Bulletin of

THE MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA

Volume 1 Number 3 November 1996

THE TALE OF THE YAT
A TRUE "STEALTH" MICROSCOPE
or
HOW TO FOOL THE EXPERT

by Stuart L. Warter ©

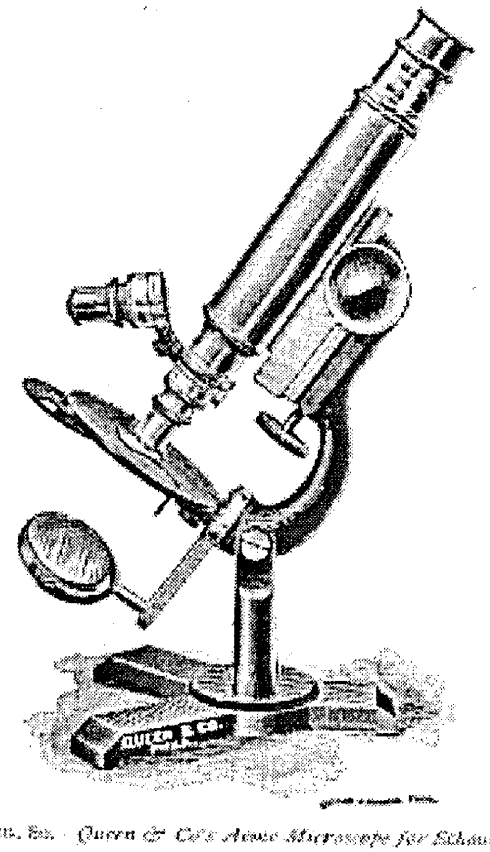

Fig 1. Queen's ACME microscope for schools

A few months ago, at one of our Saturday LAMS workshops, there turned up a display of 4 or 5 early Queen microscopes, brought in by Jim Solliday, Gil Melle', and myself. We had a great time analysing and comparing these interesting examples of American microscope technology. Usually, after these workshops break up, a group of us continue our deliberations over an extended lunch at a nearby restaurant. This time, however, a Board meeting was called, which occupied most of our regular lunch party for an extended period of time, and my faithful "antiquing" partner in crime, Ken Gregory, and I, found ourselves with time to spare. Never to miss an opportunity, we launched, after an uncharacteristically quick meal, one of our now infamous foraging expeditions (in which he, being interested in more modern instruments than I, usually brings home the treasures).

On entering one of the local antique malls, we immediately went to a booth which, in the past, has had one to several (often overpriced) later instruments, although there had been none there for quite some time. Lo, and behold, there was one! And an older one, too! It was an all black, twin pillar model with an underarm fine focus knob and double nosepiece. Its tag said "microscope with all Leitz parts (it had 2 Leitz objectives)," but was otherwise unsigned. With visions of Queen microscopes dancing in my head after the mornings activities, I immediately conjured up an image of the illustration of "Queen's Acme Microscope for Schools" in the 1904 edition of Gage's "The Microscope" (Fig 1) I triumphantly scooped it up at its strangely reasonable price and made off with it.

It was not long after arriving home with my booty, as I compared the instrument with the illustration, that I

realized there was something wrong! Although generally resembling the Queen instrument, the uprights were just too long to be a Queen, or for that matter, any other similar twin pillar instrument of the period but a Tighe* — NOTHING else is that tall and narrow! Other differences existed, as well (Fig 2).

Now, It so happens that I have made a study of the Tighes and their microscopes, having so far located 24 examples of their work, which represent some 14 variants of what I conservatively consider three basic models (although just what actually constitutes a model is open to some debate). I even owned five! Imagine my chagrin at realizing I had the sixth one in my possession for four hours without realizing it. And I've even been called "The Tighe Expert (Why am I writing this, anyway? No one but me and my closest friends knew about this. But it is funny! So much for images). So I called it my YAT (for Yet Another Tighe).
How could this have happened? The instrument is basically a stock Tighe No.3 (Fig 3). with the following exceptions: (1) No.3's were not supplied (at least by the Tighes) with a rotating nosepiece; (2) it has Leitz objectives, while all Tighe lenses were probably supplied (unsigned) by Gundlach (at least on stands signed and sold by the Tighes), (3) it has a flat B&L ocular, instead of the trademark Gundlach "top hat" optic, (4) the draw tube has a different "collar" at the top, and is fitted with a custom (homemade?) aluminum adapter for the (narrower) ocular, (5) the objectives,

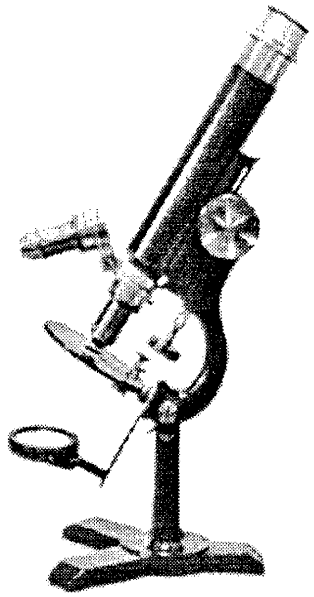

Fig 2. The Stealth Tighe

knobs, and trunion bolts were lacquered in a greener tone than the dark golden hue of the Tighe brasswork, and (6) like those Stealth aircraft from Kelly Johnson's fabled Lockheed "Skunkworks," it was otherwise all black — No. 3's are not. Last but not least, the drawtube was closed — mine are displayed extended, which

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makes them look VERY different by emphasizing their already greater height! Evidently someone acquired a stripped trade stand, added whatever period optics were available, and skillfully refinished it. Truely a stealth instrument — but, then, there is THAT BASE!

Somewhere in this story there is a lesson — for me and for us all!

*E.H & F. H. Tighe were listed as opticians as early as 1891 in Detroit directories. Microscope production probably began before 1895, the year of their first listing as microscope manufacturers, and may have continued until 1902 or later. Some iron base models such as the No.3 appear unsigned or with the names of retailers, and were therefor produced for the trade; some later instruments appear with various Tighe parts, some with optics stamped "GMOC" (for Gundlach-Manhattan Optical Company), and a few are even known bearing the name of that firm or of retailers, so it may be that production and/or sales of some models may have eventually fallen to the Gundlach-Manhattan Optical Company. Surviving signed Tighe instruments seem more numerous than Tighelike instruments signed by the Gundlach firm (with which Gundlach was no longer associated), so it may be that at the later date these could not compete successfully against the larger Bausch & Lomb and Spencer firms. For further information, see my two part article on the Tighe brothers in the October and November 1993 issues of "The Objective", an abridgement of which follows in this MSSC Bulletin.

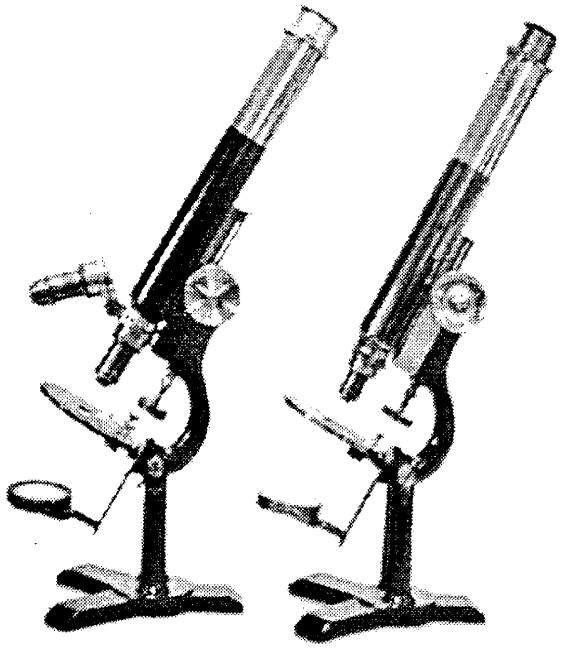

Fig 3. Stealth Tighe (extended) and Tighe No. 3

MULTIPLE IMAGES IN THE CORNEA OF A BEETLE'S EYE

In a large number of text books on the microscope it is stated that if the cornea of a beetles eye be placed on the stage of a microscope, and an object be placed between the source of illumination and the cornea, that object will be seen reproduced in every facet of the cornea. The experiment is an exceedingly interesting one, but there are very few people who know how it should be carried out. The cornea must be flattened, not left in the globular condition of life. The simplest way to exhibit the effect is to cut a cross out of brown paper, about 3/4" long, place this on the mirror of the microscope and focus the facets of the cornea in the usual way with a 1/2" objective. You then—and this is the important stage on which the result depends—gently rack the objective upwards, causing the structure to appear to go out of focus, at the same time moving the cross on the mirror by means of a pointed stick of wood. It will be evident when it is best to stop raising the objective, for the cross on the stick will be seen in the facets. It then only remains for the cross to be so set on the mirror that it appears in the centre of each of the facets.

There are many other ways in which the effect can be produced, a very pretty one being to throw a brilliant light on the face of a friend who sits at the side of the microscope, and so arranging the mirror that the reflection of his face falls upon it and is again transmitted to the cornea. Also by a little scheming, the second hand of a watch can be seen in each of the facets. When well shown, these experiments always create astonishment and interest. A little practice soon enables one to do them with facility.

Watson's Microscope Record May 1925

Reprinted from "The Balsam Post"
Issue No. 27 April 1995

THE TIGHE BROTHERS - ED AND FRED

THOSE MYSTERIOUS MICHIGAN MICROSCOPE MAKERS

by STUART L. WARTER ©

INTRODUCTION — About ten years ago I picked up at a flea market my first antique microscope - a twin pillar instrument on an iron claw footed base, rack and pinion coarse focusing, and an unusual lens mount that also served as a fine focusing collar. It was signed on its round stage "E.H. & F.H.TIGHE/DETROIT, MICH." I could find no information on these people except for a picture of a similarly marked "unique" instrument different from mine in the Billings collection catalogue (all brass, single pillar on a horseshoe base, round stage, an unusually curved arm, and "underarm" fine focus) together with the notation that nothing was known of the signers. Since that time I have managed to acquire examples of three additional similarly marked instruments — one like the Billings example, one similar to my first, except that it has an underarm fine focus mechanism like that of the Billings instrument, and a fairly typical "mature" continental model.

At least four other examples (two of each of the underarm focusing models) are in the possession of other members of the LAMS, and still others have appeared in auction and antique instrument catalogs, but no further information on the Tighes (including the correct pronunciation of their name) has been made available to me or to any other members of the LAMS. Each of their instruments seems to have some feature or combination of features that sets it apart from others that might be similar. An overly "optimistic" date of 1885 (off by probably 10 years, as it turns out) was given for the Billings specimen.

It struck me that for this number and variety of instruments to be available — more than that of some documented and hitherto better known American makers — there must be some information somewhere, and so I set about to see what I could find. I first consulted a number of Detroit and genealogical references, and then went to the Federal Census records, with the following results: the family was first located in 1880, but their sons were still at home, working, but still barely too young to be out on their own or engaged in a profession. No Federal census exists for 1890, records having been destroyed in a Commerce Department fire. In 1900 three brothers were listed as opticians, and by 1910 the family was for all intents and purposes gone from Detroit. I next obtained microfilms of the R.L.Polk Co. Detroit City Directories at 5 year intervals from 1885 to 1905, finding the firm listed as microscope manufacturers in 1895 (Bingo!). With things thus narrowed down, I then obtained microfilms to fill in the gaps for all years between 1890 and 1900.

E.H.& F.H.TIGHE — Edward H. (b. Dec. 1859) and Frederick H. (b. Oct. 1861) were born in Canada to Susan (b. 1837 in Canada of Irish parents) and Edward L. Tighe (pronounced "Tye," an alternate spelling for the name in the genealogical literature) an Irish born Phrenologist (1830 - 1894), who had moved to Detroit in 1870 with at least 10 children (6 boys and 2 girls). By 1910, only one of the youngest brothers remained — all the others had either died or gone elsewhere.

In the period from 1880 to 1910, as listed in directories and censuses, the brothers worked at a variety of occupations: junk dealer, speculator (Edward), sailor, painter, grocer (Frederick), travel agent, optician, microscope manufacturer, travel agent again, and, finally, furniture manufacturer (both Edward and Frederick). Thomas L. (1857 - before 1900) was a telegraph operator; Lewis T. (1857 - 1894) painter, decorator, clerk; Oliver F.(1863 -) travel agent, optician, and travel agent again; and Frank S. (for Spencer, 1870 -) travel agent and traveling salesman.

Frederick first appears in the Directories as an optician in 1890 and Edward in 1891; they are so listed through 1896, after which they are travel agents. By 1905 they were principals in the Enterprise Couch Manufacturing Co. Inexplicably, both, along with younger brother Oliver, are listed in the 1900 Census as opticians, while all three are travel agents in the Directory.The youngest brother, Frank, a travel agent in Directories through 1899, is in this Census as a traveling salesman (a census taker's error, — or was he on the road selling microscopes for his brothers?).

The firm name "E.H. & F.H.Tighe" first appears in the 1891 Directory as "Tighe, E.H. & F.H. (Edward H. & Fred H.), Opticians, 5 Lafayette Av." They were also listed under "Opticians" in the classified section. It next appears in 1895 as "Tighe, E.H. & F.H. (Edward H. and Fred H. Tighe), microscope mnfrs, 1079 7th" (the

address is that of Edward's home). There is a classified listing for "Microscope Manufacturers," with them as the only firm so categorized. The next year, 1896, brought the closest thing to an advertisement, a three line entry, bold faced: "Tighe, E.H. & F.H. (Edward H. & Fred H.), Cut Rate Opticians, Spectacles and Eye Glasses a Specialty, 32 Grand River Av." They were listed (among others) in the classifieds under "Microscopes (2), "Optical Instruments (3)," and "Opticians (28)." In 1890, 1892, 1893 & 1894, there was no listing for the firm, and therefore no classified listing; only their occupations as opticians were given along with their names and respective home addresses.

From these few basic sources we know that the Tighe brothers, Ed & Fred, were active as opticians from 1890 to 1896 (and possibly "on the side" as late as 1900), that they dealt in microscopes, and at least claimed to be manufacturers — the last such American firm to start up in the Nineteenth Century. Since there exist at least four substantially different and more or less unique models of microscopes with related features, their claim cannot be dismissed out of hand, although there is certainly ample room for discussion of exactly what constitutes "manufacture."

Why then are they so poorly known? Surely some interested party with ready access to local Detroit and Wayne County sources should have no trouble gleaning more information than is presented here — if only one knew to look. Had the Tighes advertised through the "usual channels" microscope historians would have picked them up. Had they penetrated the Eastern market and employed agents in New York, Boston, or Philadelphia, as did Chicago manufacturers Bullock and McIntosh, their instruments might have been more common where collectors have been concentrated. Their instruments were competent but not spectacular — they simply came upon the scene too late to develop large, complex, "world class" instruments that would get them written up in the microscopical journals or books, nor were they innovators holding notable patents on new developments of significance. Continental designs were rapidly taking over the market, and, as Padgett relates, economic conditions were not good; low cost products from larger, more efficient domestic and foreign manufacturers with high production capacity (Bausch & Lomb, Leitz, Spencer, Zeiss) flooded the market. Unable to meet this competition, smaller, less efficient manufacturers had been dropping out one after another — even such old line Philadelphia firms as Zentmayer and Queen were pressed, their microscopes to be gone from the scene soon after the turn of the century.

One might speculate from their varied careers that the Tighe brothers were of an entrepenurial bent. Bullock was dead, his firm gone; McIntosh had died, his firm soon to be sold. The Tighes may have sensed a vacuum developing and entered the field in an attempt to supply the midwestern market, which they might have done without attracting notice in the Eastern population centers, only to be swamped by the increasing production capacity of the giants after only a very few years.

Had the Tighe firm actually been manufacturers in the true sense, the necessary resources were present in the industrial midwest to supply whatever materials or subcontracted services that might have been needed. In 1895, the year the Tighe firm listed themselves as manufacturers, the Detroit directory carried advertisements or listings for an astronomical telescope manufacturer, brass and iron founders, seamless brass tubing, screw makers, lens manufacturers, die makers, machinists, machine manufacturers, brass rolling mills, lock, mirror, and cabinet manufacturers. There were even specialty retail outlets — in the period in which the Tighes were operating no less than four Detroit retail supply houses specialized in microscope sales — one a large general retail house, another a specialty medical supply house, and one an educational supply house. At least one instrument signed and sold by a Chicago supply house may be related. So it is also possible that the Tighe firm could have operated "locally" in relative anonymity insofar as the Eastern establishment was concerned.

I should be happy to hear from anyone who might have already dug up more facts than are presented here — perhaps this article will "shake the bushes" a little, or stimulate someone else to dig a bit further. Should the response warrant it, a followup article could be prepared. Send your comments and/or pictures of instruments to me at the Department of Biological Sciences, California State University, Long Beach, CA 90840.

N.B. Since the foregoing manuscript was completed, it has come to my attention that two of the underarm focus models — a double pillar model and a putative fifth form (similar to Billings fig. 174) — appeared in the Sears, Roebuck & Co. mail order catalog for 1902 as their "College" and "Professional" microscopes. The next catalog thus far available to me is for 1908, in which there was no longer offered any compound microscope other than a small inexpensive drum model. Earlier catalogues have not yet been located.

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MEMORIES

by Bert Loro

As soon as I saw the huge copper sulphate crystals growing in the senior school lab I knew I wanted to be a scientist. I was just ten years old. And what does every scientist need? A microscope of course. Nearly every picture of a scientist I had seen showed him sitting at a microscope. So I asked my father for a microscope for Christmas 1934. I even knew the one I wanted. A gleaming chrome and crackle black enamel one with three lenses on a revolving triple nosepiece, displayed in the window of a local store for the princely sum of ten shillings (about $2.00 in those days).

My father, a simple man of Italian peasant stock and little education, was not lacking in smarts. "You don't want that." he said "It's just a toy. I'll buy you a real microscope." Somewhat reluctantly I agreed, though unhappy to abandon that chromed beauty. But good as his word he brought home an equally gleaming brass monster at least three times as tall as the Japanese toy. It had only one objective, but this was a real microscope. It took me some time to get the hang of it because the objective had to be brought almost into contact with the object making it quite unsuitable for viewing random household items. There was nobody at home to guide me, but the chance discovery of a copy of the sixth edition of Hogg in a local used bookshop got me into making simple wet mounts, and I was hooked for life! That microscope served me faithfully for the next eight years until I went off to war.

World War 2 was officially over but I was still trapped in a dirty little war in which the Indonesian people were struggling to throw off the colonial yoke. One day I strayed into the abandoned medical school in war torn Surabaya and came suddenly upon a large cupboard full of fine medical microscopes. I could hardly believe my eyes. I felt like a kid let loose in a toy shop with no one around to say nay. I was sorely tempted to help myself to just one and I lingered a long time examining these wonderful toys as I battled with my conscience. But the microscopes stayed and I left with the firm resolve to buy a modern microscope just as soon as I got back into a saner world.

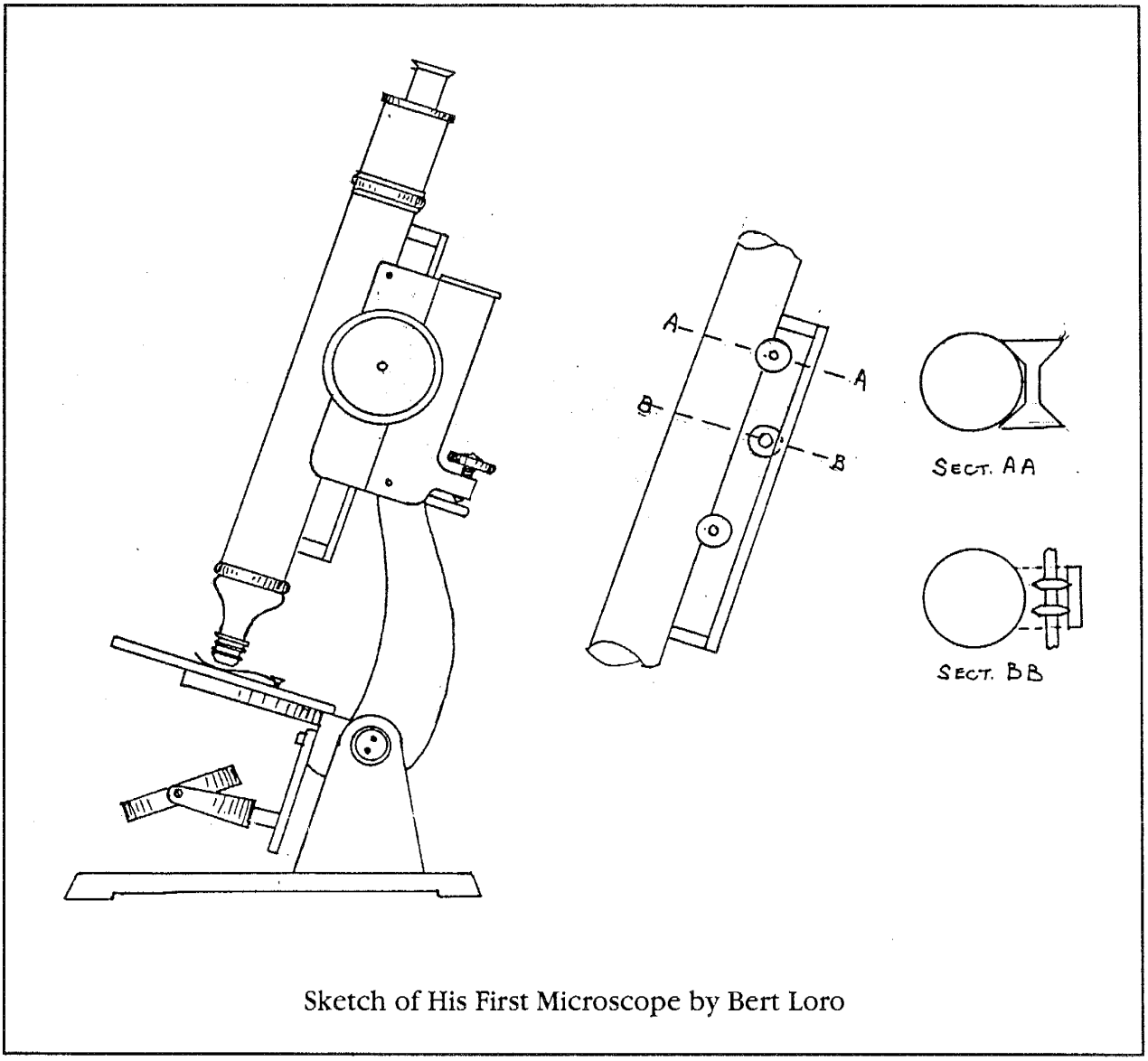
So in 1947, just back in Civvy Street, I bought a new Baker monocular, the only time I have ever been the first owner of a brand new microscope, and I still have it to this day. But in those days I had not yet developed an interest in antique microscopes and, dizzy with the ownership of my new acquisition, I abandoned my faithful brass beauty and it vanished, I know not where. Which brings me, at last, to the point of this story.

It was quite some years after it had disappeared that I realized that my first microscope had been an instrument of very unusual design. At first glance it was completely conventional; a Lister type stand with coarse focus operated by means of two large hand knobs on a common transverse spindle, and fine focus by a rear mounted screw acting through a lever .
(see sketch on facing page).

It was the coarse focus that contained the unusual design features. There was no rack, no pinion and no focusing slide. It was simply a friction drive provided by two knife edged wheels on the transverse spindle acting in two shallow Vee grooves in a metal bar. Instead of the usual dovetail slide the tube moved in contact with four conical surfaces which were part of an upper and lower roller bearing. The grooved bar was mounted parallel to and away from the tube to form a bridge passing behind the knife edged wheels.

Thus the back side of the wheels engaged the front surface of the bar resulting in focusing motion opposite to that of a conventional rack and pinion. (As far as I can remember after nearly fifty years, spring mounting of the spindle provided the force necessary to retain the tube on the stand, but I may be mistaken on this point.)

I think that my description and the sketches should give a fair idea of how it appeared. The foot and limb castings were finished a drab olive green and the rest was lacquered brass. The stage was a square plate of brass about 4mm thick and, if my memory serves me right, had a machined pattern of swirls on the upper surface. The tube was signed by the maker in elegantly slim copper plate and I seem to remember the words New York as well but, try as I may, I cannot remember the makers name!



Sketch of His First Microscope by Bert Loro

After all these years I deeply regret ever having let it go astray, both for sentimental reasons and as a small-time collector of antique instruments, and I feel a longing to know a little more about the origin and maker of this first microscope which had such a profound influence on my life. Can anybody help?

PS I never did make it as a scientist but did manage to have a fascinating career in high technology, always with a strong microscopical content. Sitting at my microscope I could have fooled anyone!

For anyone who can identify this microscope, the address is:

Bert Loro
943 Foul Bay Road
Victoria BC V8S 4H9
Canada

In memoriam FRITS ZERNIKE 1888-1966

The Development of the Phasecontrast Technique for Microscopy

by R. BECK, Giessen

Continued from October Bulletin - Page 36

Finally, a phase contrast equipment was introduced into the market by Ernst Leitz Wetzlar in 1953 (Fig.7). It was Hermann Heine (1833-1966) (Fig.8.), chief designer at Leitz, who developed the condenser for the Leitz phase contrast device. The special features of this condenser, which was announced as a patent on 15 November 1951, was a cardioid system forming the annular illumination necessary to get phase contrast. By means of a manual variable vertical adjustment of the inner cardioid system of the condenser (Fig.9), all types of illumination from bright field to phase contrast to dark field could be realized (Figs.10-13). Reichert incorporated a similar principle in its Biphos and Polyphos variable condensers.

When the Zeiss patent was made available in 1960, Ernst Leitz Wetzlar also offered a phase contrast condenser having annular stops incorporated in a turret (Fig.14). However, the so-called Heine Phase contrast Device was taken out of production in the following years due to little demand. In metallography the first incident-light phase contrast microscopes (Fig.15) were introduced in the mid 1950s by Ernst Leitz Wetzlar, Carl Reichert of Vienna, and Carl Zeiss Jena.

Zernike himself received public acknowledgement of his scientific work only slowly, until he won the Nobel prize for physics in 1953. The Dutch Academy of Sciences nominated him head of the department of physics in 1946, and in 1950 he was nominated an Honorary Fellow of the Royal Microscopical Society of London. In 1952 he was nominated for the Rumford medal. The Optical Society of America honored him with the honorary membership in 1955. In addition, Zernike received high Royal Dutch and French awards of honor. Moreover, the universities of Amsterdam (1953), Poitiers and London (1955), and Modena (1963) conferred the degree of Doctor on him.

After 1958 a silence descended about the aged Nobel prize winner. Communications with his friends and partners in many countries gradually diminished. In 1961 Zernike moved from Groningen to Naarden. In 1963 it was necessary to take him to a home for the elderly in at Amersfoort, where he passed away on 10 March 1966.

Zernike was said to be a modest, tolerant, and open-minded person with an indefatigable interest in science. Either as a theorist or as an experimentalist, he devoted himself to the mastering of his task and

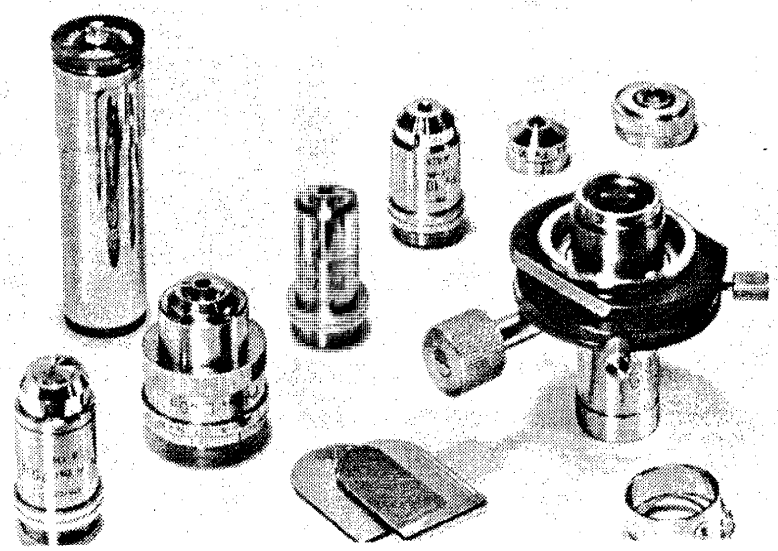


Fig. 7: Leitz phasecontrast equipment with condensor after Heine 1953.

Fig. 8. Hermann Heine, head of the microscope design and development department of Ernst Leitz Wetzlar, and designer of the phasecontrast condensor called after him later on..

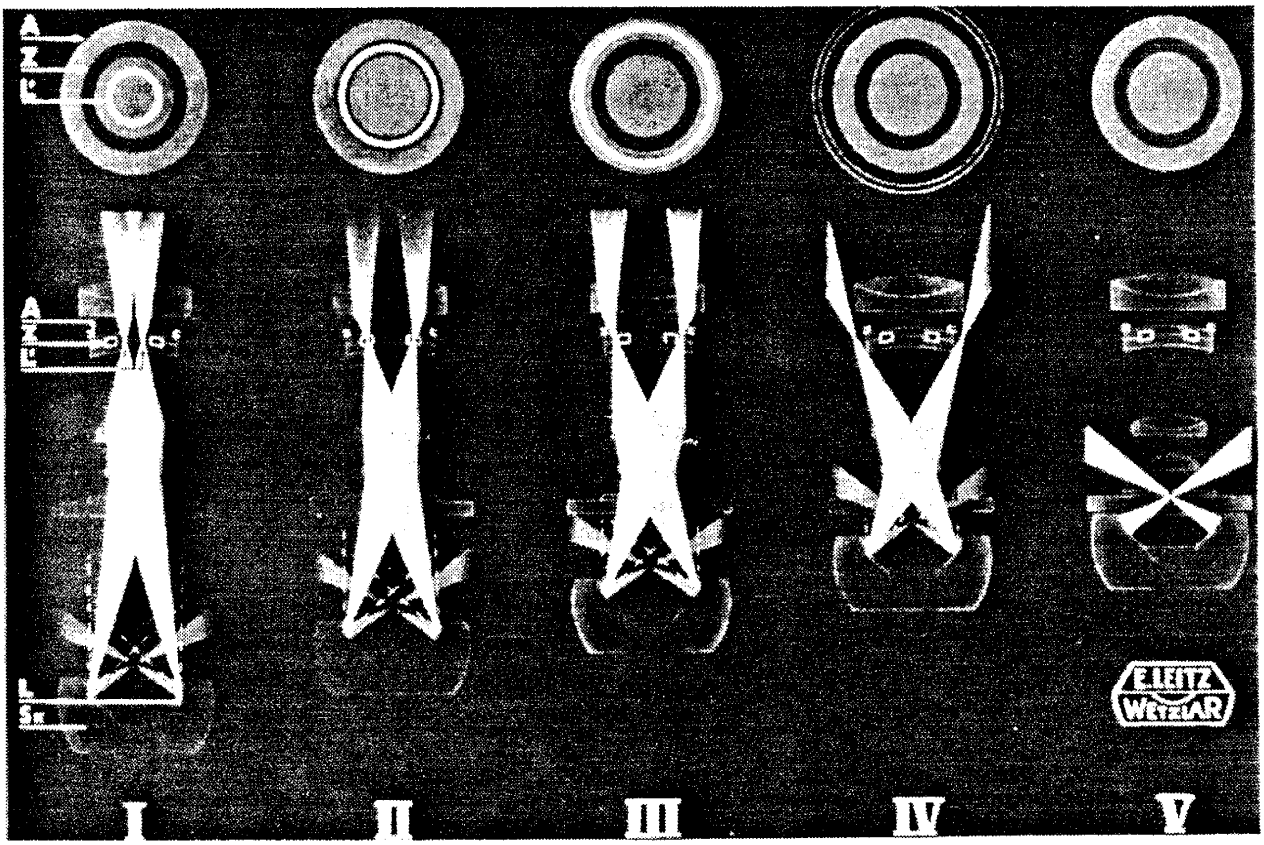
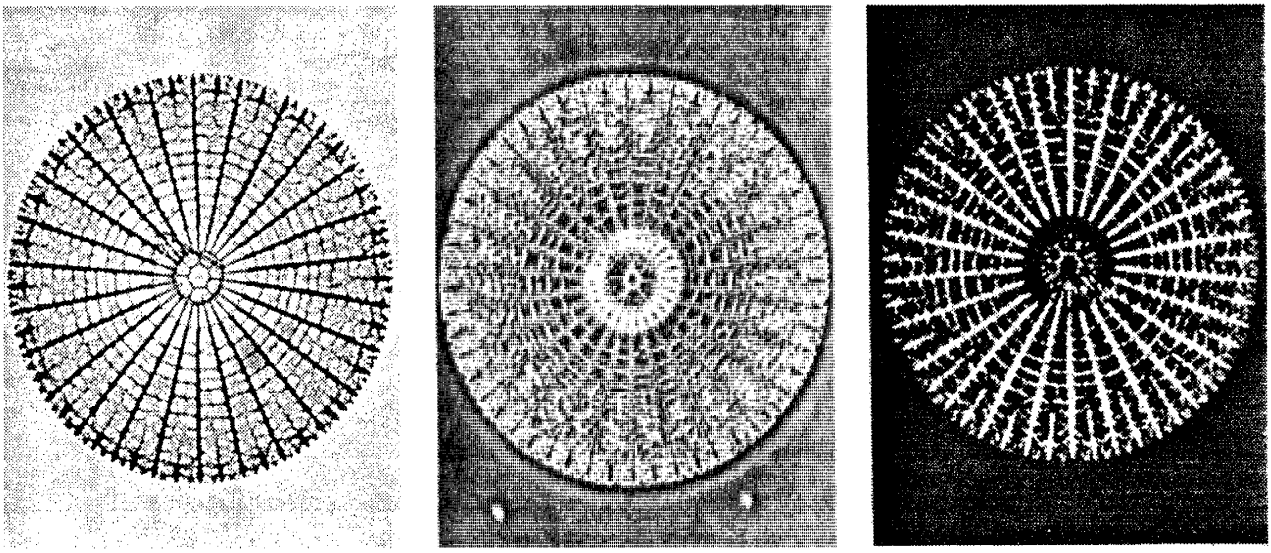


Fig. 9. Path of rays inside the Leitz phasecontrast equipment with condensor after Heine when changing the illuminating principle:

I Brightfield 1
II Phasecontrast
III Brightfield 2 with enhanced contrast
IV Threshold to darkfield
V Darkfield



Figs. 10-13. Variationof illumination mode by means of the Leitz phasecontrast device with Heine condensor. Left to right: brightfield - phasecontrast - darkfield.
Specimen: Radiolaria spec. Magnification X 350. Instrument: Leitz Camera Microscope PANPHOT, 1965.

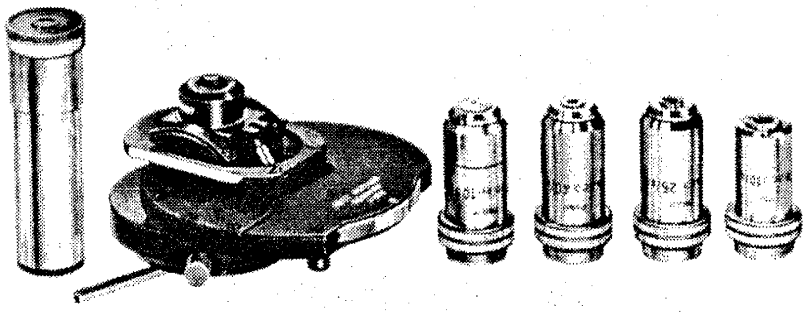


Fig. 14. Leitz phasecontrast device with annular stops on revolving turret; 1967.

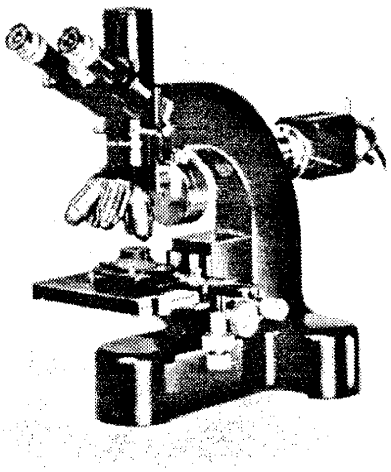


Fig. 15. Leitz metallurgical microscope METALLUX with phasecontrast device for incident-light examination; 1960.

forgot about time. He always tried to analyze his views in natural philosophy and in science - taking religious aspects as a basis. Zernike consistently followed the maxim, *"doubt everything you have not comprehended fully"*.

Acknowledgements: Dr.Wilhelm Loh, Giessen, former head of the Leitz patent office, provided many fruitful discussions on this subject. He had conducted the negotiations with Frits Zernike from the very beginning. Without his descriptions and narrations of the meetings with Zernike, R. Beck states that he would not have been able to fully appreciate the excellence of this great scientist. He also thanks Mrs.Brigitta Rimbach and Mr.Hans Joachim Zinngraff of Wild Leitz, Wetzlar, for their help in making available the historical microscope pictures and photomicrographs.

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(1) R. Beck, Giessen, Science &Technical Information, Vol.IX, No.5, pp 185-190, June 1989.

Our fellow-member, Peter Gerhard Fischer, kindly provided the original article.

This article is from the Leitz Publication:

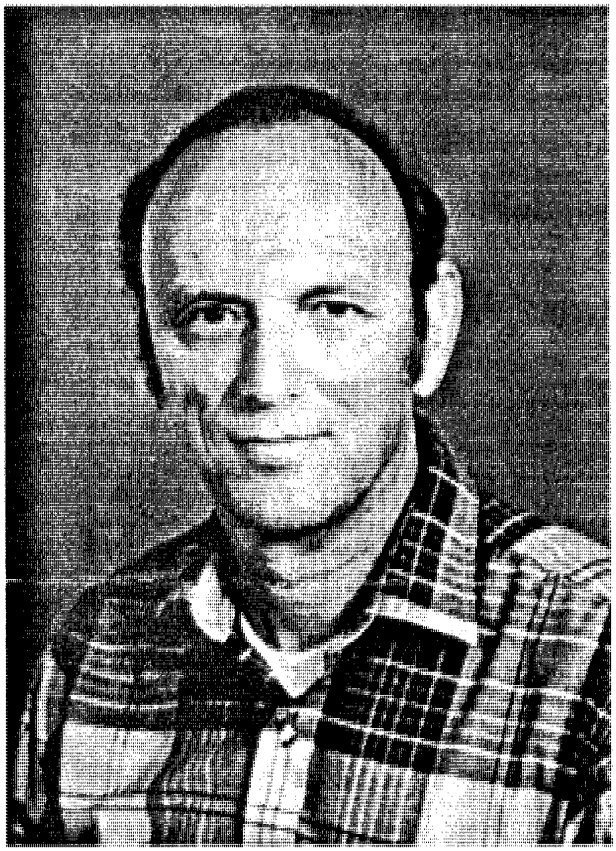
SCIENTIFIC AND TECHNICAL INFORMATION
Vol IX, No. 5, pp 185-190. June 1989

A Microscopist's trip to England

Erick Levick is planning a group trip to England for those who are interested in the history of the microscope.The trip will feature visits to the museums that house the major collections (Science Museum,Wipple Museum). A tour of the various dealer's that trade in the microscope will be included along with a trip to the major auction houses.Auction previews as well as the auction itself will be part of the plan, of course one may bid on items desired.These items can be paid for by credit card, at 1 1/2% charge. On Saturday you will be visiting Portabello Road where it will be possible to add treasures to your collection.The main idea is to view as much that is microscopical as possible. It would also be desirable to plan on attending one of the Quekett meetings while in London (Natural History Museum). Depending on the interest, there may also be visits to outer areas such as Wales and Scotland.The group would stay at a hotel close to the Natural History Museum in central London.At this time the trip depends on the level of interest received and will be planned for early March. If you are interested and would like more information please contact Mr. Erick Levick. Please send correspondence to: Erick Levick, 1109 Everwild View, Webster, New York 14580-8751.

MEMBER PROFILE

by Stuart L. Warter



Stuart L. Warter

In 1952, fresh out of High School, I was called for a Selective Service preinduction physical. In the most notable failure of my then young life, I was unceremoniously yanked out of line halfway through, and sent packing (although no substitute for active military service, I did do volunteer Civil Defence service in the Ground Observer Corps). Having thus escaped freezing my toes off on the Yalu River, or worse, I went off to the University of Miami (Florida) for the first of my three degrees, a BS in Zoology with a minor in Botany. I next earned an MS in Biology, and then left for LSU, where I earned a PhD in Zoology with minors in Entomology and Paleontology, while earning my way teaching and doing other things biological (and I met my botanist/geologist wife, Janet, during a summer teaching gig at a marine station in Mississippi). In 1965 I came to California State University, Long Beach, where I have been ever since. Over the years at different times and places I have been involved in working or teaching in areas as diverse as Embryology, Physiology, Entomology, Parasitology, Marine Biology, Functional Morphology, Paleontology, Ecology, Zoogeography, Vertebrate Zoology, and Ornithology. At one point, I was even engaged in environmental activism. I am planning to retire at the end of the current academic year.

I have been involved with optics throughout my career, using binoculars, telescopes, cameras, and a variety of microscopes in classroom, field, research, and recreational activities. As a result of these pursuits, and being possessed of an endlessly curious mind, I have been unable to simply use these instruments as tools, as so many others have done, without becoming interested in them in their own right. Being schooled in the history of science, it was inevitable that I should also become fascinated with the history of the development of these tools, and of their inventors and makers, as well. What better window into history is there than the study and research of representative examples of their efforts? Readers of these current and past pages will have seen some of the results of these activities and interests; if all goes well (and if others do not contribute regularly to these pages — fair warning!), there will be more in the future, as it is my desire to delve more deeply into these pursuits after retirement, when, for the first time in my life (which has been ruled by deadline after deadline), I should be free to do whatever I want to do, whenever I want to do it.

For years I have been an avid wildlife photographer, specializing in bird photography, and my wife and I are inveterate antique collectors. So much so, that our home (once decorated in Danish Modern and landscaped in Late Cretaceous) now has a Victorian parlour filled to overflowing with Nineteenth Century natural history books, the product of 40 years of collecting. There are so many books in our house that there is precious little room left for anything else, so our collections of other antique items (including instruments) are severely limited by space restrictions. Before we buy anything, we ask "Where are you going to put that?" Nevertheless, we persevere. Once retirement arrives, there may no longer be room for people inside!

WORKSHOP of the Microscopical Society of Southern California

by: **George G. Vitt, Jr.**
Date: **Saturday, 2 November 1996**
Location: Steve Craig's Lab, 24 persons attended.

1. **Steve Craig** announced that the MSSC Christmas Party will be held at Larry Albright's residence on 8 December 1996 (the SECOND SUNDAY), starting at 4pm. The party fee is $13.00 per person. Catering will be done by Steve Craig's daughter, so PLEASE make out your checks to Beverly Black. Beverly has been doing a truly bang-up job for our Christmas parties for lo, these many years.

2. **George Vitt** described his adjustment and GREASING of a Wild X-Y stage.

3. **Richard Jefts** said that this would be the last MSSC Workshop that he will be attending from the relatively short distance of 45 miles to Orange County. Since he is now moving to Fallbrook, near San Diego, he will be traveling about 230 miles round trip to subsequent meetings. He showed and described the book, *Under the Microscope*, by Tay Sloan, Columbia Record Club, 1961. The large format, hard bound book is an excellent study guide for young microscopists and includes 32 color slides (photomicrographs), mounted in groups of 16, on two aperture cards, and a 33 1/3 rpm phonograph record on which there is a narration explaining the specimens shown in the slides. Richard said that Robert Grosseteste, of the 13th century, is reported in this book as having used glass magnifying lenses. Does anyone have any more information on this gentleman?

4. **Pete Teti** advocated that MSSC make use of the Crossroads School as an opportunity to get young people interested in microscopy through slide making workshops. He emphasized that the slides we had all made during the demonstration by Dr.James B. McCormick, had aroused much interest and curiosity among his friends and, if slides of a similar nature were to be made at his proposed workshops, they would appeal equally to the Crossroads students. Pete then told about a business place in Santa Monica which makes mats from any sort of card stock and in any shape - and could make up any type of mat that we feel will be suitable for microslide preparation. A steel punch can be made to any shape for $125. There was a general discussion on the availability and making of cell spacers for slides. **John deHaas** described how he made them on his lathe from 3" high stacks of laminated brass sheet stock; **Stuart Warter** said that the Watari Co. in Costa Mesa (behind Cal's Camera Store) sells a vast variety of washers that can be used for slide spacers.

5. **Izzy Lieberman** displayed the first microscope that he ever looked through as a child! He asked, "how many of us have the first microscope that we ever looked through?" It is in perfect working order and is a fine instrument. Izzy even has the original instruction manual! Izzy's cased microscope. was made by Koristka in Milan, Italy in 1924 - where his mother bought it while on her honeymoon. The stand is quite heavy for its size, has a brass body tube and mechanics, coarse & fine focus, a 4-lens turret, an X-Y stage, substage mirror, and a sub-stage Abbe type condenser with rack and pinion vertical adjustment similar to that of Reichert microscopes of the same period. The foot and base have an unusually textured black wrinkle finish. Koristka was a Polish immigrant who started a scientific instrument business in Italy.

6. **Terry James** volunteered to assist in the cleaning and restoration of the Cambridge Scanning Electron Microscope at the Crossroads School.

7. **Dave Hirsch** announced that his *Scientific Instrument Society Anniversary Bulletin* has been MISSING since our October meeting. It is a hard-bound very deluxe edition, and is of great importance to Dave. **Readers please note:** Check your brief case! If you inadvertently picked up this book after our Oct. meeting, please return it to Dave! Your reward will be Dave's eternal thanks. (Crossroads lost & found produced no results). Dave gave a very positive report on MSSC finances and current status of membership. Persons signing up now for FY 1996 MSSC membership, need to pay only $20.00 dues. All dues checks must be made payable **ONLY to DAVID L. HIRSCH not to MSSC.**

8. **Leo Milan** gave us a glowing, detailed and entertaining account of Mr. & Mrs. Milan's very recent trip to mainland China, and its 1,200,000,000 inhabitants. The trip was organized by the *CALTECH Alumni Association* and included a trip down the Yangtze River and lectures by Caltech's Dr. Lee on life in China, the Yangtze Dam project. Leo's observations were: Cities are smoggy, all drinking water is bottled, many Hong Kong Chinese are emigrating with great ease to Canada, since both Hong Kong and Canada are under Dominion Policy and tremendous construction projects are proceeding everywhere.

9. **Stuart Warter** displayed a very tall, cased, brass, unsigned microscope., c.1869-1910?. It has a round stage, substage aperture disk, and a 2" diameter double-

convex lens (not a Bullseye) mounted on a swinging lockable arm, which allows the mirror to be positioned to best illuminate the specimen. The microscope. has a Pillischer type base.

10. **Ken Gregory** showed a recently acquired cased B&L stereo dissecting microscope, c.1923, featuring Porro prisms which are, according to **Stuart Warter**, of the first form (cluster of 5-sided prisms). It came with two sets of eyepieces and objectives, two stages, one of glass and another which is rotatable. The latter has a clear circular aperture with rotatable backgrounds (black or white). The foot can be detached so that the microscope can be set on its stage flat against the surface to be examined.

11. **Ed Jones** displayed and described the large hard-bound book *The Particle Atlas*, 1967, which is now out of print. His laboratory has all seven volumes of this publication which is invaluable in forensic science. These can now be obtained on CD ROM. Ed also showed two volumes of *The Micrographic Dictionary*, 1860, the first of which contains colored illustrations of a wide variety of micro specimens, while the second volume contains the descriptive text.

12. **John deHaas** told of the possibility of collecting excellent micro-crystal mineral specimens in Cascade Canyon (some 2 miles south of Mt.Baldy Restaurant). John also exhibited a fine Reichert non-folding brass microscope, c.1900?, quite similar in configuration to a Reichert folding microscope that had been shown by Stuart Warter at a previous meeting and workshop. John recommended using Lithium Grease (tan color), obtainable at Pep Boys, as an inexpensive, non gumming grease for general lubrication of instruments.

13. **Jim Clark** advised all of us to watch for the TV broadcast on PBS, at 8PM EST, 24 Nov., of L.Nielsen's follow-on of his *Miracle of Life*, a NOVA Special made possible by a technique of spectacular endo-microscopy. Jim also showed a catalog of reasonably priced miniature precision machine tools (lathes, milling machine, etc.) of excellent design, made since 1974 by *Sherline Products* (800) 541-0735; Internet= http://www.sherline.com/sherline. These are just the thing for microscopists, model makers, and engineers. Jim is representing this company and can supply you with a catalog on request, and will give an appealing discount. Before his presentation Jim, unnecessarily, first apologized for his "crass commercialism". Jim's address: James D. Clark, Jr., 11518 Valle Vista Road, Lakeside, CA 92040; Phone: (619) 443-6154. Perhaps, instead of your next new microscope, you might consider getting a precision miniature lathe which you can store on a closet shelf! Jim was urged to bring some of these machines to a Workshop for a demonstration, and we certainly look forward to that. He also described the products of Optoform Co., which makes a great variety of parts to enable the prototyping of optical assemblies (lenses, prisms, fiber-optics, etc.), and of instruments.

14. **Frank Barta** described the recent article in *Scientific American* dealing with recent research which has led to doubling the strength of concrete. Jim passed around the excellent catalog of every kind of tool and equipment imaginable for use by metalsmiths and jewelers, which would also be of interest to us. Frank described an excellent screw-driver shaped miniature spanner wrench with a large assortment of replaceable blade sizes from the catalog. The company is: A&A Jewelry, 319 W. 6th Street, Los Angeles, CA 90014; (213) 627-8004; FAX: (213) 627-1653.

15. **Gaylord Moss** told about his recent attendance at a meeting of the entomological *Lorquin Society*. James Webb, head of entomology in Orange County, talked on *Insects in Criminal Cases*. He cited many fascinating examples where the expertise of entomologists, in the analysis of 'insect evidence', had pinpointed the solution of many crimes, which would otherwise not have been solved. (After the meeting, **Steve Craig** showed a video on this very subject, which featured some excellent videophotomicrography of living diatoms). Gaylord then commented on the research being done at Stanford Univ. on the remarkable structure of insect muscles which enable, for example, the Rhinoceros beetle to bear loads of 30 or more times its body weight for an indefinitely long period of time.

16. **Peter Fischer** distributed copies of two very informative papers dealing with sectioning. These are of great interest and value to microscopists:

1) *Preparation of Thin Sections for Photomicrography* by Margaret G. Cubberly, B.S. H.T. (A.S.C.P) at Columbia Univ., Photographic Applications in Science and Technology, Summer 1968. This paper thoroughly treats both the theoretical and practical (operational) aspects of histology: the factors in preparation of permanent sections of biological material, embedding media including epoxy resin (Epon 812), ultra-microtomy, osmium tetroxide fixation, differential staining, etc.

2) A 5-page guide which provides information to understand the function, inner workings, and applications of the histological laboratory, and to assist in selecting the proper materials. The explanatory text is detailed, clear and to the point, providing a solid understanding of the reasons for, and control of, the procedures in the preparation of good micro sections. The paper deals with the methods and problems of: fixation, dehydration, clearing, infiltration. Sectioning trouble shooting (knife holder, object clamp, cassettes); compression within the section; 'will not ribbon'; chatter or 'venetian blinds'. A section is devoted to Plastic Microtomy where 'semi-thin' sections of 0.5 - 2 microns are desired.

17. **Larry Albright,** our Program Chairman who, along with his charming wife Helen, will be our MOST GRACIOUS HOSTS at the MSSC Christmas party, reported that he has created a WEB page for the Microscopical Society of Southern California! Larry showed us the excellent color rendition he had made of a very TALL Ross microscope, in color, that he used in creating the page. The page is a mere 43KB and enables the browser's access to some 130 other microscopy related sites around the world! We now have instant access both ways! (Internet= http:// www.plasma-art.com.) Larry reported that we will need a large meeting place for the Klaus Kemp meeting in November. Both he and **Steve Craig** are searching for a suitable meeting place.

18. **Gary Legel** found 3 good microscopes at a garage sale! One of them is a machinist's monocular measuring microscope. with micrometer x-y stage. (**Jim Clark** is the happy new owner.) Another was a pristine binocular biological microscope., with integral illumination by Swift. Please note that Gary still has his pristine Nikon F3-HP (with interchangeable focusing screens), with 35, 50, 135mm lenses and a 4X magnifier viewfinder - at a very bargain price. Gary's phone: (714) 870-0439.

19. **Chris Brunt** briefly reported that he is doing R&D on compass-guided vehicles and ultrasonic radar. (Which is further evidence as to the kind of wide-band membership we have at MSSC!).

20. **Gaylord Welker** described the work he had done in preparing documentation for patent filing at the Celanese Corp. This company is near New York and employs some 700 working scientists in the field of fiber technology. Gaylord showed art work, which was a composite of SEM and visual photomicrographs at various magnifications, in juxtaposition with pen and ink drawings and text showing the composition of polymer fiber-optic pipes that were being developed.

We thank **Steve Craig** and his wife **Millie** for their hospitality and the tasty pastries and coffee served during the Workshop. A group of 10 rejoined at Coco's for food and talk.

The Tighe Brothers

(Continued from page 43)

If indeed these instruments were provided by the Tighes, this distribution outlet (headquartered in Chicago) could explain how they could have had their instruments distributed so widely and still kept so low a profile, and would extend their known period of activity at least to 1902. The longer period of activity would be more consistent with the number of extant instruments.

I have noted also that an instrument belonging to LAMS member Norm Blitch (same as Billings fig. 163) has in its box a trade card bearing the address "693-695 Brooklyn Av." Edward's home address in the 1899 directory is 695 Brooklyn Av., with brother Oliver as a boarder. Prior to this date, his home was at 1061 7th, and subsequently at 1195 Brooklyn. Two other cards that I have seen bear no street address (one the same model, the other a twin pillar instrument). Clearly, this seems to establish the date of this one example near 1899 and makes it plausible that the brothers were still active in producing or sourcing their unique microscopes. Recall that in spite of their other occupations listed in the directories after 1896, Ed, Fred, and Oliver were listed in the 1900 census as opticians. Their firm in all probability then was active from 1891 at least to 1902, with microscope production beginning no later than 1895, the year they were listed as microscope manufacturers. They may have left the retail optical business after 1896, the last year of their directory listings, and continued to supply microscopes to other midwestern outlets.

NOVEMBER MEETING

The Microscopic Arrangements of Klaus Kemp

Diatoms and Butterfly Scales

The meeting that we have all been waiting for has finally arrived. The world's finest technician in arranging diatoms will be our most welcomed guest speaker. Many years ago Mr. Kemp gave a workshop before the International Society for Diatom Research in Bristol, England. His presentation revealed for the first time his talents to the professional working diatomists. That was the first time I became aware of the noteworthy work he was capable of producing. The scientist who spends his time researching the diatoms does not usually pay much attention to the beautifully arranged slides that fascinated the Victorian microscopist. However, Mr. Kemp made such a profound impression that word of his ability found its way all the way to California. Some time later he gave a demonstration before the Quekett Microscopical Club in Birmingham. The Quekett members were very impressed and responded with pride that the great tradition of arranging diatoms was being continued by a fellow Englishman. Ever since Mr. Kemp revealed his skills as a slide mounter, there has been a demand for his work. His reputation for precision mounting is now known around the world. Mr. Kemp lives in Somerset, England and extensively collects diatom samples from local sources. He also collects and actively seeks out samples from all over the world. His slide mounts are made with all the most desirable material including marine, fresh water and fossil diatoms.

Klaus D. Kemp

His last demonstration was so well received that he has consented to replicate it for us here in Southern California. He has not only perfected the techniques for arranging diatoms, but has also been able to shift gears and duplicate that success with the arrangement of butterfly scales. If you have had the good fortune of viewing a spectacular arranged butterfly scale slide by Dalton of *150* years ago, you will know what a piece of microscopical art should look like. Well, hold on to your hat, Mr. Kemp has recreated the spectacle and even taken it a step further with different colored backgrounds. Not only will his work be available for purchase, but you will be able to witness the master as he reveals his techniques for arranging the specimens. He will be using a video camera mounted to his microscope so you can see in detail the process of creation. An overhead projector will be used to demonstrate the ideas behind his techniques. He will also make drawings on a flip chart to illustrate just how the process takes place. His presentation will make perfectly clear just how the arrangement takes its form. Before the night is over you will understand the equipment needed and the process used to create the most beautiful images seen under the microscope. This is the meeting you will not want to miss. Plan to be there and bring a friend. If you are interested in obtaining information about Mr. Kemps special diatom mounts please write to: K.D. Kemp, Microlife Services, Blautannen, Wickham Way, East Brent, Somerset TAO 4JB, England.

An important reminder, John Field has done much to bring this event to one of our meetings. He has already paid for most of the airfare that will bring our speaker out from the east coast. This will be quite an expense for the few that have already contributed. Please take a minute and send John a small contribution to help show your appreciation for the effort and generosity he has shown. If all of us send him twenty five dollars it will go most of the way to cover the cost already paid by our valued member, John Field.
Send to: J. Field, 2335 Benton St., Santa Clara, CA 95050-4432.

Thank you, J. Solliday.

NAMES AND LOGOS

At the October regular meeting there was considerable discussion about some of the image issues of the reorganized society, namely: what should be the name of the bulletin, the masthead of the bulletin and the logo of the society.

Some of the opinions expressed were as follows:

Give the Bulletin a unique name as the Quekett has **Microscopy,** the Minnesota Society has **The Illuminator** and LAMS had **The Objective**.

Names suggested were:

1. **The Coverslip.**
2. **The Microcosmos.**
3. **The Bulletin of the Microscopical Society of Southern California.**

A special short unique name makes it easy to refer to the bulletin; on the other hand, calling it the bulletin of the society identifies it with the Society and makes it easy to find in any index without remembering a separate name.

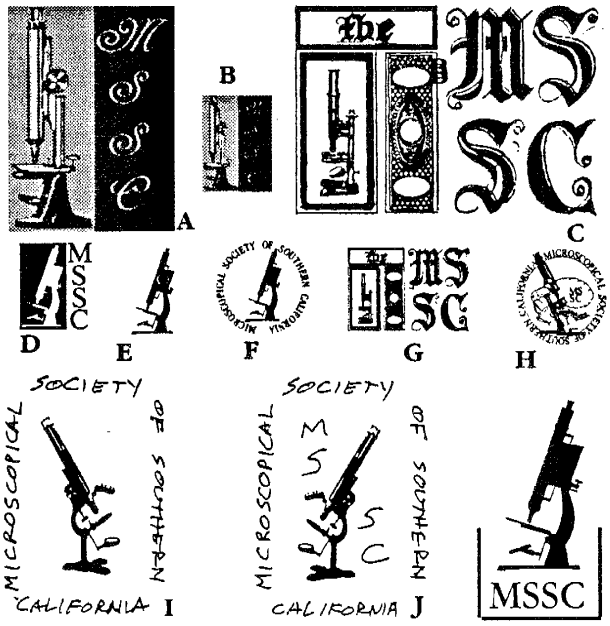
Regarding the masthead of whatever the bulletin is to be called, there were champions for using a symbol specific for the bulletin masthead and others for using whatever logo was adopted for the overall Society as the identification symbol in the masthead.

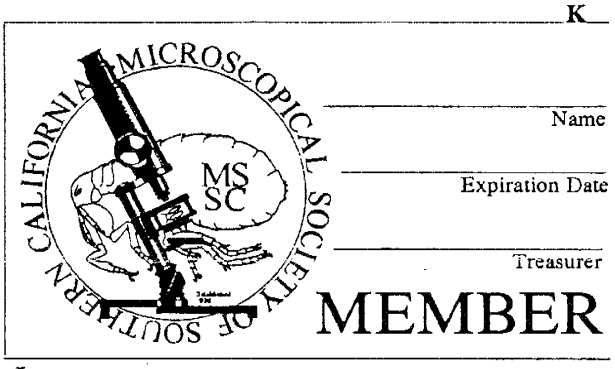
Regarding the logo, several members made the point that a logo should be simple enough to be photocopied in very small sizes without losing its identity. Also, it was stressed that for internet digital reproduction, simplicity is needed to maintain a reasonably small digital description so that it does not take too long to transmit. If one looks at various corporate logos, one notices that they are usually quite simple.

These two pages show some ideas that have been contributed for both logos and masthead designs. There are more but I do not have copies here.

This is our chance to pick symbols that are pleasing to us all and that represent the quality that we feel in our Society. Each item has a letter alongside for identification and it would be helpful to have some feedback on what everyone likes and dislikes about the various images and about what we should call our monthly publication. Based on comments that are received, I will endeavor to have some designs worked up from which a selection can be made. All ideas can be modified or mixed and matched; fonts changed, a microscope image replaced with your favorite etc. Send your preferences to me ASAP so that we can have made up some finished designs for final selection.

Gaylord Moss Ed.





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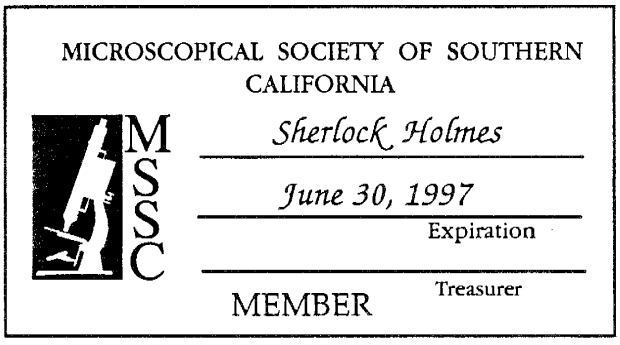

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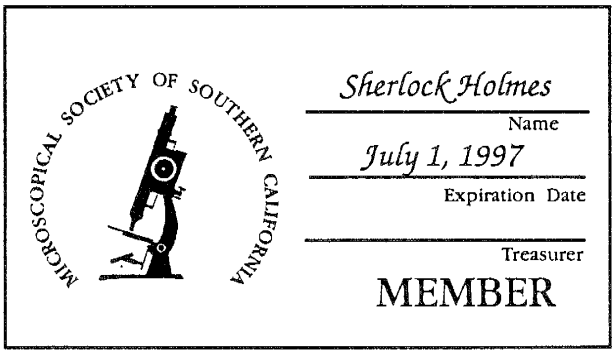

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The Coverslip

Bulletin of the MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA

Sept 1996 | Established 1938 | Volume 1, No.3

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MSSC

Bulletin of the **MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA**

Volume 1 Number 3 November 1996

P

The Coverslip

Bulletin of The Microscopical Society of Southern California

Volume 1 Number 3 November 1996

Q

MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA — THE MICROSCOPE — MSSC

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BULLETIN OF THE MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA

VOL. 1 NOVEMBER 1996 NO. 3

TREASURER'S NOTES
LAMS Inc. Refund Progress

As ordered by the Chairman of the Board of Directors of the Los Angeles Microscopical Society Inc., prorated refund checks for LAMS members paid up for Fiscal Year 1996-1997 have been mailed. 64 qualified members should have received their checks by now.

It is very important that you cash or deposit your LAMS Inc. refund check as soon as you can, for two important reasons. First, we sincerely hope that recipients of the refund checks will use the proceeds for transfer into the MICROSCOPICAL SOCIETY of SOUTHERN CALIFORNIA. These funds, along with dues which will be forwarded by members who have not as yet paid their 1996-1997 dues, are urgently needed to build up the MSSC treasury, so that we can meet our fast growing financial obligations.

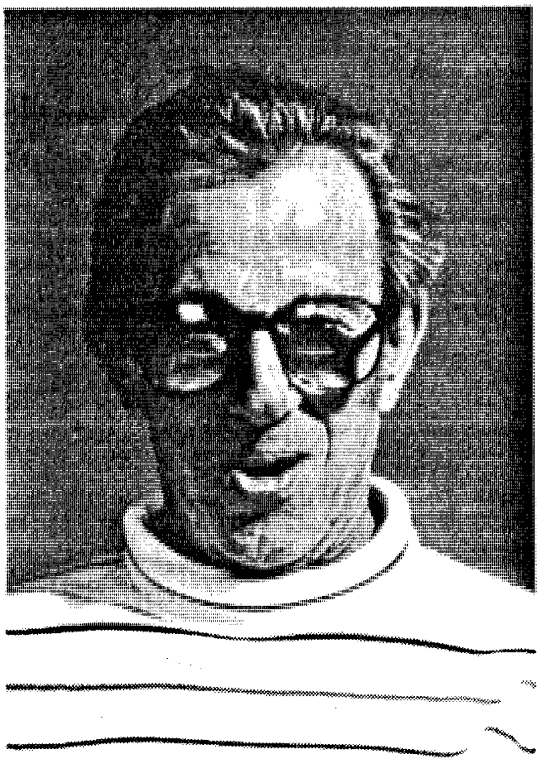
Second, but of prime importance, the prompt cashing of your LAMS Inc. refund check will hasten the closure of the LAMS Inc. checking account, enabling us to break away completely from LAMS, Inc.

Please bear in mind that banks have a time limit as to how long a check can remain uncashed before it becomes null and void; another good reason for cashing your refund check promptly.

Lastly, you should have received the first two bulletins of the MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA. Henceforth, the MSSC Bulletin will be sent only to paid-up members. It is obvious that the the new bulletin is far superior to anything published under the old Society; a positive indication of the incredible changes that have taken place with the formation of MSSC.

To keep up the high standards of our Society, the members of MSSC need your participation and cooperation. We are: "A nation once again!"

Dave Hirsch,
Treasurer, MSSC



In Memoriam
Rolf D. Weglein 1920 - 1996

It is with great sadness that we report the death of Rolf Weglein, our friend and member since 1988.

Many of us remember Rolf's fine presentation on Acoustic Microscopy in March of 1990. Rolf, BSEE Cal Tech 53 and MSE 1954 had over 80 published papers and numerous patents to his credit. His main fields were acoustic microscopy and nondestructive testing.

Before his recent activity as an independent consultant he was for many years a most respected Senior Scientist at the Hughes Research Laboratories in Malibu.

It was at the Research Laboratories that George Vitt and Gaylord Moss enjoyed Rolf's wit and intellect long before he bacame a member of our Microscopical Society.

Rolf's unfailing good humor, brilliance and enthusiastic interest in all things will be greatly missed by all who knew him.

WANT LIST

"Polyphos" substage condenser for Zetopan microscope.
George G. Vitt Jr.
2127 Canyon Drive
Los Angeles, CA 90068

Alignment Telescope for Phase Contrast
Thomas Porter
7812 Yarmouth Ave
Reseda, CA 91335
818-343-1359

FOR SALE OR TRADE

Nikon F-3 HP Camera
50, 35 and 135 Nikkor Lenses
DW-4 Magnifying Eyepiece $1100

Gary Legal
1306 Sheppard Street
Fullerton, CA 92631

Books For Sale

The Geological Story, (1875) by James Dana. This is a well illustrated publication with examples of the Diatoms, Polycistines, Forams and Fossils. Bound in green cloth with gold gilt stamps. (rare) $12.00

The Voyage of the Challenger, (1972) by Eric Linklater. Very well illustrated with soft cover, 4to. Many of the samples collected on the voyage were studied and published by members of the Royal Microscopical Society. Considered the best historical publication on the subject. $30.00.

The Microscope, Simple Handbook, (1923) by Conrad Beck. Many microscopes are illustrated. $30.00

James D. Solliday
(714) 775-1575 Home
(714) 546-1315 Work

MATERIAL EXCHANGE

To obtain samples from the members listed below, send them a stamped self addressed envelope with your request.
Many thanks to those who volunteer to share these materials.

Microcircuit chips offered by Ron Morris. Ron has prepared a set of slides for the Postal Microscopical Society showing the development of the microcircuit. These were of intense interest to many who had no access to such materials. Letters from England were very appreciative of the chance to study these complex silicon circuits. Ron has given out some of these samples at Steve Craig's workshop to the delight of the attendees, and offers microcircuit chips to any other member who would like to have them.

Ronald F. Morris
1561 Mesa Drive # 25
Santa Ana Heights, CA 92707

Sand from Rincon Hill in Ventura offered by Ed Jones. Ed contributed the sand that was used in the latest Craig workshop to study cleaning techniques. Ed has more of this uncleaned sand from Rincon that he offers to anyone who was not at the workshop, but who would like to try the cleaning technique. See page 8 in the October 1996 issue of this bulletin for a description of the material.

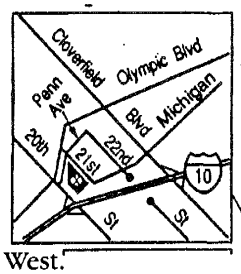
Edwin L. Jones, Jr.
2425 Scoter Avenue
Ventura, CA 93003

Movie Digital and Analog Sound Tracks offered by Tom McCormick. Tom has some extremely interesting commercial movie sound track film that has the sound recorded in several digital and analog formats. One of the digital formats contains a 70 x 70 array of dots in the sections between the sprocket holes.

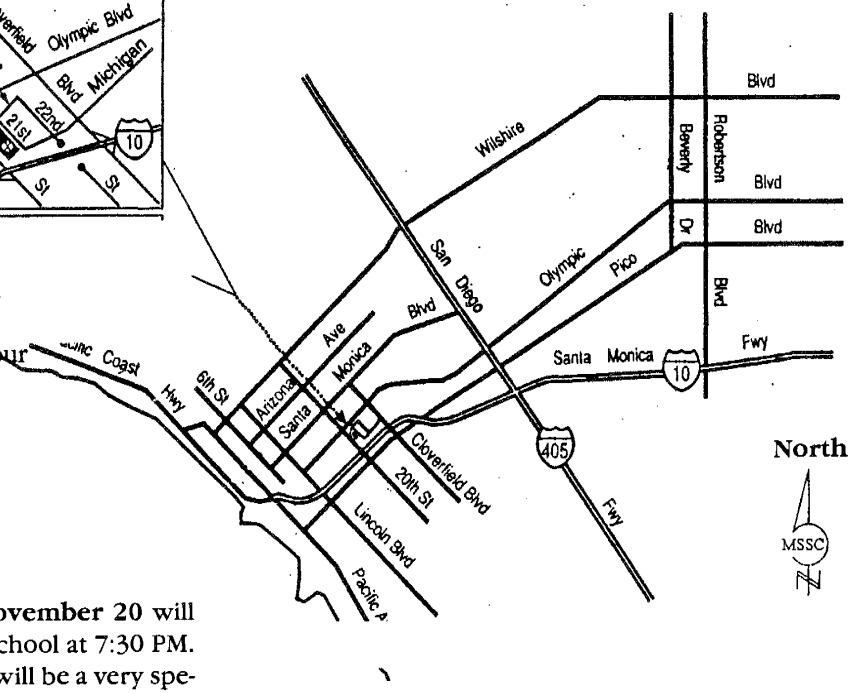
Thomas J. McCormick
5924 Bonsall Drive
Malibu, California 90265

Meeting Place

Crossroads School
1714 21st Street
Santa Monica, CA 90404



Directions: Take the 405 to 10 West.
Get off at Cloverfield and go North.
At the first light go left on Michigan.
Turn right on 21st Street.
Go to the end of the buildings on your left and turn left into parking lot behind the school.



Editor's Notes

The next regular meeting on November 20 will be held as usual at the Crossroads School at 7:30 PM. See map above for directions. This will be a very special meeting with renowned diatom and butterfly scale arranger Klaus Kemp visiting here from England. See more about this remarkable man on page 53. This will be an event not to be missed. Mr. Kemp's artistic creations will be interesting to those who are not usually interested in microscopy. Consider bringing a wife or friend to this very special event.

The date for the Christmas party is now set for December 8. Larry Albright and his wife Helen have generously offered to host at their home in Mandeville Canyon. Festivities begin at 4 PM. The cost is $14 per person for the superb "turkey and all the fixings" that Steve's daughter Beverly has provided us for many years. Please bring desserts to share. Make checks payable to Beverly Black and mail to Steve Craig at 3455 Meier Street, Los Angeles, CA 90066 as soon as possible to help in planning.

Directions to the Albright home are:
Go north on 26th Street in Santa Monica until it turns into Allenford Ave. and then dead ends on Sunset Blvd. Turn right on Sunset and go about a mile to turn left onto Mandeville Canyon. At the first stop light, a few hundred yards ahead, turn right on Mandeville Lane. Larry and Helen are at #1704 at the end of a short driveway.

Thanks are due to those members who have submitted papers for publication. As mentioned before, submissions even of very short length are welcome. How about some items covering hands-on work: making slides, photographs, finding materials, restoring microscopes, building accessories, breaking glass to make microtome blades.

Articles spread beyond our bulletin as is evidenced by the re-publication of Richard Jeft's article on the construction of the Science Gossip microtome in Newsletter #25 of the Historical Microscopical Association of Canada. Mr. Jefts has also received a congratulatory letter from Fred Loxton in England.

The sharing of articles between microscopical groups benefits us all as is shown by our publication of an article from the 'Balsam Post', the newsletter of the Postal Microscopical Society, on page 41 of this issue. The Balsam Post is a rich treasury of slide making information which we hope to tap in future issues.

Our treasurer, David Hirsch, reports on our current membership status on page 56. Anyone else wishing to join or rejoin to continue to receive the Bulletin can send dues to Dave in the amount of $30 for a regular member and $20 for corresponding. The membership period is until June 30, 1997 and anyone joining now will also receive the back issues of the Bulletin for September and October as well as this November issue.

Please note my e-mail address change to:
mosss@worldnet.att.net.
The third s is silent.

Gaylord Moss