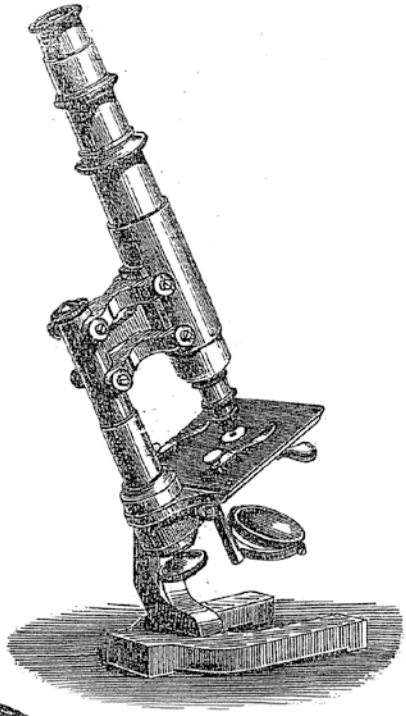
"c.1875- c1910. Otto Himmler supplied a range of microscopes and accessories. A catalog of about 1890 shows that his agent was Albert Hofmann; the list includes 14 dry objectives, 2 water immersion, and 4 oil immersion. The six stands are typical continental style and there is a small range of accessories. Series between 14,168 and 18,457 are on record"



Model O
Otto Himmler
c.1920-25
K. Gregory



Himmler No.5



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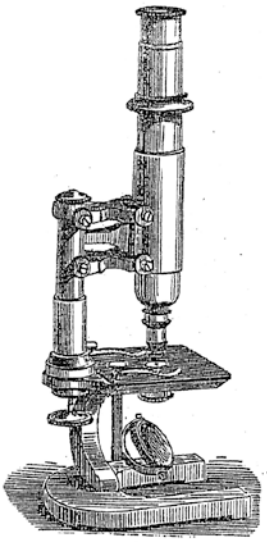

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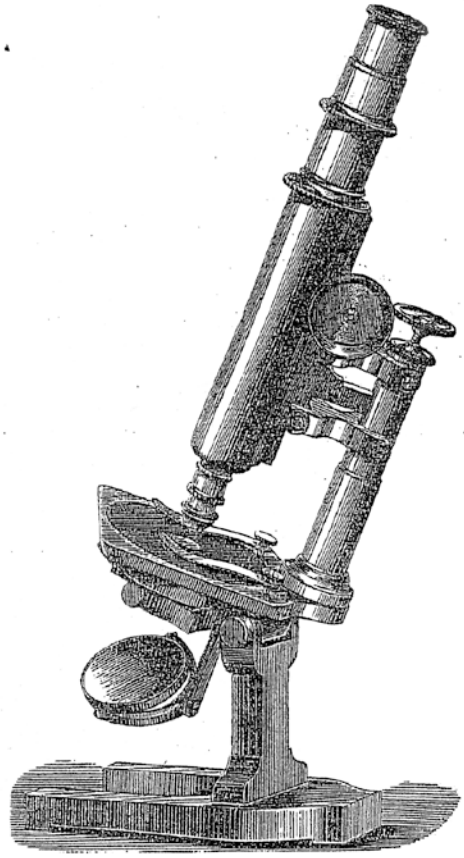
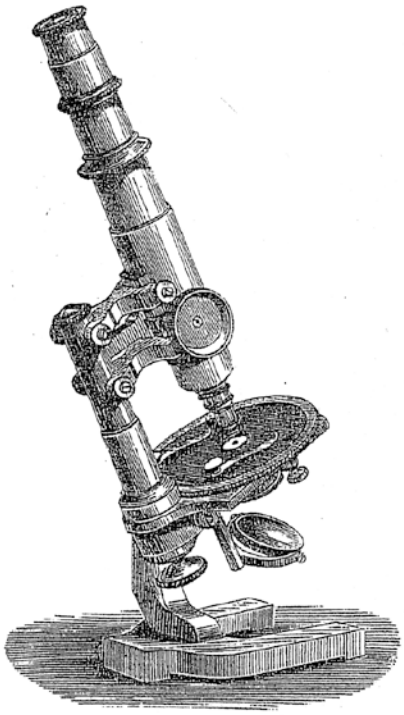


Himmler No.1



Himmler No.2

Model E
Otto Himmler
c.1920-25
K. Gregory

The two microscopes of record, above, are in the Billings Collection and are attributed c.1920. The photo in Billings, p.131, shows a Continental model, probably similar in size to the medium sized scope displayed here. It has a "B" model designation below the serial number.

The catalog, "Modern Mikroskope", by Otto Bachmann, 1883, shows engravings of five models of Himmler microscopes (See illustration). Model 5, p.161, has parallel arm fine focus. Model 3, p.171 also has parallel arm fine focus with focusing knob below the stage next to the "C" pillar. Model 4, p.172, is a simpler version of Model 3. Model 1, p.185, is a continental type with parallel bar fine focus, with everything above the pillar rotating like several early Zeiss models. Model 2, p.186, is similar to Model 3.

7. Jim Clark described his experiences at the recent air show in Oshkosh, WI.

8. Jim Solliday displayed a Compound Monocular, Petrographic, American, 1934, signed *Bausch & Lomb Optical Co. Rochester, N.Y. U.S.A.* (on condenser). Ser. No.243391, Petrographic Stand LCH. (See photos). This microscope is also engraved on the body-tube with the I.D. property code of-U.S.B.R. #5122.

The overall appearance of this stand is of a chrome and enameled black finish. The foot is made of cast iron, supporting the microscope on a compass joint. The coarse focus is provided by a diagonal rack & pinion with the fine adjustment provided by a micrometer screw mounted at the top of the arm. This fine focus includes a head that is graduated in 100 parts, each equal to 2.5 microns of vertical movement.

The tube-length of the main bodytube that holds the Bertrand lens can be adjusted with the movement indicated on a vernier scale graduated in millimeters (160 to 180mm tube length). This per-

Student Model
E. Leitz, c.1930
J. Clark

mits focusing of the Bertrand lens. The slot that holds the Bertrand lens also features an iris diaphragm situated just beneath. The body-tube accepts standard 23mm eyepieces, in this case a 7.5x adjustable ocular with cross hairs.

The analyzer box slides in and out of the body-tube just above the accessory slot (for compensators). Set in the box is the analyzer, which is a Glan-Thompson prism, rotating 90-degrees (with graduations and indicator). The graduations are in 5-degree divisions with every ninth division numbered (0, 45 and 90). The analyzer is provided with lenses to correct astigmatism and to eliminate shift of focus. The Polarizer is mounted under the stage on a rack & pinion. It consists of a Nicol prism, (angular field 19 degrees) set in a solid mount. There is an achromatic condensing element that fits over the polarizer on a sleeve. It can be very easily removed by simply lifting it with the fingers.

A double-sided substage mirror provides the illumination. There is a large 4 5/8-inch (120mm) revolving stage, graduated in degrees of 360 parts, which can be centered by the action of 2 screws against a spring loaded pin. Two stage clips hold the slide in place. The nosepiece is an interchangeable centering type that features a dovetail or sleeve at the bottom of the body-tube. The three objectives are each mounted on centering dovetail slides; 10x, 21x (8mm) and 43x (4mm). Accessories include a 1st order red compensator, 1/4 wave plate and a pinhole cap that fits on the draw-tube for observing interference figures after the Lasaulx method. All graduations are in German silver. Overall condition is very good. The microscope and accessories are stored in a hardwood case with lock and key.

There followed a general discussion on the use of the Bertrand lens and on conoscopic figure observation. George Vitt pointed out that the back focal plane of the objective is a "very special" plane, since it contains the two-dimensional Fourier transform of the object being observed and, by selective filtering in this plane, visual effects and image enhancements can be observed - such as phase contrast (Zernicke), DIC, darkfield, etc., etc.

9. Bill Hudson displayed a Spectrometer by Fisher Scientific Co. (see photo) which can also be used as a reflection goniometer.

10. Charles Fox, our guest (now a member) showed a cased set of small pocket sized magnifiers, each of different power, which were probably used by engravers.

Spectrometer
Fisher Sci.Co.
c.2000
W. Hudson

11. Don Battle announced that he has a considerable amount of photo equipment for sale, having recently closed down four photo studios.

12. Larry Albright showed a Unitron Inverted Microscope.

Unitron
Inverted Microscope
L. Albright

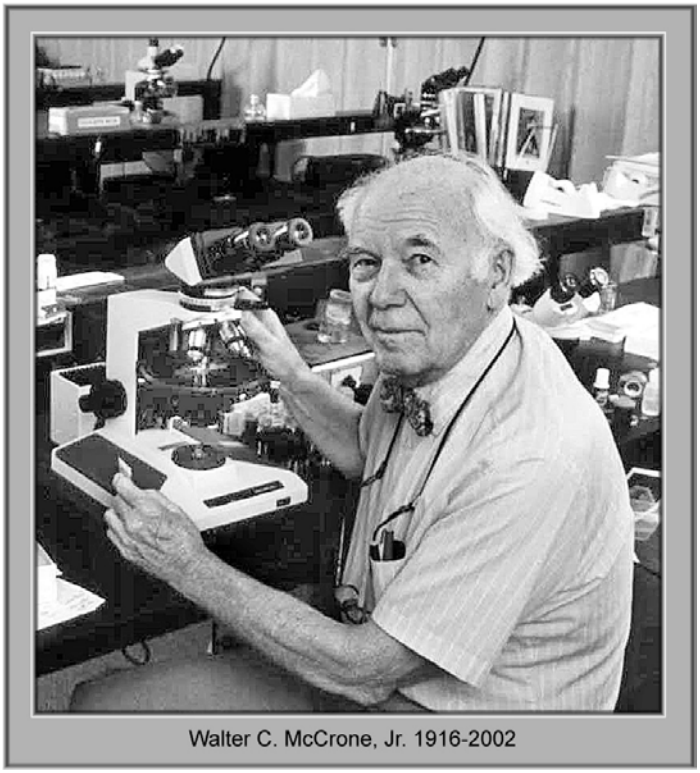
13. Alan de Haas showed a cast aluminum (die-cast) part of a Nikon microscope that had been subjected to a shock and had failed mechanically with an "exploded" fracture. It was obvious that the original design of the part was unacceptable, to say the least.

14. Larry McDavid showed a perfect artificially grown quartz crystal, of right-handed quartz, fully terminated. Such quartz crystals constitute the stable (High Q) vibrating element in electronic oscillators. By cutting the crystal into a thin slab, at a specific angle relative to its crystallographic axis, the thermal coefficient of frequency is minimized, assuring stable frequency operation with changing temperature. George Vitt borrowed this crystal in order to photograph it in various ways, including polarized light. □

WALTER C. McCRONE, JR. P.H.D.

WORLD-RENOWNED CHICAGO SCIENTIST DIES AT 86

by H. D. Wolpert



Walter C. McCrone, Jr. 1916-2002

A pioneer in the science of chemical microscopy died in Chicago on 10 July, 2002 at the age of 86.

Walter C. McCrone (1916 - 2002), the father of Modern Microscopy, revolutionized the use of and understanding of the light microscope for materials analysis, trained thousands of students worldwide in the practice of microscopy, wrote hundreds of articles and books, gave thousands of presentations and lectures on microscopy, and developed numerous accessories, techniques, and methodologies to push the state-of-the-art in microscopy. He is better-known to the general public for his analytical work on the Shroud of Turin, the Vinland Map and various other famous works of art and antiquities.

McCrone was, at the same time, a humanitarian extraordinaire. He served on the Board of Directors of Ada S. McKinley Community Services, Inc. since 1951 and as Board President from 1964 to 1995. The Agency, a not-for-profit human services organization, has 40 program locations, a staff of 560, an annual budget of $40 million, and serves more than 15,000 clients annually throughout Chicago. In recognition of his many years of dedicated service to the Agency, in 1997 they dedicated their new facility in honor of Dr. McCrone, the Walter C. McCrone Industries facility. The facility houses 120 clients in its sheltered workshop program and provides intake, evaluation, and job placement for more than 1,000 program participants annually. He also served on the boards of VanderCook College of Music, Chicago and The Campbell Center for Historic Preservation Studies in Mt. Carroll, IL.

McCrone was born in Wilmington, Delaware on 9 June, 1916. He grew up mainly in New York State and attended Cornell University where he completed his undergraduate degree in Chemistry in 1938 and was graduated with a Ph.D. in Organic Chemistry in 1942. After two post-doc years at Cornell University, McCrone accepted a position as a chemist (microscopist and materials scientist) at Armour Research Foundation (now, IITRI) from 1944 thru 1956 where he rose to become Assistant Chairman of the Chemistry and Chemical Engineering Department.

In 1956, McCrone left the structured world of the University to become an independent consultant and, on 1 April, 1956 he founded McCrone Associates, Inc., Chicago (now located in Westmont, IL) an analytical consulting firm that grew from a one man/one microscope consulting service to a world renowned materials science facility dedicated to microscopy, crystallography, and ultramicroanalysis, now serving more than 2000 clients each year.

In 1960, McCrone founded McCrone Research Institute, Chicago, a not-for-profit organization devoted to the teaching and research of light and electron microscopy. In its 42 years, the Institute has taught over 20,000 students in all facets of microscopy. The Institute remains a leading educational facility within the world of microscopy. As Director of the Chicago Institute, he expanded its activities to include McCrone Scientific, the sister organization in London, England.

Dr. McCrone was also the editor and publisher of The Microscope, an international journal started by Arthur Barron in 1937 and dedicated to the advancement of all forms of microscopy for the biologist, mineralogist, metallographer, and chemist. The Microscope publishes original, previously unpublished, works from the microscopical community and serves as the proceedings of the INTER/MICRO microscopy symposia held in Chicago each year. It emphasizes new advances in microscope design, new accessories, new techniques, and unique applications to the study of particles, fibers, films, or surfaces of any material whether inorganic, organic or biological.

During his 60-year career as a chemical microscopist, McCrone published more than 600 technical papers and 16 books and chapters. The Particle Atlas, his best known publication, written with other McCrone Associates staff members, appeared as a single volume in 1970 and as a six-volume second edition in 1973. Today, it is available on CD-ROM and is still recognized as one of the best handbooks available for solving materials analysis problems.

McCrone received world-wide attention and acclaim for his work with the Shroud of Turin Research Project in 1978. McCrone's contentious conclusion that the Turin Shroud is a medieval painting was subsequently vindicated by carbon-14 dating in 1988. In 2000 he received the American Chemical Society National Award in Analytical Chemistry for his work on the Turin Shroud and for his tireless patience in the defense of his work for nearly 20 years.

Throughout his remarkable and outstanding career as a pioneer in microscopy and microscopical techniques, McCrone received many other honors and awards. A few of these honors follow: in 1970, the Benedetti-Pichler award in microchemistry from the American Microchemical Society; in 1977 the Ernst Abbe Award of the New York Microscopical Society; in 1981 the Anachem Award of the Association of Analytical Chemists; in 1982, the Certificate of Merit from the Forensic Science Foundation; in 1984, the Distinguished Service Award (Paul Kirk Award) of the Criminalistics Section of the American Academy of Forensic Sciences; in 1988, the Madden Distinguished Service Award, VanderCook College of Music; in 1990, the Irving Selikoff Award of the National Asbestos Council; in 1990, the Founder's Day Award and in 1991, the Roger Green Award of the California Association of Criminalists; in 1991, the Fortissimo Award, VanderCook College of Music; in 1993, the Public Affairs Award of the Chicago Section, American Chemical Society; in 1999, the Emile Chamot Award from the State Microscopical Society of Illinois, and just in June of 2002, he received the August Köhler Award from the State Microscopical Society of Illinois and is the only person to have received both the Society's awards.

McCrone and his wife Lucy recently took advantage of the Cornell Campaign Challenge to complete funding for a professorship in the College of Arts and Sciences. Named the Emile M. Chamot Professorship in Chemistry, it honors Emile Monnin Chamot, a Cornell professor of chemical microscopy.

Walter McCrone is survived by his wife, Lucy, who is also an accomplished microscopist and has shared Walter's love of microscopy, working along side her husband for over 40 years. Contributions can be made in his name to the Walter C. McCrone Scholarship Fund for Advanced Microscopy Studies, c/o McCrone Research Institute, 2820 S. Michigan Avenue, Chicago, IL 60616. □

MSSC Meeting

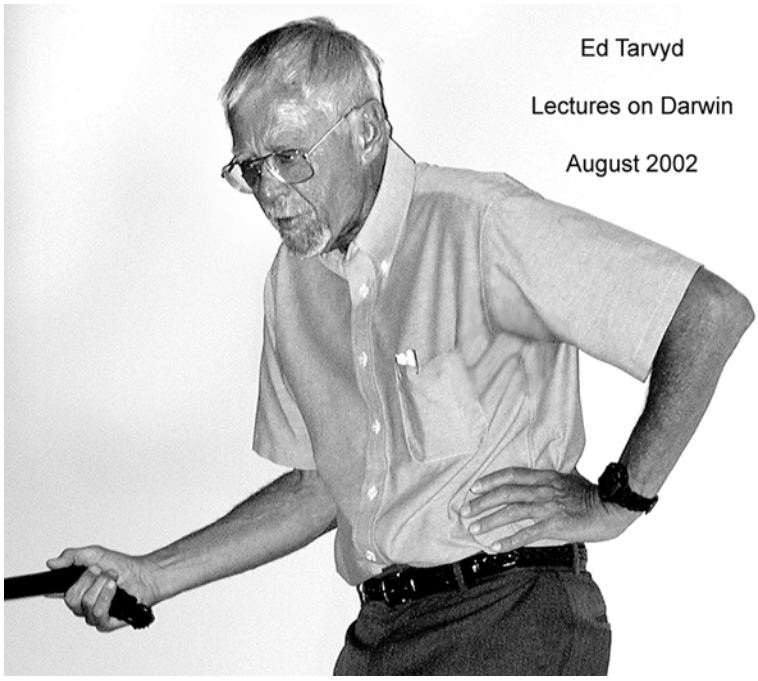
Reported by Leonie Fedel,
Meeting photos by George Vitt

7:30pm 21st August 2002
at New Roads School.

Jim Solliday opened the meeting with some words of condolence for Gary Legel who was in hospital with a bad burn. A card was passed around for members to sign to wish Gary a fast recovery.

Jim stated that the next workshop would be at Ken Gregory's and Graham Marsh from England would be attending. The focus of the workshop would be on showing off the members' collections of American microscopes.

Jim also reminded members that the meeting on 20th November 2002 would be the Society's annual exhibition meeting and asked that members start thinking about what they will bring to exhibit.



Jim then introduced tonight's guest speaker, Ed Tarvyd.

Ed Tarvyd's presentation was on Charles Darwin. Ed provided the meeting with an enigmatic account of Charles Darwin, from his early childhood, through his education years and his seafaring adventures. Ed used this account of Charles Darwin's life history to show how Darwin arrived at the ideas for a new evolutionary view of the world as recounted in "The Origin of the Species: through means of Natural Selection", 1859 and other works by Darwin. This new theory was a major challenge to contemporary beliefs of the time.

After the break John Fedel gave a short slide presentation on both the MSSC Field Trip to Lone Pine undertaken earlier this year and of some pictures of the optical soundtrack negative used for motion pictures. This soundtrack negative meets the picture negative at the lab to produce the final release prints. All four types of soundtracks were shown; Analog, SDDS, Dolby Digital and DTS. The slides were taken with an Olympus BHS scope with reflected light DIC. It was most interesting to see the relief of the soundtrack made up of silver crystals sitting on top of the film base. □

NEWS TIDBITS

New Electron Microscope is Developed at I.B.M. Lab

by John Markoff

SAN FRANCISCO, Aug. 7 - Scientists at I.B.M. and the Nion Corporation have developed an advanced electron microscope optics system that makes possible the creation of the most precise images yet, with resolving power less than the radius of a single hydrogen atom.

The technology, which employs a powerful desktop computer and an array of magnetic lenses to minimize distortions that are inherent in images made by today's electron microscopes, will also permit researchers to peer deeply into materials and create three-dimensional images. The scientific advance, which the group will report in Thursday's issue of the journal Nature, will make possible a new generation of microscopes that can resolve subatomic images with an electron beam that is only three-billionths of an inch wide.

Electron microscopes project a thin beam of electrons at an object and synthesize an image from its reflections. "This represents a big paradigm shift for microscopy," said Dr. Philip Batson, the lead scientist working on the project at I.B.M.'s Thomas J. Watson Research Laboratory in Yorktown Heights, N.Y. "It will be an enabling technology that will have lots of applications."

One of the first areas in which the researchers hope to apply the technology is the analysis of modern semiconductor transistors. Modern transistors are thin sandwiches of conducting and insulating materials that in some cases include components that are no more than five atoms thick, Dr. Batson said today in a telephone interview. The tolerances of such materials are so fine that if a single atom falls out of place, the transistors can fail.

The new technology makes it possible to create three-dimensional images up to 10 nanometers in depth - the equivalent of as many as 50 layers of atoms. The tool has many other immediate applications in areas like molecular electronics and advanced biological science, where it will be possible directly to create images of biological processes inside individual cells.

A number of small and large companies are rushing to create a new generation of electronics based on individual molecules, compared to today's microelectronic systems, which deposit layers of materials onto silicon wafers and then etch patterns into them. Dr. Batson said that I.B.M. researchers were eagerly waiting to use the advanced microscope to create images of carbon nanotubes, ultrafine molecules that may serve as the wiring for future computers.

Nion is a small research company based in Kirkland, Wash., that specializes in electron microscope optics - the process of controlling electron beams using arrays of magnets. Progress is happening quickly in the electron microscopy field. In April, scientists at Lucent Technologies' Bell Labs reported in Nature the ability to focus on a single atom. □

Sent in by Ernie Ives, Ipswich, England
via Jim Solliday

Postal Microscopic Society Commemorative Slide

For those of you who are members of the Postal Microscopical Society (PMS), there is now available a PMS 150-year Commemorative slide from Klaus Kemp. The slides consist of arranged diatoms with a PMS logo and microscope : PMS 150 years. If your interested please contact:

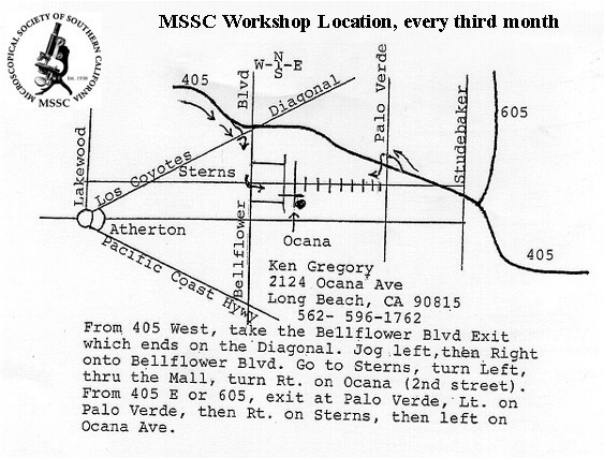
Klaus Kemp klaus@microlife44.freeserve.co.uk or
phone 011-44-278-760411
Klaus D. Kemp
Blautannen,
Wicham Way,
East Brent,
Somerset, TA9 4JB
England.

Saturday Workshop Announcement

9:00am 7th September 2002

At the home of Ken Gregory

2124 Ocana Av,
Long Beach CA 90815
562-596-1762



This workshop will be held at Ken Gregory's. A special guest, Mr. Graham Marsh along with his wife and daughter, will be attending from England. The focus of the workshop will be on American Microscopes.

Activities will start at 9:00am. As usual this is a chance for good friends and fellow microscopists to talk about our favorite subject. You are invited to bring any manner of items related to microscopy to share it with the fellowship. If you have something you would like to sell, please feel free to bring it and set it up at the sales table. All are encouraged to participate and join in the fun.

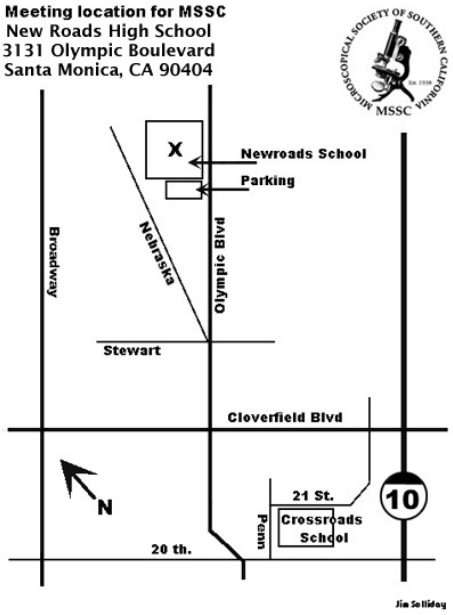
Lunch after the workshop will be at the local Coco's. If you have any questions please send me a message. I look forward to seeing all of you at the workshop...

Jim Solliday (MSSC President).

MSSC Meeting Announcement

7:00pm 18th September 2002

at New Roads School



This will be a 'swap-meet' meeting. Bring along anything you wish to sell or swap. Jim Solliday will also give a short slide presentation.

Dinner beforehand at Coco's restaurant at 5:30pm (near Ocean and Bundy, Santa Monica).

New Members

We welcome the following new members to the Society:

Roy Hackett
Charles Fox
Ed Tarvyd

Editor's Note

Please note a correction to the Swift Dick Model Petrographic article of Vol 7 No 7 July 2002 MSSC Journal. This article was written by George G. Vitt Jr. based on an original article about the Dick Model written by Jim Solliday in March 2001. George G. Vitt Jr. authored the additional section on the Improved Dick Model.

Dave Hirsch has resigned his role of *Journal Printer and Distributor* due to other commitments. Dave will continue to act as *Treasurer* for the Society. A big thank you to Dave for his work on the Journal in the past. Thanks also go to Pete Teti for volunteering to replace Dave in the role of *Journal Printer and Distributor*.

Please send any articles, photos, member profiles, notifications of forthcoming events and website summaries for inclusion in forthcoming journals to me at:
Leonie Fedel
10945 Rose Avenue #209
Los Angeles CA 90034
(310) 839-9881, email: mssc@attbi.com

The preferred route is via email, with text and graphics as attachments. Text in the following formats: plain/rich text format/word documents graphics in the form of jpgs. If you need any help in converting information to these formats, please contact the Editor, who would be happy to help.

The MSSC Editorial Committee makes decisions concerning Journal content and style and consists of:

Jim Solliday (President)
Pete Teti (Printing & Distribution)
Alan deHass (Education Chair)
Leonie Fedel (Layout Editor)
George Vitt (Image Editor)
Allen Bishop (Copy Editor)

MSSC Lapel Pins

These lapel pins are one inch high, highly detailed three dimensional replica of a Bausch & Lomb monocular microscope, with the letters 'MSSC' impressed in the foot. They are made of gold plate on investment cast pewter and have a spring loaded safety clasp on the back.

The MSSC lapel pins are being distributed at no charge to all Members of Record for fiscal year 2002. For details contact
Dave Hirsch, Treasurer.
(310)397-8357 or
email: dave.hirsch@verizon.net