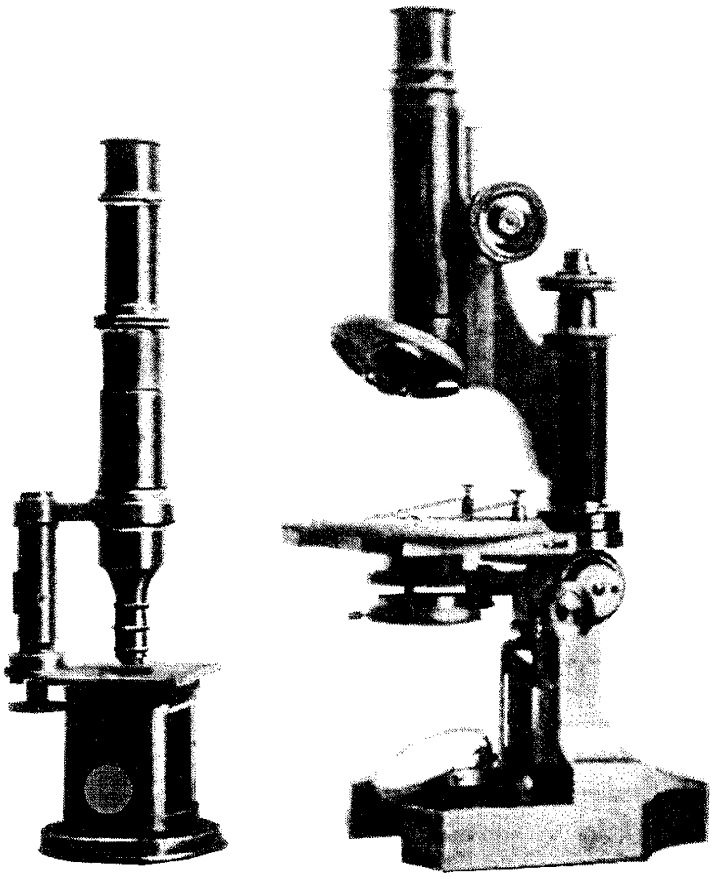
Journal of
THE MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA
Volume 4 Number 8 August 1999

Pasteur and His Microscopes

Allen Bishop



This photograph depicts the microscopes used by Pasteur at the beginning and conclusion of his career. To the left is an Oberhauser or Nachet, while to the right is a Verick. The Verick has had its objectives and condensor removed. Note the almost disproportionately heavy foot on the Verick; no doubt it was a very stable instrument.

Recently, I located a small book in the Santa Monica College library in the section on Scientific History and Biography. Published by Hachette of Paris, it was issued in 1925 within the Encyclopedie par l'Image series. It commemorates the 30th anniversary of the death of Louis Pasteur.The text is a genuine eulogy to this great scientist and humanitarian.

Of particular interest to microscopists are a few of the many illustrations depicting laboratory equipment, colleagues and microscopes of the era as used by Pasteur and his associates.

A selection of these illustrations were scanned and are included here for the record. I assume that due to the historical nature of this instrumentation, some if not all of it has been preserved to this day, though of course, all the protagonists have long since departed to their rewards.

These photos serve as an excellent reminder to us, that the types of microscopes we collect today were very definitely the working tools of past generations of researchers. Though perhaps our brass and glass stand as are mute testimony without historical provenance, perhaps certain of out treasures may entertain "angels unaware." The catchphrase "further research is required" will always be a truism. I am firmly convinced that the members of the MSSC are in the forefront of keeping alive the history of the microscope and related scientific disciplines.

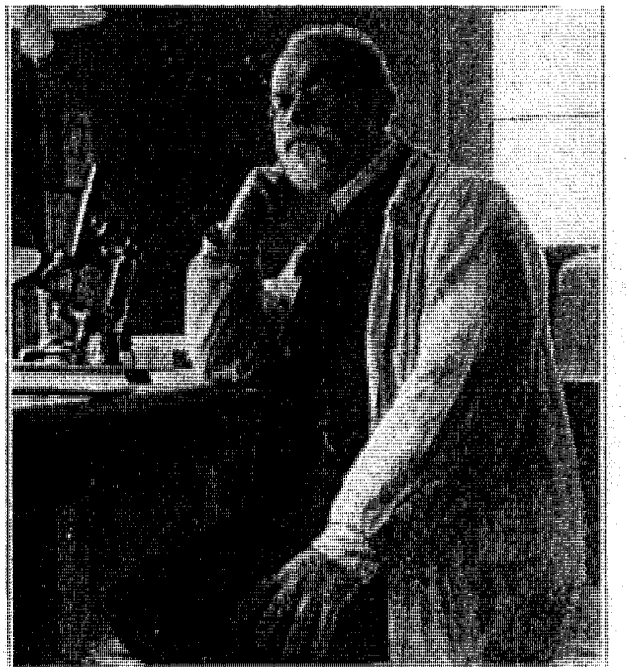
MSSC Journal
Volume 4 Number 8 August 1999
CONTENTS

MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA

Louis Pasteur at age 21 while still a student at the Ecole Normale while studying for a career in teaching. His ability to think as a scientist began to blossom at this time.

Pasteur at age 30 while a professor at the Academy of Strasbourg in Alsace. Heere he served as Assistant Professor of Chemistry, and was beginning to achieve notoriety as an investigator and original thinker.

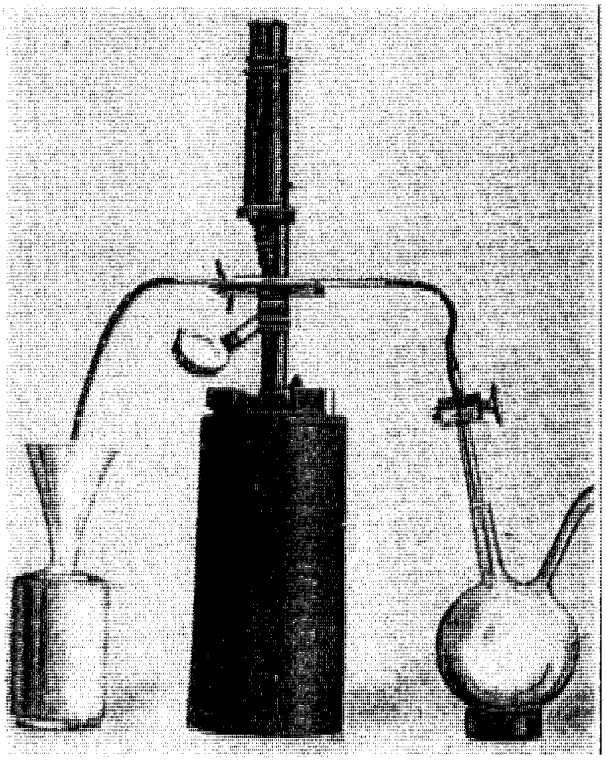
Louis and Marie Pasteur in 1889. His fame throughout the world was assured, but the wages of stress and overwork were fast closing in. He died in September, 1895, surrounded by adoring family and disciples.



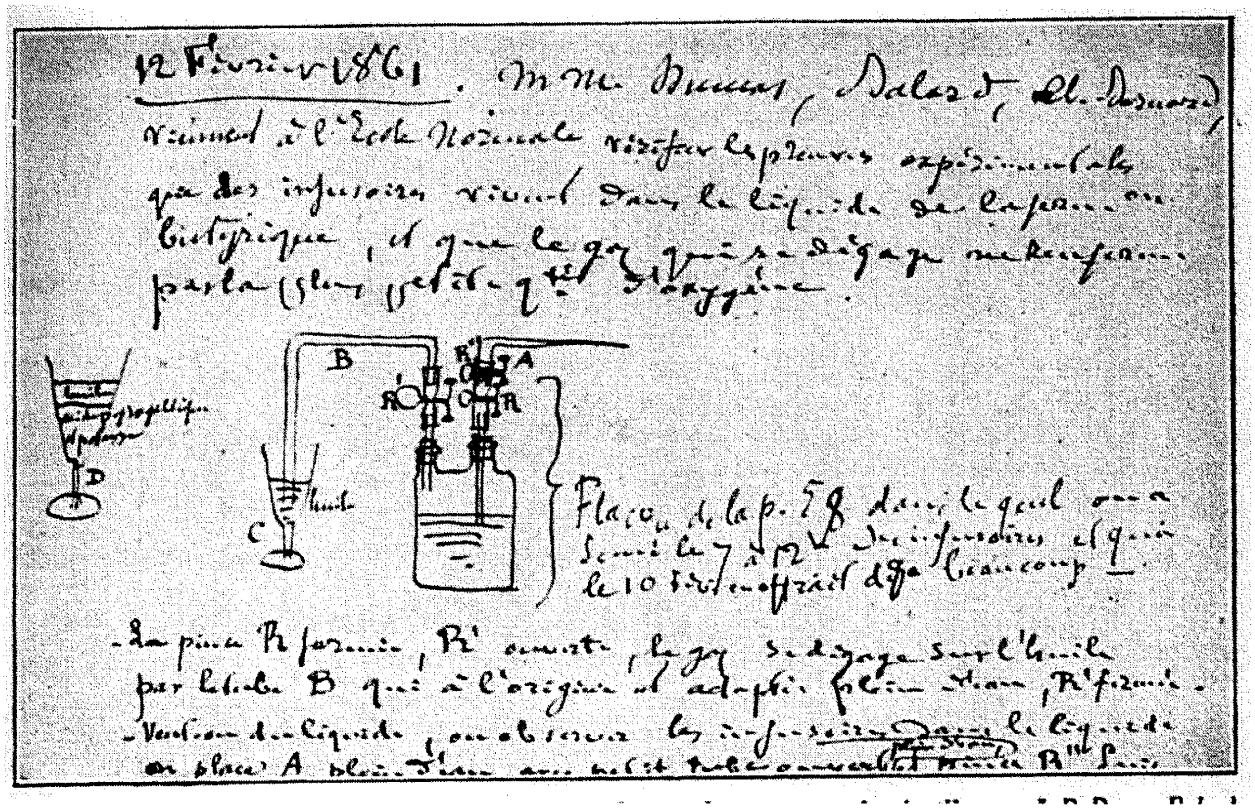
Professeur Laveran, discoverer of the "microbe du Paludisme" in 1880. He was also a pioneer in tropical medicine and microbiology. His microscope is most likely a Leitz or perhaps a Verick.

Professeur Mesnil, Director of the Institut. A researcher in Protozoology, he was the guiding light in spreading Pasteurj's methods into the French Colonial system. His small continental stand is difficult to identify positively.

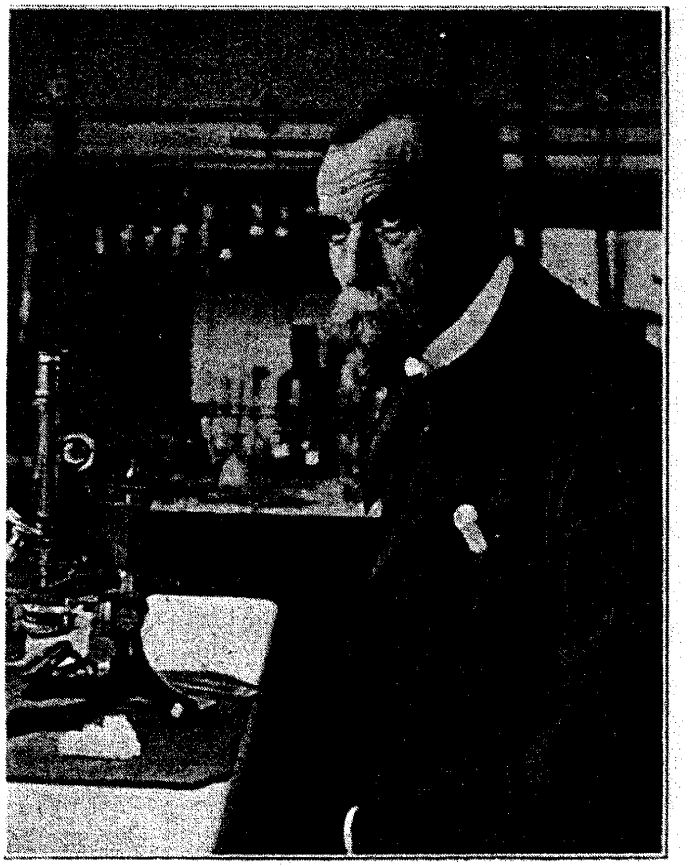
The fabled Russian-Jewish investigator, Elie Metchnikov. His personality was as eclectic as his methodology; his results and conclusions were often pure flights of fancy. But much of his work was prophetic-and he often was correct in his research. He was convinced throughout his life that disease was caused by "Phagocytes." Scientific biographers are often horrified by his seemingly slipshod methodology and more distressed that a man of Pasteur's stature would have allowed such a scientist into his Institute. At least his microscope is not controversial-an early "Zeiss Stativ I."



A small compound microscope perched on a drum utilised in the study of anaerobic fermentation. The original nature of much of Pasteur's work compelled him to design and build his own est equipment. This scope is probably a small Nachet.



A page from Pasteur's laboratory notebook dated February 12, 1861. His notes mention a visit from three scientists; Duams, Balard and Bernard. At this time, Pasteur was working feverishly to put to rest for good the theory of "Spontaneous Generation." He was studying the root causes of fermentation and how the process could be controlled scientifically.



Dr. Louis Martin, Deputy Director of the Institut. He was a pioneer in "serotherapie" or innoculation by vaccine. His microscope is almost certainly a Stiassnie, though Leitz built a stand with a similar foot.

Great Slide Makers of the Past

Part I

Herbert William Hutton Darlaston

By James D. Solliday

Fig. 1 Portrait of Darlaston, from *The Microscope.*

In the last year or so there has been a great increase in the interest of Victorian slide mounts. It seems that most of us have discovered the elegance and beauty of the work done by the microscopists of the last century. If you have muddled through the techniques required to produce a good histological section then you already know the difficulties involved in making good slides. If you've successfully laid down a six-legged insect after proper fixation then you probably know the frustration of dozens of failures along the way. You will no doubt remember the overlapping legs and antenna floating away from that perfect specimen after hours of work. This experience only helps to enhance the appreciation one has for the wonderful work done in the past. I often find myself wondering where the great mounters of the 19th century found the time to create all that has been left in there name. I enjoy the use of this computer to help me look up the technical information I need and I still can't seem to find the time to finish up the mounts I started months ago. This leads me to wonder if I will leave even half the legacy behind as my Victorian counterparts. By now I'm sure we all agree that what are found in many of our slide cabinets are nothing less then splendid works of art. This is supported by the fact that a mere twenty Wheeler slides recently sold on ebay for over one thousand dollars.

Getting back to the microscopic creations of the past, I would like to provide a little biographical information on some of the better known slide makers whose work has now become so collectable. The difficulty is that there is so very little known or written about the men behind the slides. Brian Bracegirdle and Steve Gill have done a wonderful job of cataloguing and illustrating many of the important slide preparations. Some information about the business of the slide makers has been uncovered, again thanks to the work of Bracegirdle. The men themselves remain a mystery but the work they completed creates in us a natural respect.

I would like to begin this series with a man who was a true microscopist and one of the most sought after makers today. You will recognize the name on his slides as, H.W.H. Darlaston of Birchfield, Birmingham. His complete name is Herbert William Hutton Darlaston, a name much to long to include on the small labels of his slides. The best source of information on Darlaston is an account found in *The Microscope* (1950). The account was provided by Mr. D.S. Spence, a regular contributor to that publication. It is very likely that Mr. Spence was personally acquainted with Mr. Darlaston. However, the biographical information was provided through the kindness of Mrs. Darlaston.

Herbert W.H. Darlaston was born on April 8th, 1867 in Birmingham, Warwick, England, and apparently never left the area (Fig. 1). In 1895, he married Mrs. Edith M. Darlaston and together they raised two daughters. His father's name was John D. Darlaston who made his

Fig. 2 Darlaston logo, with name and address

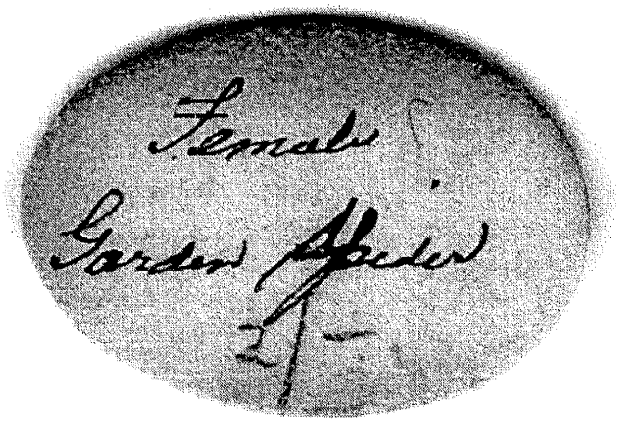


Fig. 3 Darlaston hand writing.

living as a glass & lead merchant. His mother's name was Susan J. Darlaston. His first career was spent as a cashier at a musical instrument firm in Birmingham. In 1887, he met Mr. J.W. Neville, a microscopist who ignited his interest in the microscope. Mr. Neville was a well-known mounter and taught Mr. Darlaston how to properly mount slides. He was also a member of the Birmingham Microscopists and Naturalist's Union where he regularly exhibited his own work. His name shows up in the 1881 edition of *The Midland Naturalist, Vol.IV.* Mr. Neville also contributed a bit of his mounting knowledge to *Science Gossip, Vol.XXII* of 1886. It seems that he was a very good instructor, as Darlaston soon became well known as a skilled worker. His increasing skill led to requests for mounts from the members of local scientific societies including the Postal Microscopical Society. As the requests continued to come in he found that he did not have the time to satisfy the demand. He soon became far better known as a slide mounter then a cashier. By 1905 he decided to resign his post and devote his full time to professional mounting. Descriptions of his slides continually appeared in various issues of the *English Mechanic* over a period of fourteen or fifteen years (Gill, 1999). According to Mr. Spence (*The Microscope,* 1950) the earliest advertisement appeared in the *English Mechanic, Vol. LXXXIII,* 1906. However, his first ad actually appeared in Volume LXXVI, 1902 of that same publication. Many of his slides predate 1902 but are usually without the small circular logo with his printed name (Fig.2). He continued throughout his career to use the plain oval shaped labels for identifying the mounted specimens. The hand written content of the labels are quite distinctive and make it easy to recognize his slides (Fig.3). It is my opinion that Mr. Darlaston did his work out of his home. At the time he began selling slides he was located at 20 Freer Road, Birchfield, Birmingham (1905). By 1908, he was listed at 31 Freer Road, Birchfield, Birmingham (Gill, 1999). By the time of his death he was living at 8 Freer Road, Birchfield 6.

His reputation as a mounter was demonstrated by the fact that the Hon. N.C. Rothschild awarded him the commission for mounting his mammoth collection of fleas. This project inspired his long standing interest in the flea as well as in entomology as a whole. At one time a young lady brought him over three thousand fleas that eventually became part of his personal collection. Every normal type of object that can be studied under the microscope can be found among the Darlaston slides, but my personal favorites are the insects. I have examined many types of his mounts including histology, plant sections, injections and mineral mounts. I have not yet seen any examples of objects mounted without pressure, but his large spread whole-mounts are certainly things of beauty. A large whole-mount of the damselfly serves as a good example of his impressive work (Fig.4). Retailers that at one time or another resold Darlaston slides included the following; Newton & Co. (Fig.5), W.& J. George of Birmingham, Charles Baker, Broadhurst, Clarkson & Co, W.Watson & Sons, R&J Beck Limited and perhaps, Harry Ross of New York City. There may indeed be others but I am not at this time aware of them. Darlaston maintained a subscription circulation system for his slides. In 1920 an advertisement appeared in the *Journal of the Royal Microscopical Society* describing his system (RMS, 1920). It might be best if I simply recounted the contents of the advertisement: "Microscopical Slides Circulating System, Subscription £2 12s Od per annum. 168 slides sent in 12 installments. 48 slides (4 from each installment) may be selected free. Further slides may be purchased at 1s. each. Full particulars, Catalogue and Sample Slide, sent on receipt of 1s. 3d." (Fig.6).

According to Mr. Spence, Darlaston joined the Postal Microscopical Society in 1906, and was its President in the years of 1912 and 1914. In addition he was the President of the Microscopical Section of the Birmingham Natural History and Philosophical Society as well as the Midland Institute Scientific Society (Spence, 1950). He was elected to the Quekett Microscopical Club in the winter of 1906. It seems that the first thirty years of the twentieth century was his most active period as a microscopist and mounter. His professional mounting continued into the 1940s but the business was sustained for some time thereafter by the large stock of mounts he had created during his productive years. The business itself passed on to Mr. A. Lister, F.R.M.S of, 674 Tyburn Road, Erdington, Birmingham 24. Mr. Darlaston died on March 4, 1949, some time after suffering from a serious fall. He was survived by his wife and both of his daughters.

REFERENCES:

Spence, D. S., 1950. From My Notebook. *The Microscope*, Vol.7, 1949-1950, pp.327.

Gill, Steven., 1999. *Identifying Microscope Slide Labels*, CD-ROM, unpublished (work in progress).

The Symposium, The Microscope, Its Design, Construction and Applications. *Journal of the Royal Microscopical Society*, December 1920, Part 4, pp.10 of the advertisement section.

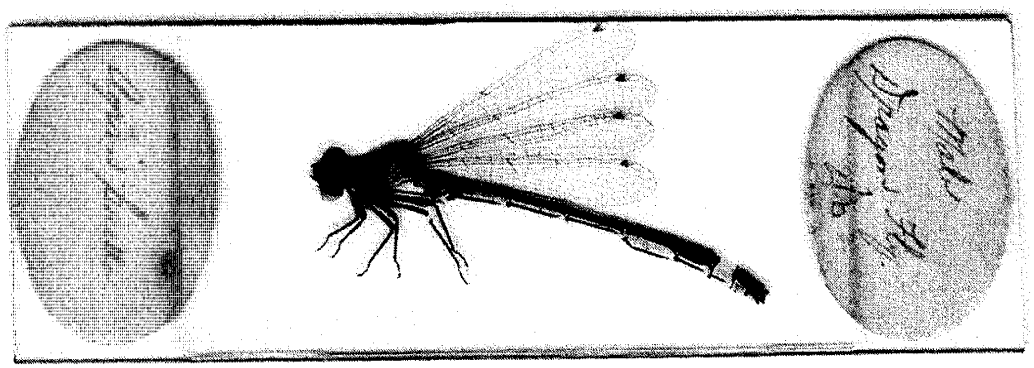


Fig. 4 Mounted Damselfly

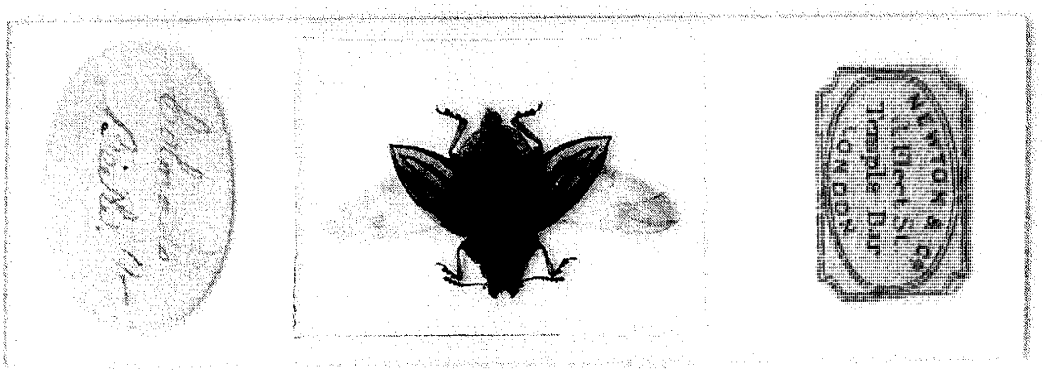


Fig. 5 Newton & Co., retail label.

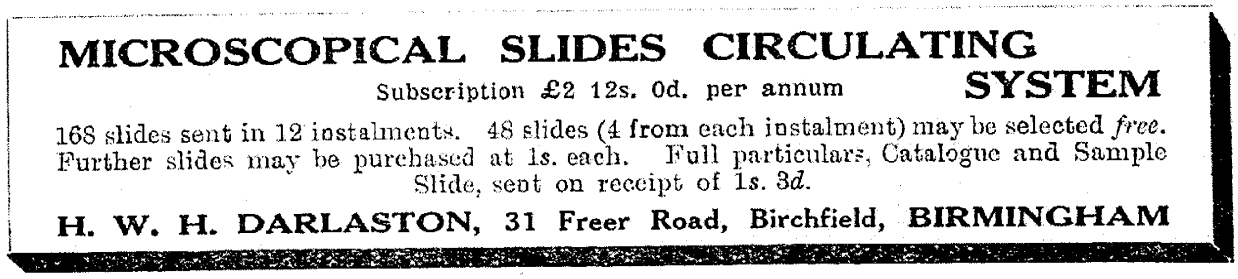


Fig. 6 Darlaston advertisement, from RMS (1920).

MSSC MEETING MINUTES WEDNESDAY 18 AUGUST,

David L. Hirsch

Before the meeting begins, we see the gathering of the clan. Plenty of hearty greetings and how-are-yas ripple throughout the room. Since most of us are of the older generation, the hearty handshake has yet to be replaced by the 'high five,. The aroma of freshly made coffee, prepared by Master Brewer PETE TETI sends a subliminal message to those assembled and we start the evening with a pre-meeting mini-snack.

In due time, with tones stentorian, President GEORGE VITT calls the meeting to order. LEO MILAN, grower of orchids extraordinaire and keeper of the MSSC slide library, reported on the slide inventory. Members are privileged to withdraw slides and, in a few cases, he noted that slides had not been returned. Leo urges all past slide borrowers to search in their memory banks and places of concealment to fetter out errant slides. Let's make Leo a happy camper by getting the slide library back in sync.

Many of us remember JOHN CHESLUK, an early and active member of our Society. His legacy lives on through the extraordinarily fine slides which he made. A gentleman of modest means, John learned to improvise. His kitchen was his laboratory, but the quality of his slides bespoke of a fully equipped workplace.

Our membership, especially new members, were privileged to view select slides of crystalline substances from The John Chesluk collection. JIM SOLLIDAY showed several dozen color slides wnich had the nuance of fine abstract paintings.

—and where did YOU go on holiday this summer? The IZZY LIEBERMANS headed East, across the Big Pond, to France, Belgium, Holland and Germany. Decrying the astronomically exorbitant prices set on scientific instruments at flea markets and at instrument dealers, Izzy "shot up the place", with his 35mm camera, that is. Absentee MSSC members missed an excellent slide presentation featuring places that were visited by the Liebermans. Especially impressive, and well photographed, were views taken inside several cathedrals. I bet that the guy who held the scaffolding contracts back in the middle ages, made out like a bandit.

NOW FOR SOME SHOW AND TELL. In the July MSSC Journal, RON MORRIS presented an outstanding article on microscopes and compendia made for children. Among the stands and sets shown, were two popular brands; the Standard and the Focal, which he obtained via Ebay. Ron showed his Focal microscope which, although by no means in the same league as (sic) Bausch and Lomb stands, has four objectives, a built-in light source, a polarizing device, a magnification up to 1200X, etc. Ron also showed a well equipped wood cabinet which held several specimens and provisions for slide making. If anyone is interested, Ebay always has a steady flow of children's, microscopes and kits, usually, at reasonable prices.

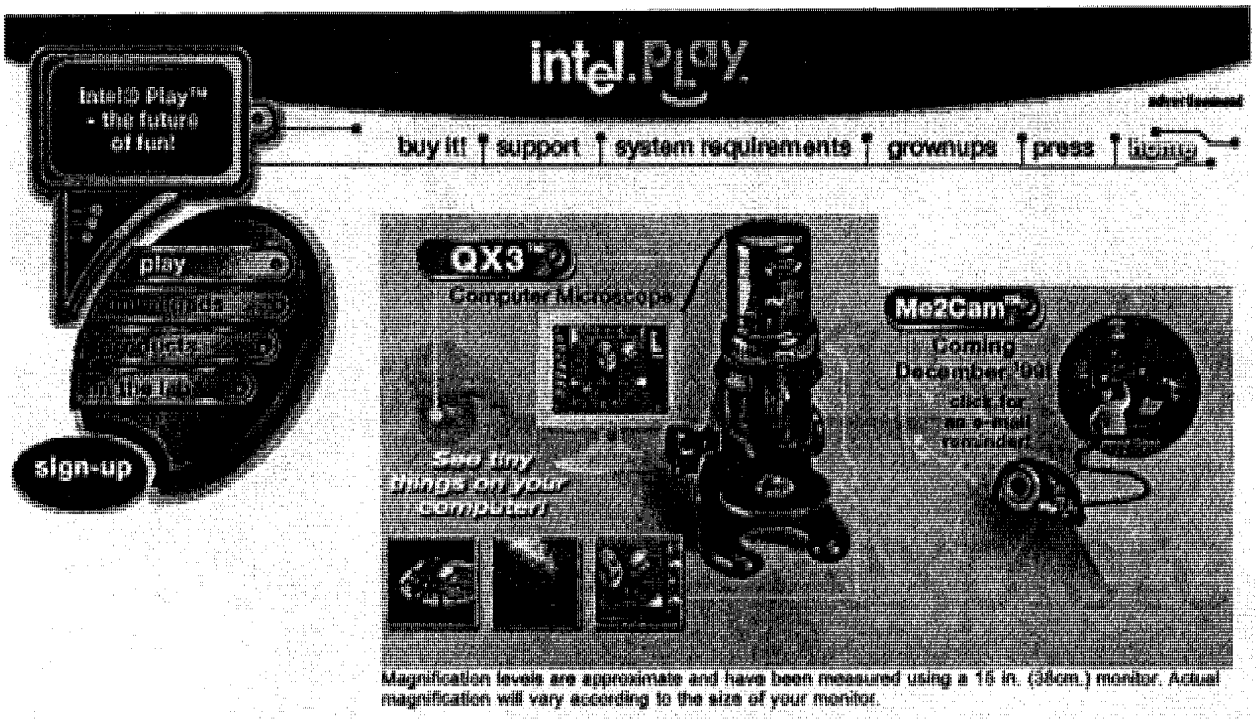
Perched on the table by Ron's goodies, were two excellent microscopes displayed by BARRY SOBEL. He showed a Leitz Wetzlar polarizing microscope, circa 1930 and an unusual Zeiss Winkel monocular stand which collapsed to a. minimal size, yet had many of the features found in conventional sized instruments.

Time was, when favorite subjects for the camera were people waving, stone faced citizens and shots of some General on a horse. Such is not the case for MSSC members seriously clicking away at diverse subjects microscopical. At every meeting and other functions, one can see camera armed members at work composing and snapping objects of their attention. A case in point? That excellent array of color photographs which were taken at the past "pond water demonstration night". Regrettably, the photographer didn't identify himself. I invite that 'Ansel Adams of MSSC to step forward and accept our kudos.

One of the halcyon aspects of our rebirth, was the sincere recognition of the individual, manifested in a number of ways: The MSSC JOURNAL runs biographies of our members, both Regular and Corresponding. These minutes always mention the names of individual members, and we maintain a file of members' application forms. To the latter end, KATE McDONALD presented an excellent proposal for documentation of our membership files which would inclde photographs. Her ideas will be discussed at a forthcoming officer's meeting.

Intel/Mattel QX3 Toy Microscope

Gaylord Moss



The sales web page above shows the new toy microscope developed by Mattel and Intel which is already flooding the stores for this Christmas toy buying season. The local Comp USA store had them in boxes stacked six feet high.

This colorful plastic video camera toy microscope might entice the current generation of children raised on television and computer games to at least look through a microscope.

Even though the lenses are molded plastic giving sub optimum optical performance, the designers did a remaarkable job in providing features that should appeal to the intended users by broadening the applications for which it can be used.

There is no eyepiece. The microscope uses a built in video camera to show images of 10x, 60x or 200x on a computer monitor. Thus several children can see the same image at once without having to take turns looking through an eyepiece. They can also record the image by just saving it into the computer. There is software included to manipulate the image, combining images or making up a slide show.

There is a time lapse capability enabling the recording of an insect eating its way across a leaf or a new emerging butterfly expanding its wings. The photographic head can even be taken off the microscope and pointed at other objects.

The video camera uses a USB connection to the computer making it simple to install. An incident and substage light are under software control and are powered by the USB connection so that no batteries are required for any function. The camera adjusts for variable lighting including external sources as well.

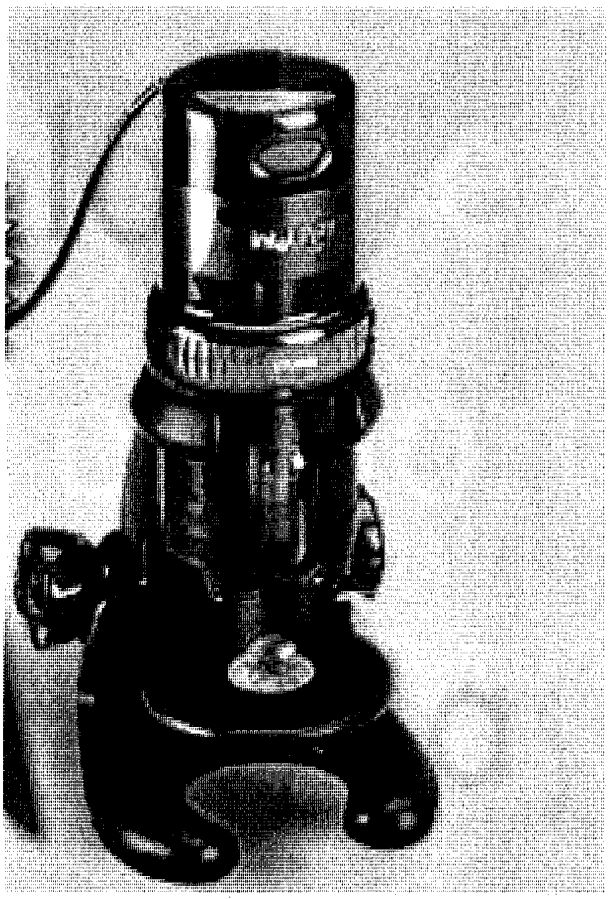
The camera exports photos in JPEG or bitmap format of 512 x 384 pixels at 120 dpi and 24 bit color giving 256 shades each of red green and blue.

The QX3 looks like an incredible instrument for the list price of $99. It should be a great educational starter for children. And, with features like time lapse recording, it will undoubtedly be used in many laboratories where its resolution will be adequate for jobs such as monitoring of fungus growth. I would think that it will become like the Erector set or LEGO blocks that are so cheap for what they do that they often form the basis of experimental laboratory equipment.

I look forward to getting my hands on one to check its capability myself. If anyone out there has one, I would like to publish your evaluation. E-mail some photos that your children have taken, assuming that they get a chance to use it.

IntelPlay QX3 Computer Microscope. Requires: USB port, Microsoft Windows 98. List price $99.
http://www.intelplay.com

Toys Old and New



Crossroads School Centennial Exhibition

James D. Solliday

Dear fellow MSSC photomicrographer

As you all know we have been well accommodated by the Crossroad School for a number of years now. The opportunity for us to contribute our expertise to the school has finally arrived. For those of you who were at the last special meeting you will remember that Dr. Joe Wise presented a plea for our help at the "2000 Centennial" program planned by the School.

This will occur on the 17th of next month (Nov 17, 1999), the same day as our regular lectureship meeting. Our time slot for exhibiting and presentation will be from about 10:00 am to 12:30.
Any help or participation on your part will be appreciated. The first thing we will need is as many of the photomicrographs exhibited at the Palos Verdes Art Center as possible. Mr. Wise would like to exhibit the images for an extended period, beginning with the 2000 program. He has been assured that we will have a good number of the framed images representing our Society.

We will also be permitted to include a plaque describing our Society and the organization we represent. Please bring as many of the framed images as you feel you are willing to exhibit to the next workshop. We will need them in advance so they can be hung prior to the Centennial program. Please contact Joe Wise or myself if you have any ideas or wish to contribute to the program. The Society will be setting up an exhibit illustrating the progress of the microscope from 1900-2000. We will also be showing a moving slide show that represents the hidden world under the microscope.

All the exhibits will feature our logo and help establish our organization with the school and in the community. Please take the time to gather your photo's and your enthusiasm for the program.

Two Unusual Zeiss VIa Stands

Allen Bishop

Sometime between 1891 and 1895, the Carl Zeiss factory introduced a new microscope stand which they designated the VIa. This differentiated it from an earlier stand, also called the VI. This new, small stand featured rack and pinion coarse focusing, the earlier version used a sliding tube. The stand VIa was listed in

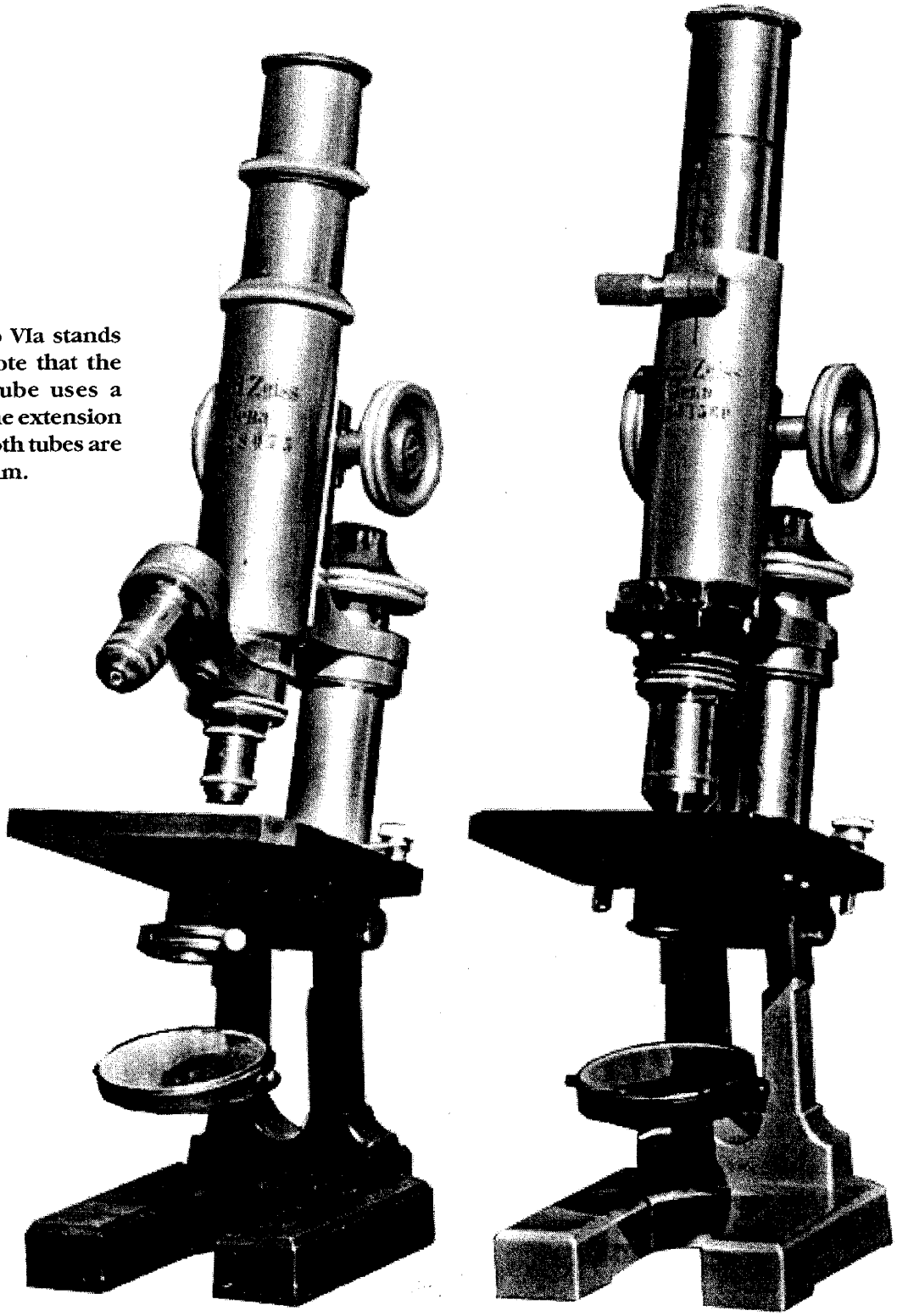


Fig. 1. The two VIa stands side by side. Note that the alloy stand's tube uses a clamp to hold the extension tube in place. Both tubes are drawn to 160 mm.

Zeiss catalogs through 1913, by which time it was rapidly becoming obsolete.

Pictured here are two examples of the Stand VIa, both with very unusual features. One stand, Nr. 28075 is of conventional construction and would have been built in 1897. Its claim to fame is that all components above the stage are nickel plated, with the exception of the optics. The other stand is quite unusual in that the foot, pillar, main body tube and both coarse and fine focusing wheels are of aluminum. This stand is serial Nr. 41560 and was built in (ca.)1905. In the early 20th century, aluminum was still a very expensive alloy, not widely used in manufacturing. The real values of aluminum alloys began to be exploited during World War I.

Why would Zeiss expend so much special effort on one of their smaller, less costly microscopes? The answer is that the Stand VIa was billed as being a small

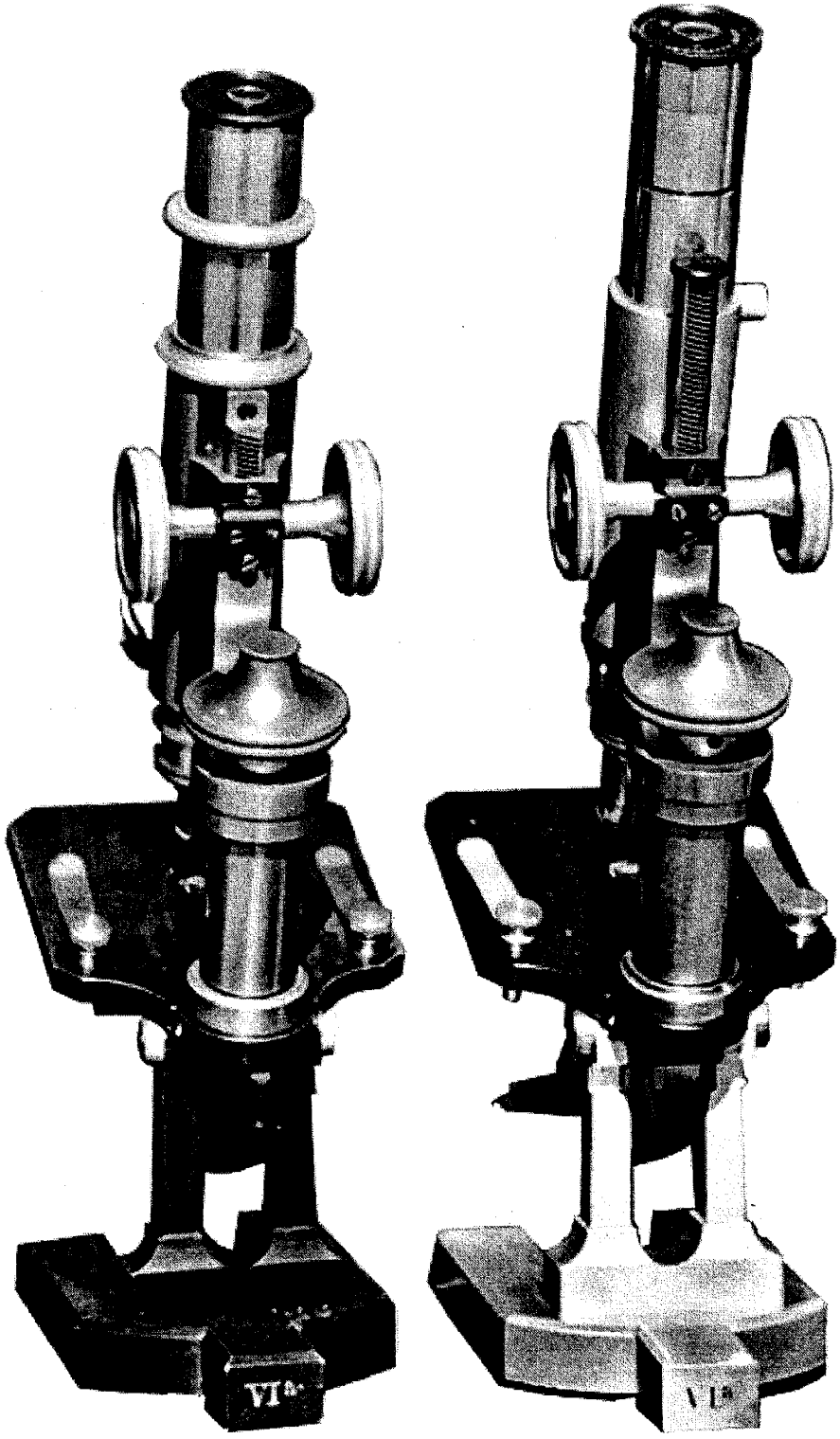


Fig. 2. The rear extension of the foot is engraved "VIa" on both stands. This follows Zeiss practice of the time.

stand, but fully equipped to take virtually any optical equipment up to and including immersion lenses. Its size made it ideal as a portable or travelling microscope, and Zeiss pointed out this fact explicitly. The Stand VIa is illustrated in the 1913 catalog (Mikro 184) in a travelling case which could be supplied in either leather or canvas. Included were objectives, eyepieces, slides, cover slips, immersion oil and simple slide preparation tools. Weight was said to be about 8 3/4 pounds complete.

What then would be more appropriate for a microscope taken into hostile environments than a nickel finish for added durability? Aluminum reduced the weight of the stand from just under 5 pounds to 2 1/2, enhancing portability. Stability, however, is reduced. Nickel plating, while more durable than the lacquered finishes of the time, was still subject to tarnish and abrasion; the tube of Nr. 28075 received nothing more than a thin overlay and is worn adjacent to the coarse focusing knobs.

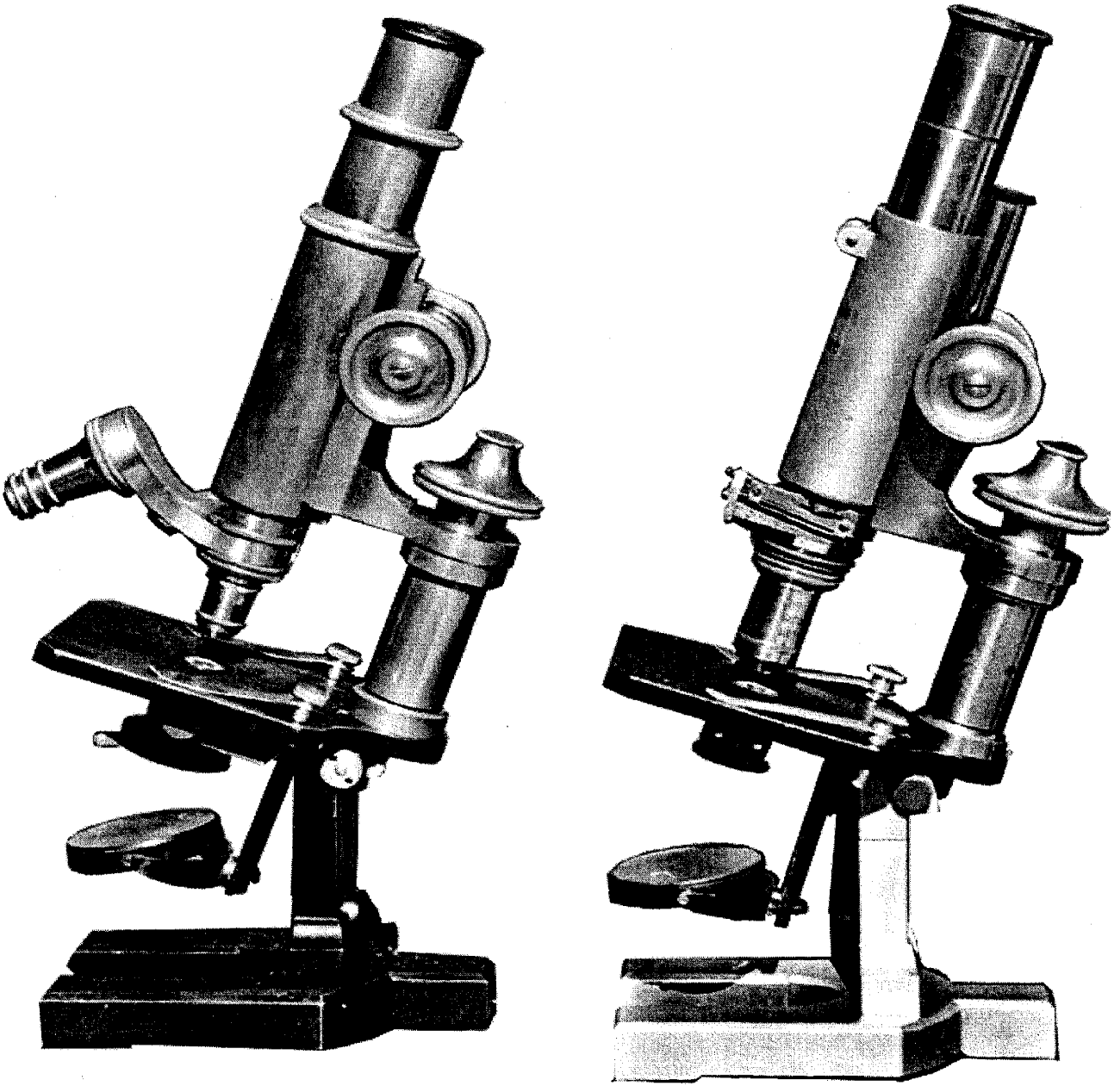


Fig. 3. Cast in the same mold. The real difference is in the construction of the tubes. The foot and pillar of the alloy stand may have been black lacquered originally.

I can find no reference in any contemporary Zeiss literature to these optional variations. It is doubtful that the application of nickel would have represented a costly change to price, but the extensive use of aluminum at that time would have.

Both of these stands may be considered at least unusual, if not very rare, today.

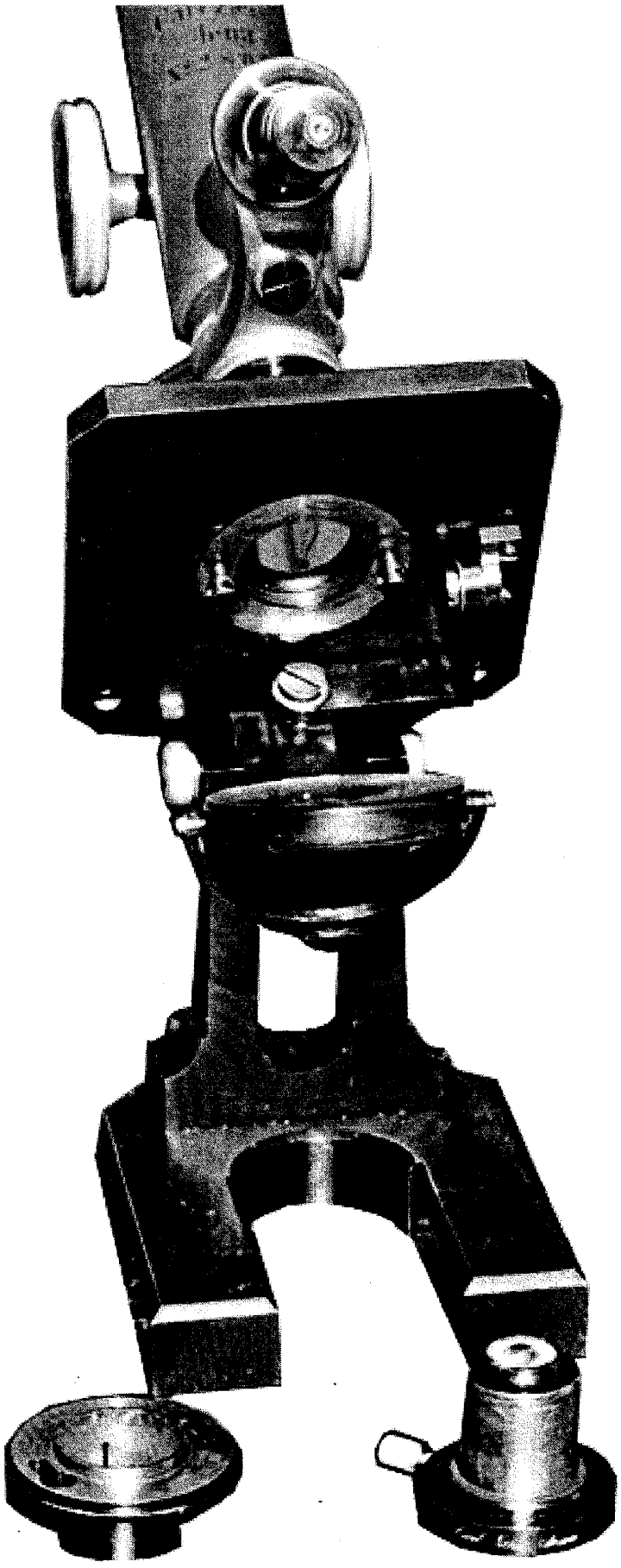


Fig. 4. The Stand VIa could be fitted with a small optical condensor/iris assembly with an n.a.. Of 1.0. This would have restricted the full use of immersion lenses.

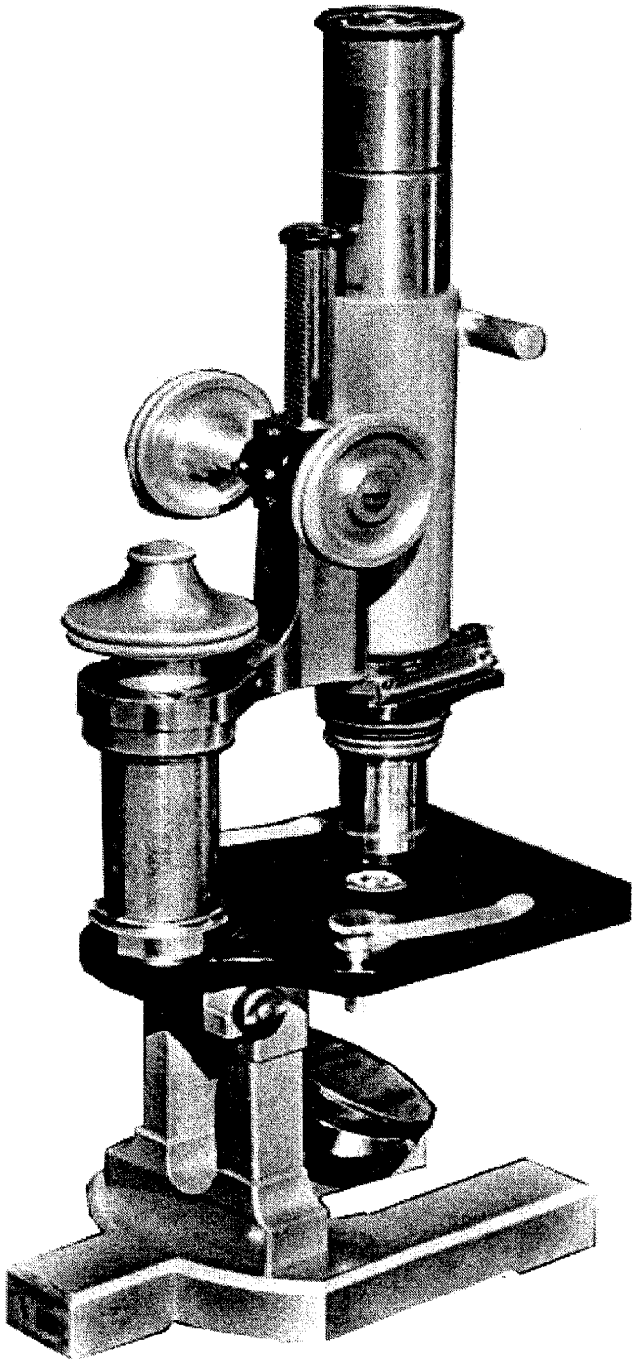


Fig. 5. The rack on the alloy stand is a separate brass bar screwed to the tube. Rapid wear would have ensued otherwise.

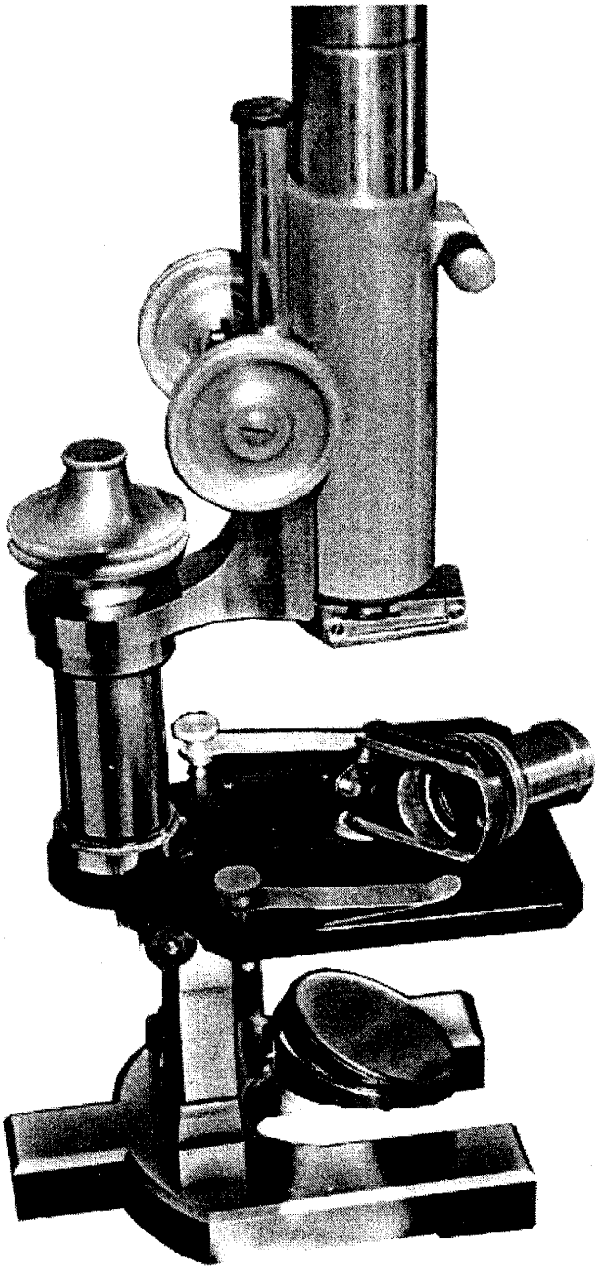


Fig. 6. The aluminum stand is fitted with the early version of the Zeiss centering objective changer. An optimistic microscopist has included a 16mm Apochromat and Kompens eyepiece!

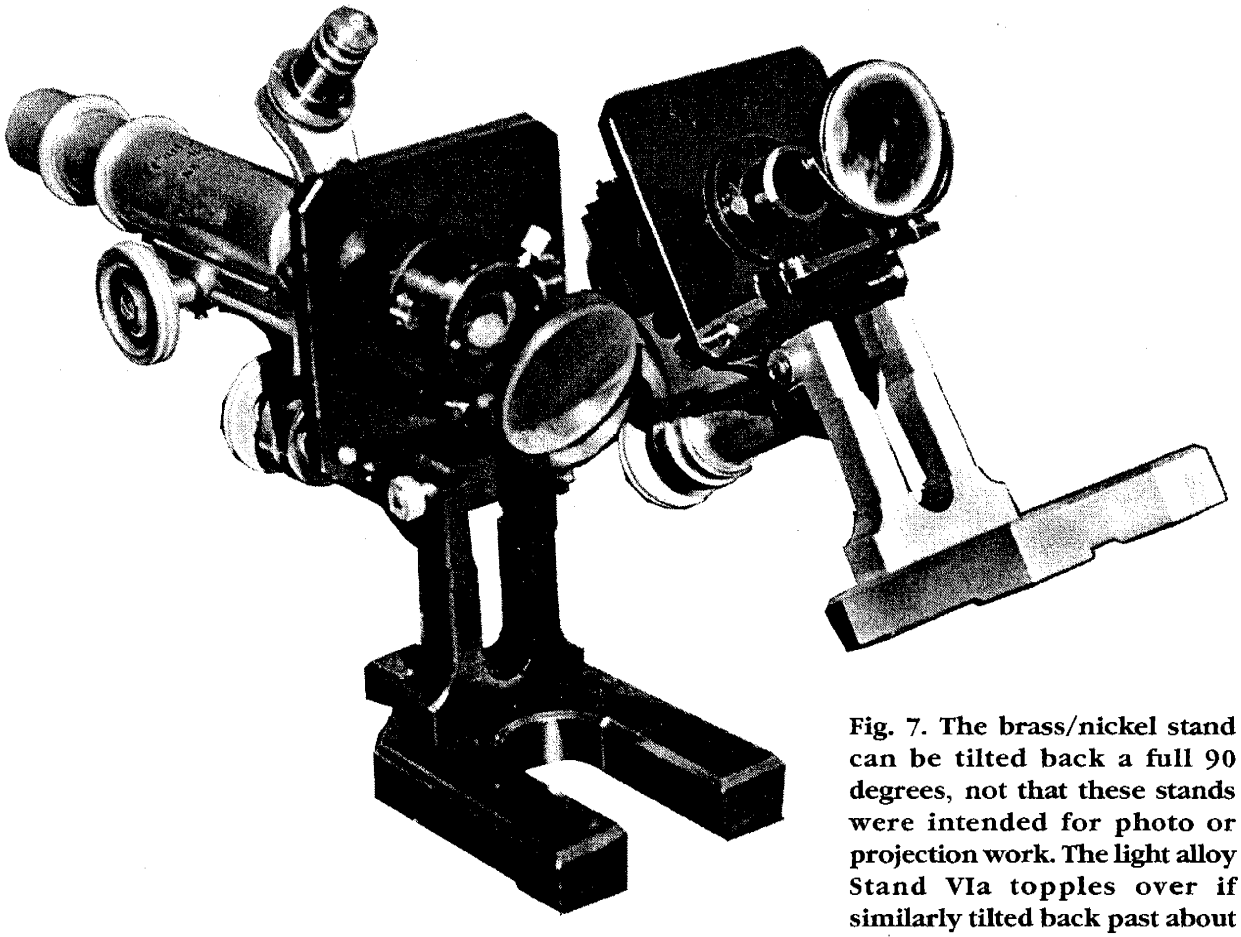


Fig. 7. The brass/nickel stand can be tilted back a full 90 degrees, not that these stands were intended for photo or projection work. The light alloy Stand VIa topples over if similarly tilted back past about 75 degrees. The saving in weight has its penalty.

WORKSHOP of the Microscopical Society of Southern California

George G. Vitt, Jr.
Date: Saturday, 7 August 1999
Location: Ernie Meadows' residence

1. **George Vitt** introduced his two visiting nieces, **Anastasia** and **Alexandra**, who were guests at the workshop. George brought many 8.5x11" images of various types of subjects, that he had produced with Photoshop and the Epson Stylus 600 inkjet printer. These were exhibited on Ernie's dining table in the living room. George also brought the CD of **Colin Lamb's** (on microslide makers) which he was unable to read on his Mac computer. **John Fedel** expressed an interest in reading it on his computer.

2. **John de Haas** announced that he plans to have a session on microtome technique in the near future.

3. **Ken Gregory** displayed a rather massive pressed-wood business card holder on which was an advertisement for B&L, done in relief during the molding process.

4. **Stuart Warter** showed a collection of rare American microslides and microphotographs. He then described a Queen microscope, c.1872-74 with friction roller focus adjustment. There was a discussion on the availability of round cover slips. George Vitt described how he cuts round cover slips using a slide turntable and a carbide scriber, noting that consistent success is achieved with cover slips no thicker than #1.

5. **Jim Solliday** showed his notebook compilation of slide makers and a very neat and compact slide box with many shelves, each holding 6 slides. Of the rare slides was an entire larynx of an adult male, an aorta slide by Seiler, and those by Dr. John King. Jim also showed slides by M.A. Booth of Massachusetts, a lady who prepared slides and was a microscopist and lecturer. Jim then showed a "St.Louis Box" for slides which has a sliding door and the slides are stored in 4 vertical columns. He then showed an Acme Oil Lamp by James Queen & Co., an oil lamp with a simple condensing lens. Then Jim showed his personal slide cleaning kit which he had put together and stored in a currently made plastic portable tool box - a most useful and ingenious arrangement! For cleaning lenses, Jim highly recommended the following material: Rexton Optyl 7 (12oz.bottle for $3.00) obtainable from Rexton Photographic, Box 412, Collingswood, NJ 08108, (609) 663-4040.

6. **Anastasia, George Vitt's** guest, had drawn a clever cartoon relating to microscopists, while all of the above was in progress, and passed it around to the amusement of all.

7. **Ron Morris**, who is a member of the RMS, said that the RMS had put its Journal on-line at a web site and suggested that we consider doing something on the same order. A general discussion on this subject ensued and it was decided that the matter be brought up at a regular meeting.

8. **Allen Bishop** showed a Danish book on microscopy and announced that he had joined the Queckett Club, which he thought was a very worthwhile action. He then showed a book on L.Pasteur (from the Santa Monica library), and a BB stand by B&L, pre-1916, with case, eyepieces and 2 turret objectives.

9. **Barry Sobel** showed an Armstrong-Zoloff model microscope., c.1906, nicols for polarizer & analyzer; **Klaus Kemp's** "Jungle Scape" slides assembled from 1000 parts, and his fabulous 3-D slides where parts are mounted on different layers, giving a startling 3D effect. Barry then displayed a fine group of small Wollensak microscopes of different configurations which had been made prior to WWII, some having divisible objectives; and a B&L "Gem" mic. with its hinged stage for fine focus.

10. There was a coffee break, and the show & tell resumed at 11:20am.

11. **Jim Clark** showed his excellent precision micro drill which had been expertly rebuilt and adjusted by "Leo Treat Enterprises".

12. **Larry McDavid** showed his "Gender-Specific Recalcitrant Wimshurst Machine" and told an intriguing tale about how he finally got it to "spark" after a lot of sleuthing as to why it refused to charge. Larry even wrote a paper on this entire humorous and instructive 'high tension' experience.

13. **Dave Hirsch** reported on his progress in being able to receive images via email.

14. **Gaylord Moss** described the very high speed cable modem that he has been using at a cost of $39/ month.

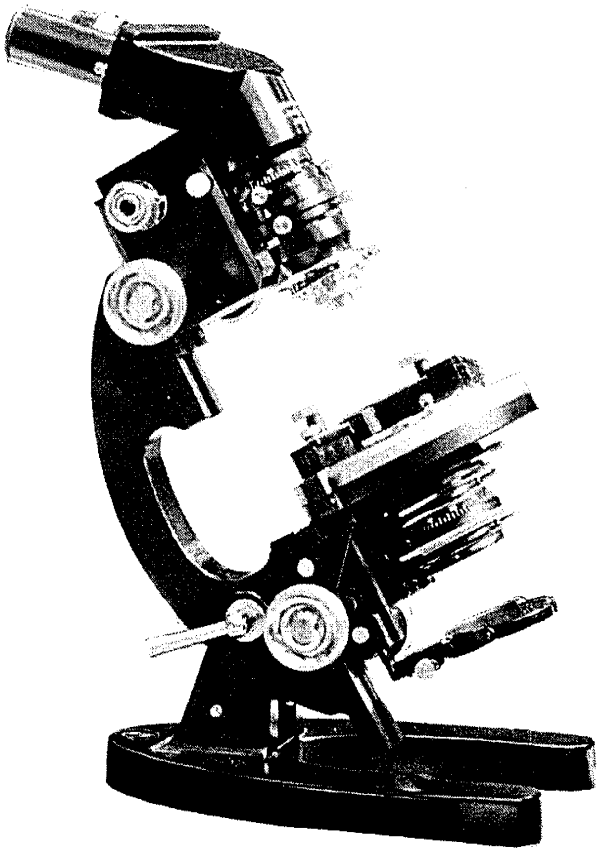
15. **Alan de Haas** described his method of preparing 1x2mm cover glasses for culture studies. He then showed a Cooke, Troughton & Simms petrological microscope with an extension and lock on the head to allow room on stage for large specimens; 5 objectives, a 3 (4?) order quartz wedge, and rotary stage. Alan then described a Wild M3 ZS microscope with 2 phototubes- one with iris for depth of field adjustment, the second phototube with miniature video camera and a lateral sliding capability to allow viewing directly through the center of the objectives. Alan then presented a well deserved criticism of the way microscopes are currently being constructed, especially citing the use by Nikon of nylon (?) gears for fine focus! Nostalgia!

16. **Larry Albright** showed a bullnose live center for the Sherline lathe which was added to their catalog after being developed from a sketch that Larry made on a paper napkin.They are now available from Sherline for $75. Larry then displayed and described an incredible variety of small microscopes that had been offered over the years by the now defunct Lafayette Corp. (which used to be headquartered at 100 - 6th Ave., New York).

17. **Gary Legel** showed a binocular A/O Spencer biological microscope with phase contrast and 4 objectives (for sale).

18. **Richard Jefts** showed a book on botany and Photoshop, and *Optimizing Light Microscopy for Biological & Clinical Labs* by Barbara Foster, Amer.Soc. for Clinical Lab Sciences.

19. **Peter Fischer** showed and recommended the book, *Photography Through the Microscope*, by Kodak. He then showed a clever illuminating device: a 12v. halogen bulb setup to be placed substage in place of the mirror. He works it at 9v. He then showed a stereo Greenough type microscope by "Kern" which he got at a swap meet. This turned out to have been made in Japan, presumably unbeknown to Kern! Then Peter gave a brief history of Kern, Switzerland, founded in 1819. He praised their Switar series of cine lenses.



Alan deHaas's Cook Troughton & Simms petrological microscope.

Jim Solliday with slide box.

November Meeting
Member Exhibition Night

Wednesday, November 17 at 7 PM
Crossroads School
1714 21st Street
Santa Monica, CA

November has again arrived and it is time for the annual Exhibition Meeting. This has always been one of the most entertaining meetings of the year. Each year something new and something strange has found its way on to the tables of the meeting. This is your chance to put the gray-matter to work and come up with something that represents your interest. Members have had some great ideas In the past when we have seen the circulation of blood in the tail of a fish and the florescence of certain vital stains in living protozoa. Last year we watched microbes digesting cellulose in the gut of a termite. We have seen the apparatus used by Dancer in the making of microphotographs as well as a reproduction of a five headed microscope. There were fine exhibits of both antique and modern instruments. Set up something amazing or simply set up your favorite slide. We will have a prize for the exhibit chosen by popular vote as the best of the evening. It will no doubt be great fun for all who come. See all of you at the meeting on November 17th. J. Solliday.

MSSC Christmas Party

Sunday, December 12
hors d'oeuvres at 3 PM dinner at 5 PM
Marj and Ernie Meadows
707 Greentree Road
Pacific Palisades, Ca 90272
Tel. 310-459-4788

Marj and Ernie Meadows have once more most generously offered to host the MSSC Christmas party at their beautiful home in Rustic Canyon. A superb full turkey dinner, with all possible trimmings, will again be catered by Barbara Black, Steve Craig's daughter.

The warmth and beauty of the Meadows' home with the treasures of Ernie's design and manufacture, the ambience of the garden under the sycamores and the good fellowship will make this a special evening to be long remembered by all who attend.

Please bring a dessert to share and, if you wish, wine or other alcoholic beverage for yourself. The cost is $14 per person. Please make your check out to Beverly Black and mail it to Steve Craig at 3455 Meier St. Los Angeles, CA 90066. Please respond early so Beverly can plan accordingly.

Directions: Take Brooktree off of Sunset. First right onto Greentree. Go to end of Greentree and park. #707 is the first home on the right up a short narrow wooded lane at the end of Greentree.