Journal of
THE MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA
Volume 7 Number 11 November, 2002

WORKSHOP OF THE MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA

by Herb Gold,
edited by Jim Solliday and George G. Vitt, Jr.

Date: Saturday, 5th October 2002
Location: Izzy Lieberman's Residence (18 members present)

The workshop began at 9:15 AM and was called to order by the President, Jim Solliday. Things began on a very sad note as it was announced that our good friend and faithful member Gary Legel passed away this very day, October 5th 2002, at 2:00am in the morning. Gary's funeral will be held on November 9th at his family church in Fullerton, CA. For those of you who remember, a number of years ago Gary provided a spectacular presentation featuring his very own gigantic Tesla coil that produced lightning streaks across the entire room. Not only did Gary contribute much to the group's activities but he often expressed his sincere affection for our Microscopical Society. He will indeed be greatly missed by all.

Members were then reminded that our next Wednesday gathering would be the annual exhibition meeting and each person should begin preparing for his own project. A discussion was held concerning the upcoming Christmas banquet and if we might have the offer of any of our members to host the event. Last year we enjoyed the services of the Hollywood Hills restaurant and reserved the option to have a repeat

appointment with that venue if necessary. This year a second restaurant was suggested as an option; Pete Teti will be investigating this location and report back to the President. The dates that were suggested for the banquet were December 8th, 14th or the 15th, setting aside the 14th as our first choice.

The hands-on workshop was held on October 26th in the classroom at the New Roads School. The subject was textiles and fibers and was given by our own Ed Jones. All those who attended were very enthusiastic and had high praise for the instruction provided by Ed Jones. There then followed a discussion on a fiber kit that was used in the course of the workshop. The kit consisted of a large collection of very rare and important fibers which is available for commercial distribution. It was suggested that the Society purchase one of these kits for future reference and make it available to members who were not able to attend the workshop. A vote was taken and the suggestion was passed with the request that each member donate $5-$10 to cover its cost. Jim Solliday expects to be informed as soon as the kit is available.

John deHaas offered to provide the Society with a short lecture on Protozoa and stated that he would need an opaque-projector to present his

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photographs. Julian Pulido stated that he might have one that he could make available and would bring it to the next meeting. Finally, Pete Teti passed out the current issue of the Society's Journal. We are once again very pleased with the work of the editorial staff and hope the membership will step up its contributions and continue to provide the high quality of work that has, up to now, has graced our publication.

Jim Solliday exhibited two microscopes that were of the Gundlach pattern - in particular, a very early microscope manufactured by Gundlach while in Berlin, ca.1867. The second microscope was made ca.1874 by the Seibert Bros. of Wetzlar. Jim took a few minutes to provide a rather detailed history of the life and work of Ernst Gundlach.

Gundlach was born in 1834 in Pyritz, Pomerania. In the early 1860's he was a mechanic journeyman who worked in the shop of Fritz Belthle in Wetzlar (Kellner's Optical Institute) along with Wilhelm Seibert. It was there that he learned the techniques of lens grinding. Within a short time (1866) Gundlach started up his own workshop and persuaded Seibert and his brother to leave Belthle and join him. Gundlach sold his first microscope to Prof. Berg at the University of Berlin in 1866. The decision that the Seibert brothers made to go with Gundlach soon became a situation to regret, as Gundlach simply disappeared leaving the business in debt. The brothers then were forced to work at several smaller workshops where they broadened their experience.

Wilhelm Seibert, finding himself without work, decided to try his hand at starting his own business, and the two brothers began making microscopes. In the meantime, Ernst Gundlach had returned from England and started a new business in Charlottenburg (a suburb of Berlin). One of the ideas he brought back from England was the parallelogram-fine focus mechanism. By 1867-8, the Seibert brothers were again working for Gundlach manufacturing lenses as well as mechanical microscope parts from tubes and castings sent from Berlin.

Gundlach exhibited at the Paris Exposition in 1867 where he showed his new glycerin immersion lenses. By 1870 he was exporting microscopes to America through a New York dealer, E. B. Benjamin. Benjamin showed one of Gundlach's stands at the 1870 Meeting of the American Association for the Advancement of Science. Gundlach also exported optics to Charles Baker of London. However, again it seems Gundlach attempted to expand his business too quickly and began paying bills with drafts until his financial problems became overwhelming. By 1872 Wilhelm and Heinrich Seibert had to stop working for Gundlach. In August of 1872 the bailiff closed Gundlach's shop. Most of Gundlach's debt was passed to Georg Krafft, a

businessman in Wetzlar. He could have required the Seibert brothers to cover the drafts, but instead he came to an agreement with them establishing a partnership, which gave him 20% of the gross income.

Gundlach had gone to Wetzlar and arranged the sale of his Berlin enterprise to Mr. Krafft and the Seibert brothers. The firm then became known as "Ernst Gundlach's Successor, Seibert & Krafft." Much of the new company's operations were now in Berlin where Gundlach had worked. However, with all the financial difficulties they quickly returned to Wetzlar. The move took place in September 1873, and seven of the Berlin employees came along. The year 1873 also represented the production of the firm's 1000th microscope (HMSC, Vol.11, No.43, Dec. 2000).

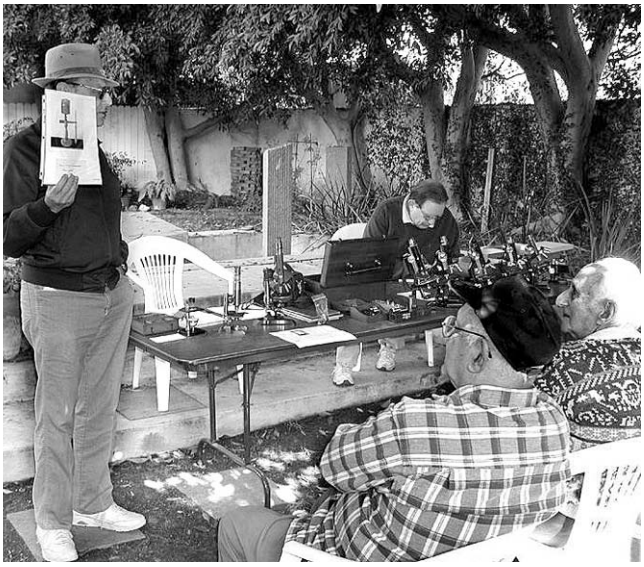
As a result of the transfer of the business to the Seibert Brothers, Gundlach was required to agree not to manufacture in Germany for 25 years, and he received a final payment which he used to establish himself in America. He was allowed to take with him "the iron parts of a lathe, grinding machine, several finished objectives, eyepieces, some crown and flint glass and some grinding and polishing compounds." On August 22, 1872, with 6000 Talers, Gundlach and his family emigrated to America. In 1875, Bausch & Lomb hired Gundlach. Gundlach returned to Germany and died in Berlin in 1908, impoverished. The Gundlach microscope on exhibit is an example of his earliest production and is quite rare. It was also noted that the Seibert Bros. continued the style of production established by Mr. Gundlach.

The second microscope exhibited by Jim was an example of the production of Gundlach's successor, Seibert & Krafft. It is a very large stand, which features two interchangeable substage assemblies: one assembly has an Abbe condenser and the other a set of Continental diaphragms. The nosepiece holds 4 Seibert objectives and can be replaced with a 5-place nosepiece if needed. The circular stage can be rotated and centered.

It all came in a mahogany fitted case with the serial number burned into the edge. The date of manufacture was ca.1874.

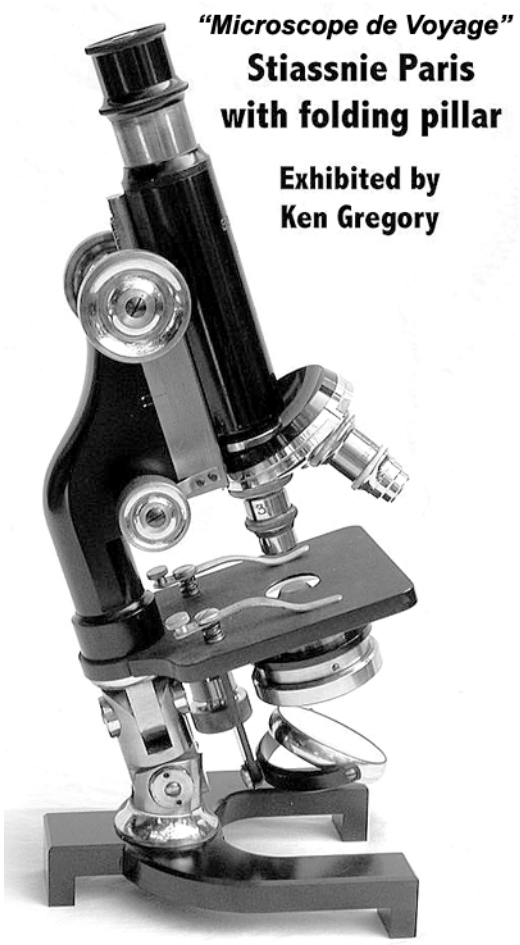
Stuart Warter exhibited a very nice portable Bausch & Lomb folding and dissecting microscope, which was manufactured ca.1894. This particular instrument was made between 1880 and 1896. The microscope folds and is stored in a portable 6" x 6" hardwood case. Included are two lenses with vulcanite carriers. It also features a concave mirror which, when reversed, has a diffuse white disc for use with solar illumination. Both of the original hand rests were still with this instrument.

Stuart also showed a very interesting photograph of a very rare "simple microscope" which he re-

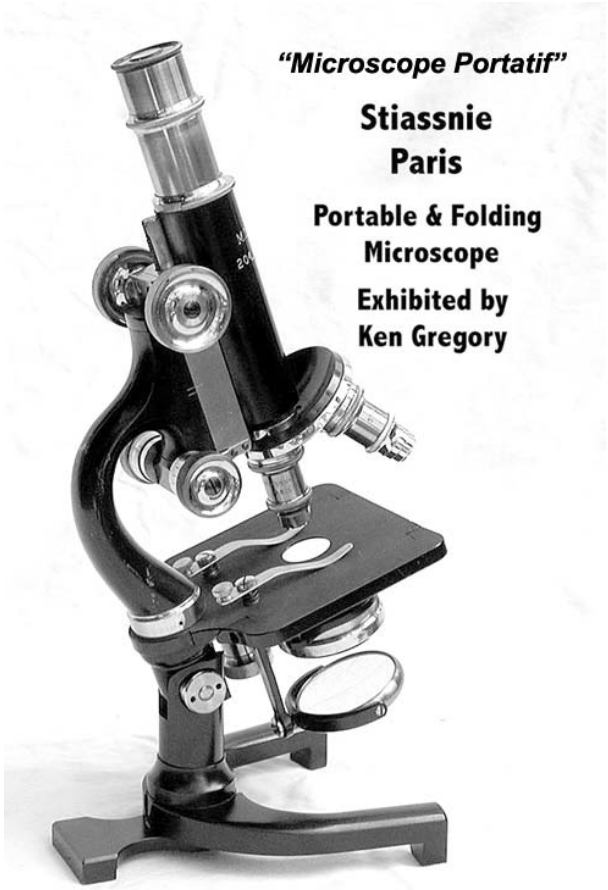


cently obtained through eBay. It is made of ivory and is about 3" high. This type of small instrument was often called a "Simple Botanical" microscope or a "Flea Glass". It is believed to have been made ca. 1700. A similar instrument is illustrated in the *Collection Nachet*, edited by Alain Brieux, Paris (reprint, 1976), item No.6.

Ken Gregory's exhibit was a continuation of his wonderful Stiassnie collection; Ken showed two Stiassnie folding/traveling microscopes. One had been shown before and is similar to an earlier all-brass example exhibited by Alan deHaas at a previous meeting. The first has a swiveling pillar, allowing the foot to fold (rotating to the side). Ken's scope is black enameled with lacquered brass knobs and pillar. Alan's is an all-brass finish. Three objectives and three eyepieces came with the scope, all stored in a fine hardwood case. The second stand was designed to fold up in a more conventional manner than the one just described. The base has a swiveling heel and scissor-type folding foot. The edges of the stage fold up, decreasing the width even further. Included with this stand were three objectives and two eyepieces and an all brass attachable mechanical stage. Both of

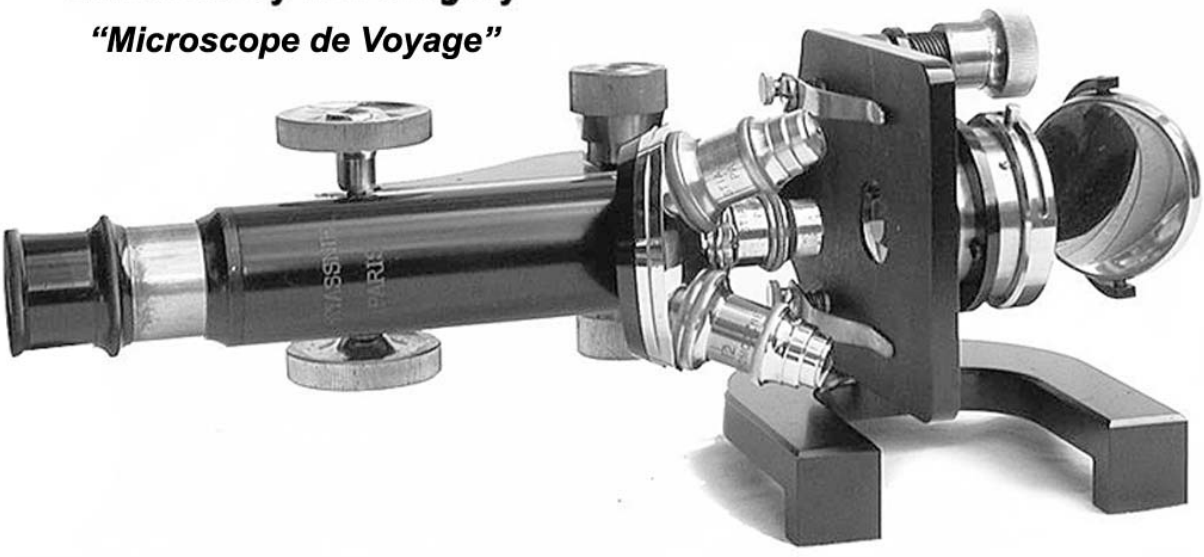


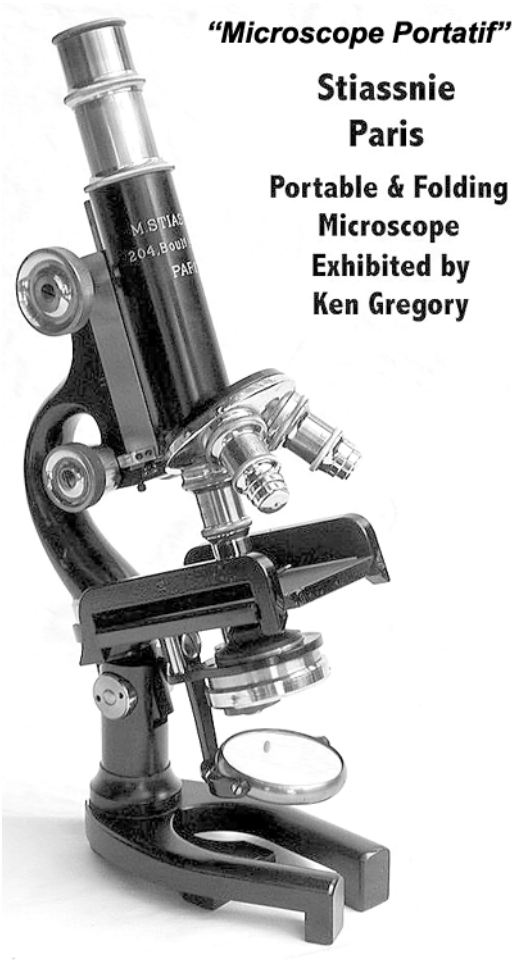
"Microscope de Voyage"
Stiassnie Paris
with folding pillar
Exhibited by
Ken Gregory



"Microscope Portatif"
Stiassnie
Paris
Portable & Folding
Microscope
Exhibited by
Ken Gregory

Stiassnie Paris
In the Folded position
Exhibited by Ken Gregory
"Microscope de Voyage"





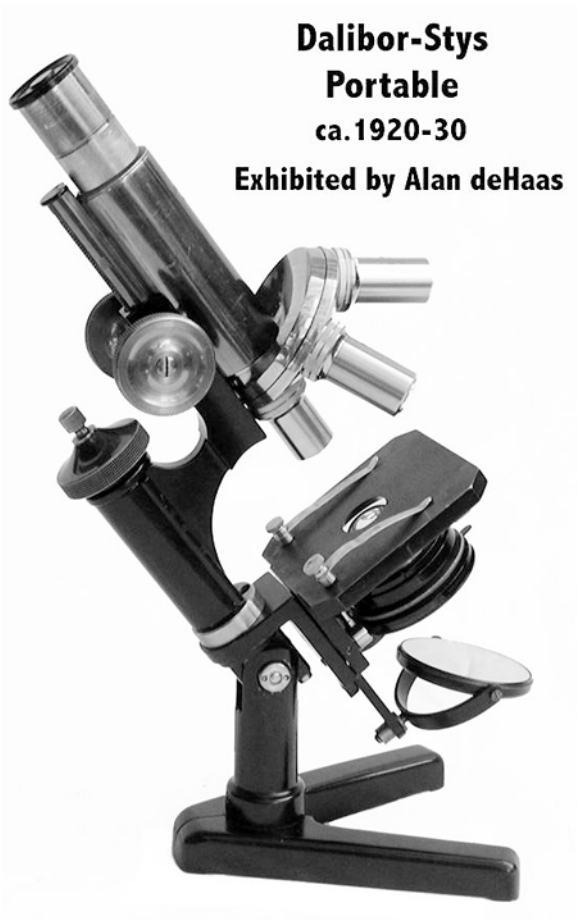
these Stiassnie microscopes have unusual spring loaded stage-clips, unique to this manufacturer. The portable case for this microscope is made of wood covered with black cloth. An interesting final point is that, when carrying this case by the handle, the microscope is transported in an upside down position. Striassnie made several variations on this theme.

John deHaas exhibited an excellent monocular pre-war Reichert stand, c. 1920, which he had restored. This microscope is black and chrome and in good condition, but with no case. The heel of the horseshoe foot bears no serial number, atypical for Reichert, though there is no evidence of such having been effaced. Also, the style of the stand connotes "brass and black", but the fittings are bright nickel.

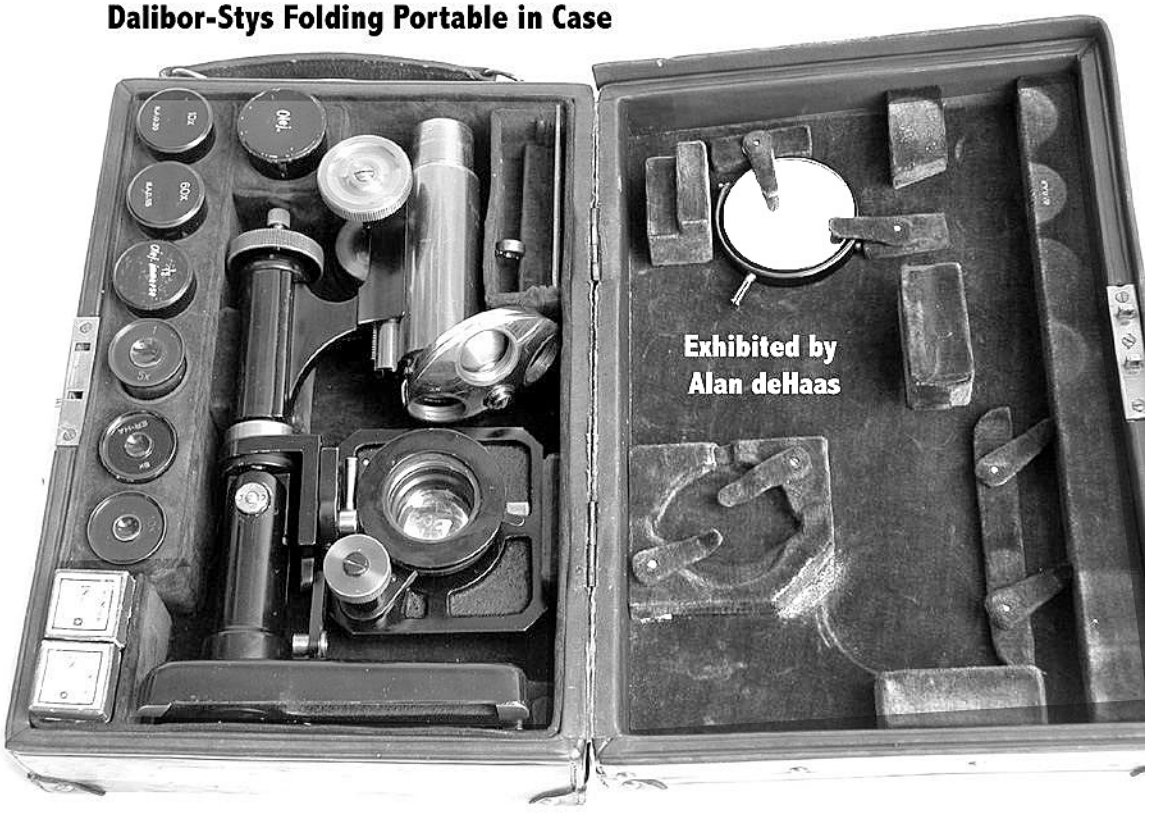
Bill Hudson exhibited a 10X chrome-finished dispersion objective with a wheel of stops. One of the primary uses for a dispersion objective is the study of fibers and the identification of asbestos, at which time it is used in conjunction with polarizers. Much of the dispersion equipment available today is distributed by McCrone of Chicago.

Gaylord Moss described his recent visit to the Cerritos Library & Entertainment Center, which he highly recommended. There followed a general discussion on this subject. This Library was, for the most part, financed by private funds and represents very progressive architecture and interior design. **Pete Teti** also talked about the Brand Library.

Alan deHaas talked about a very rare portable microscope from Prague with the signature of "*Prague Dalibur Stys*." It was probably made in the 1920's and remains in very good condition. The stand features the usual folding foot and swivel stage which turns 90 degrees for storage in the case. Accessories include a small box of cover glasses and the original tiny oil bottle, still in its spring-loaded storage can. Included are two of the original nickel objectives as well as two Wetzlar objectives, the 10X objective is an apochromat. All three of the original eyepieces are still present. Everything is stored in a magazine style case witch is covered in leather.

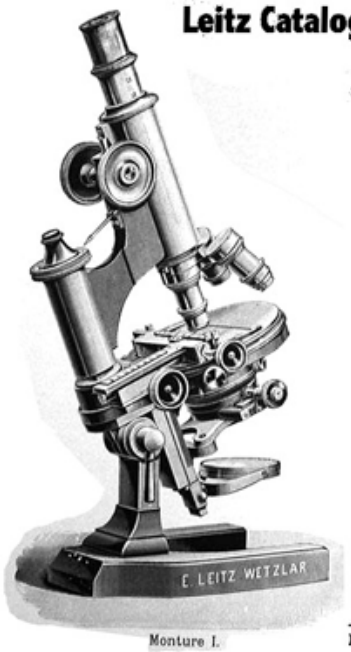


Dalibor-Stys Folding Portable in Case



Leitz Catalog No.42 (1906)

Leitz Catalogue No.36 (1896)



Monture I.

Monture I.

No.

1. **Grand microscope**, inclinant, charnière à levier, platine ronde et tournante pouvant être centrée. Mécanisme à pignon et à crémaillère pour la mise au point des objectifs; dit à vis micrométrique pour la mise exacte au foyer avec divisions sur le pourtour (une division = $^1/_{100}$ de mm), tube à tirage portant des divisions millimétrique sur le côté.

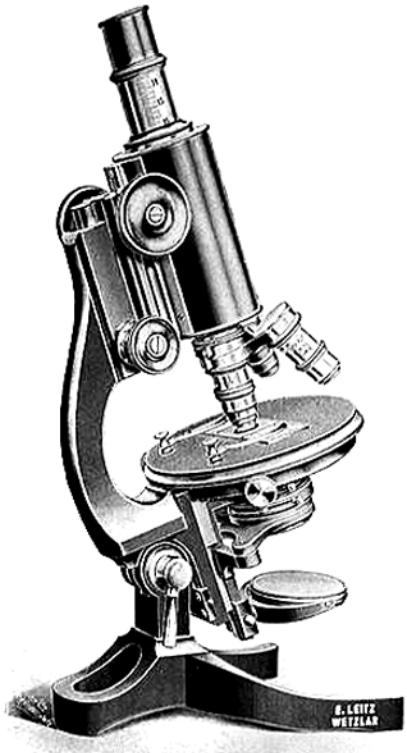
Grand appareil d'éclairage d'Abbe, se montant et se descendant par pignon et crémaillère; diaphragme-iris à mouvement horizontal. En pesant sur un bouton, on abaisse le condenseur qui est fixé d'un côté à une charnière et le sort de l'appareil d'éclairage; on peut alors employer le diaphragme-iris à cylindre, qui s'ouvre et se ferme au moyen d'un levier. (Voir figure à la page suivante.)

Platine à chariot mobile No. 100, s'adapte à la platine du microscope par une petite tige métallique et par une vis et se fixe ainsi toujours exactement au même point. Pour l'enlever, il suffit de desserrer la vis. (Fig. page 58.)

Révolver à 3 objectifs.
Nouvel oculaire à dessiner No. 80 (fig. page 49).
Grand appareil de polarisation No. 101.
Oculaire micrométrique No. 62.
Micromètre-objectif No. 67.
Instrument pour mesurer l'épaisseur des lamelles.
Lames et lamelles.
Objectifs achromatiques 1, 2, 3, 4, 5, 6, 7, 8, immersions à huile $^1/_{12}$ $^1/_{18}$ $^1/_{18}$ avec couv. num. de 1,30.
Oculaires 0, I, II, III, IV, V.
Grossissements de 15—1500 . . . . . 1250.—

Monture avec appareil d'éclairage d'Abbe et diaphragme-iris à cylindre, révolver à 3 objectifs et platine à chariot No. 100 . . . . . 438.—

ERNEST LEITZ, fabrique d'instruments d'optique, WETZLAR.



Microscope universel - Monture A

No. 42.

Microscopes

et

Appareils Accessoires

Ernest Leitz

Fabrique d'instruments d'optique

Wetzlar

Fondée par C. Kellner en 1850

Succursales:

Berlin N.W.	Francfort s. M.	St. Petersbourg	Londres W.
Luisenstrasse 45.	Neue Mainzerstr. 21.	Woskressenski 11.	9—15 Oxford Street

New-York	Chicago
30 East 18th Str.	32—38 Clark Str.

Dépots:

à Paris: chez M. M. E. Cogit & Co., Boulevard St. Michel 36.
à Bruxelles: chez Mr. A. Fisch, rue de la Madeleine 70.
à Buenos-Aires: M. M. Soldati, Craveri, Tagliabue & Co., Calle Defensa 215.

Représentants:

à Genève: M. M. H. Finck & Co., rue du Mont Blanc.
Mr. E. Kälberer, Rond-Point de Plainpalais 6.
à Lausanne: Mr. E. Gautschy, opticien.

No. 36.

MICROSCOPES

ERNEST LEITZ

Fabrique d'instruments d'optique

WETZLAR.

Fondée par C. Kellner en 1850.

Succursales:

BERLIN NW,	NEW YORK,
Luisenstrasse 29.	411 W. 59th Str.

Dépôts:

à PARIS, chez Mrs E. Cogit & Co, 49 Boulevard St Michel.
à BRUXELLES, chez Mr Fisch, 70 rue de la Madeleine.


1898

INSTRUMENTS DE MICROGRAPHIE

CONSTRUITS PAR

NACHET & FILS

FOURNISSEURS

DES UNIVERSITÉS FRANÇAISES ET ÉTRANGÈRES
ET DES HOPITAUX CIVILS ET MILITAIRES

RÉCOMPENSES OBTENUES PAR LA MAISON :

35 Médailles
4 Grands Prix et Diplômes d'honneur
Officier de la Légion d'honneur
Paris 1889, Membre du Jury, hors concours

ANCIENNE MAISON

HARTNACK & PRAZMOWSKI

BÉZU, HAUSSER & Cie, Sse

ACTUELLEMENT RÉUNIE A LA MAISON NACHET

MAGASINS ET ATELIERS

17, Rue Saint-Séverin, 17

PRÈS LE BOULEVARD SAINT-MICHEL

PARIS

ADRESSE TÉLÉGRAPHIQUE : MICROSCOPE-PARIS

For Sale by Alan deHaas

CATALOGUE DESCRIPTIF

INSTRUMENTS DE MICROGRAPHIE

PARIS

NACHET & FILS

17, *rue Saint-Séverin*

MAI 1872

Prix : 1 franc

Nachet Catalgue (1872)

For Sale by Alan deHaas

Alan also exhibited a small Leitz simple dissecting microscope c.1948-50. The overall appearance is chrome and black with the original hand rests still present. Alan also offered for sale a number of very rare Microscope Catalogues which are: Early Leitz Catalogue No.36 (1896), Leitz Catalogue No.42 (1906), Nachet Catalogue (1872), and a second large Nachet Catalogue of 1898 (see Title Page illustrations).

From Nachet Catalog
1898

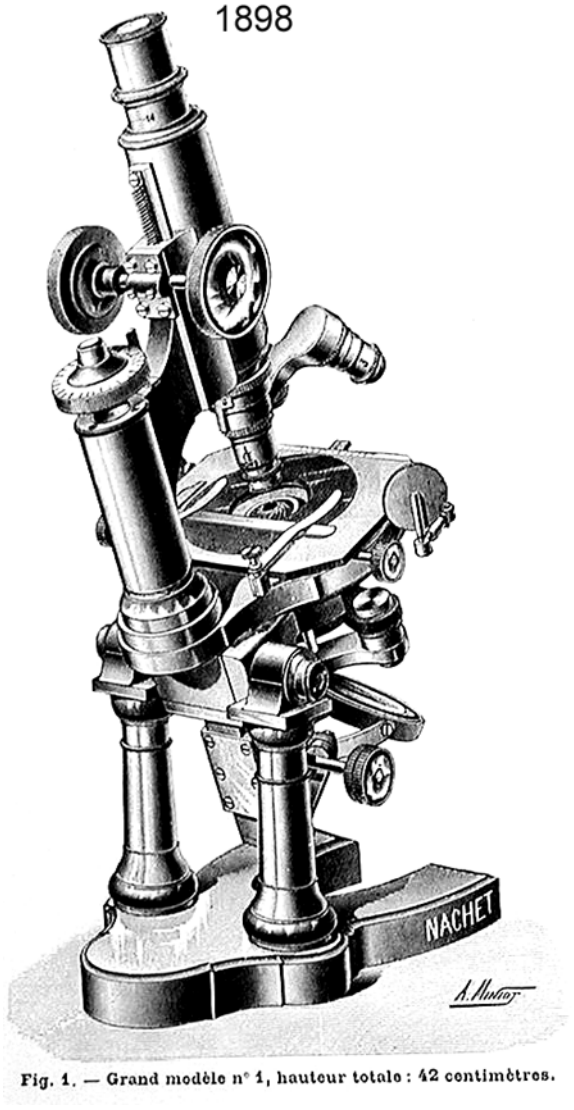
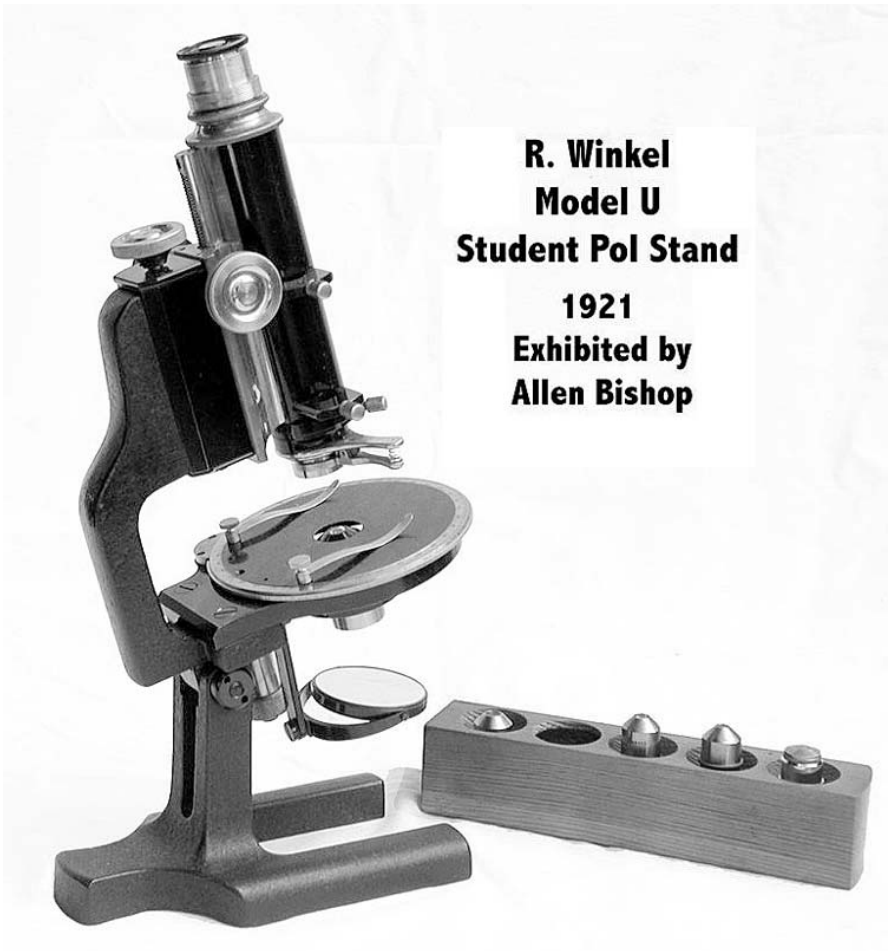
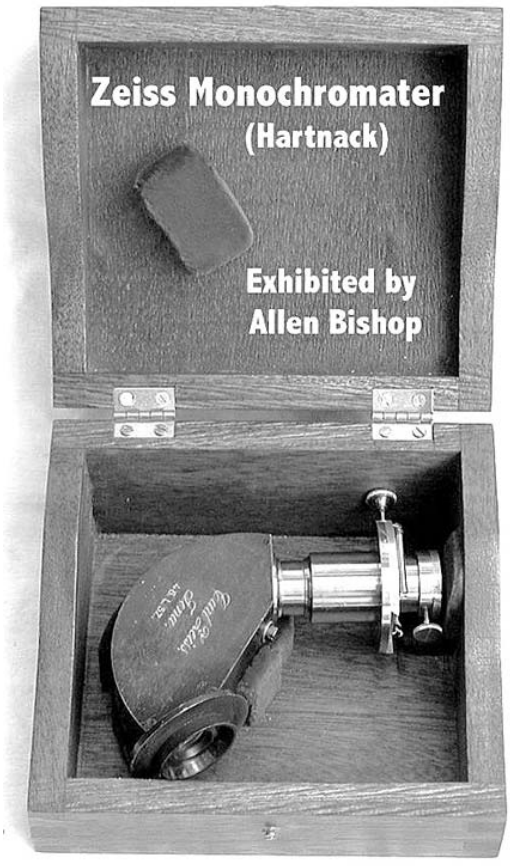


Fig. 1. — Grand modèle n° 1, hauteur totale : 42 centimètres.

Allen Bishop exhibited a very rare monochromator by Zeiss, c.1890 (after the pattern of Hartnack). This is mounted on the microscope substage and was used as an illuminating apparatus for monochromatic light. It allows the spectrum to be shifted while inspecting a specimen


R. Winkel
Model U
Student Pol Stand
1921
Exhibited by
Allen Bishop


Zeiss Monochromater
(Hartnack)
Exhibited by
Allen Bishop


Zeiss Hand Spectroscopes
(Allen Bishop)
SPECTROSKOP
C. ZEISS JENA

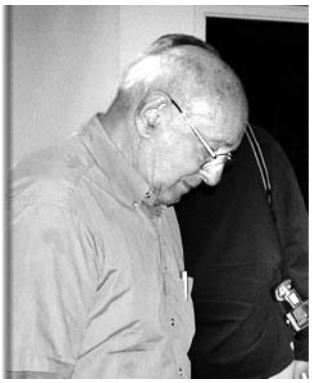
under specific colors of light. It may have been used for dye studies or iron content in the blood. The Zeiss catalogue describes it as "an illuminating apparatus for producing spectroscopically decomposed light". It is used to illuminate a portion of an object in the field of view with a single pure spectral color, or to observe the effect of the whole spectrum upon the subject, or to study the effects of polarized light on a wavelength by wavelength basis. It is stored in a small case (probably not the original) and the attachment collar is missing.

Allen also exhibited two examples of Zeiss hand spectroscopes, also known as direct vision spectroscopes, the dates were said to be from 1910 and the direct vision scale example at 1925. Zeiss continued to offer the version with scale until circa 1986, by which time the dealer cost was $1385.^{00}$! He also exhibited a Winkel student level polarizing microscope, identified as the Model "U". We were told that the polarizer was missing but could be replaced with a modern disc of the proper size. It featured a full set of centering objectives and was manufactured in 1921. The complete outfit is stored in its original pine box with magnification / delivery date card.

After the usual show and tell, photographs were taken of all the items on exhibit. Following adjournment the group retired to the restaurant for a needed lunch and good fellowship. Finally we would indeed like to thank Izzy and his wife for their gracious hospitality.

Been There, Done That - A Touch With The Past

by Dave Hirsch



Before launching into the pseudo-scientific ramblings to follow, let us "get something perfectly straight". In the past unlamented existence of our Society, woe betide the member who spoke of, or showed anything unmicroscopical. Regardless, members of a rebellious nature showed up with stuff like Kentucky rifles, paraboloid reflectors, Wimshurst electrostatic generators and kaleidoscopes. Once, a discourse on the latter was abruptly terminated with the admonition that: "We are a microscopical society". The retort that the kaleidoscope was based on sound optical principles didn't wash. An occasional side trip into realms that are not perfectly microscopical has not contaminated us. If anything, such diversions have been educational, and have broadened our technological horizons. Our love affair with things microscopical has not been diluted or infringed upon. Now, back to the story.

Over time, the science of optics in concert with developments in material and manufacturing technology has brought about remarkable changes in all categories of optically oriented scientific instrumentation. These changes came about because far-thinking men viewed such hardware as having practical applications far beyond their use as curiosities for the amusement of the public. Today, people who utilize contemporary instrumentation are principally results-oriented. Their instrument of choice, the micro-

scope for example, is a precision device which is designed to magnify the image of a specimen in true proportion and coloration. Anything less is not acceptable.

Let's regress to the days of yesteryear; the 17th Century, say. By that time, combinations of primitively ground lenses had been crudely mounted to enable the populace to cringe at the sight of a living flea under magnification, or to gaze in wonder at the sight of craters on the moon. Men such as Van Leeuwenhoek and Galileo probed into dimensions theretofore held beyond the ken of mankind. Such probing, especially by the likes of Galileo brought charges of heresy from Mother Church through machinations by so called learned men These pathetic creatures could not, nay, would not acknowledge the tenets of natural philosophy. Early microscopes and telescopes consisted mainly of curved pieces of glass encased in crude cardboard or wooden tubes. Then, something positive happened. The credo of the 'better mousetrap' manifested itself and notable breakthroughs occurred in metalworking and metallurgy. Brass could be formed into various configurations by rolling, forging, casting and machining. Instrument making progressed when artisans developed techniques for producing metal tubing, especially from brass. The manufacture of (sic.) seamless tubing ushered in the Golden Age of instrument making, leading to fabrication of functional and aesthetically pleasing scientific artifacts of the period. Many of these early instruments exist today and may be seen in museums and private collections.

The trinity of form, fit and function were not as significant with early scientific instruments as they are today. In the days of yore, artistic license prevailed. Instrumentation featured curlicues, floral and faunal decorations and other embellishments which were pleasing to the eye but contributed little or nothing to the actual function of the instrument. Furthermore, the state of the art of instrument making was in its infancy, but the artisans were slowly gathering technical experience and scientific knowledge. Progress would not be denied! The inception and development of the physical sciences including physics and chemistry served as springboards for optical theory, mechanical design and manufacturing technology. Gradually, the need for functional hardware asserted itself and the aesthetic curlicues and flourishes of early instruments were phased out.

Shifting to the present, the needs of metallurgists, physicists, pathologists and others in the scientific milieu mandate instrumentation to accurately detect, record, qualify and quantify scientific phenomena. Meanwhile, if one should be beset by a flare-up of nostalgia, a 'romp' through catalogs and coffee table books crammed with pretty pictures of ancient scientific instruments should bring relief.

Early microscopes and telescopes met the need (albeit crudely) to magnify minuscule objects and to make distant terrestrial and celestial bodies appear closer. Other instrumentation relating to a wide range of physical phenomena came into being. Spectrometers, for example, evolved from the triangular prism which dispersed light into basic colors comprising the spectrum. Coincidentally, parlor toys based on scientific principles both amused and amazed the 'in' crowd of the past centuries. The kaleidoscope which appeared in the early 19th Century was a favorite toy, provoking gushes of amazement from Proper Victorian ladies and gents who marveled at the ever changing geometrical patterns appearing in the kaleidoscope.

It is conjectural whether Antoni Leeuwenhoek entertained notions regarding commercial applications for his primitive 'single lens' microscope. Others may have been more business oriented as they sought to profit by satisfying needs, both real and fancied. As a result, a gargantuan amount of goods flooded the market. The needs of the past having been satisfied to some degree, left masses of various goods rotting or corroding in land fills. At the same time, rescued or preserved objects of virtue which remained have achieved

great value and are found in attics, musea, personal collections and other sanctuaries.

With the preliminaries out of the way, let's get to the main event. In prior paragraphs, the term: 'kaleidoscope' popped up. Originally created by David Brewster in 1814 as a parlor toy, the kaleidoscope, like poo-poo cushions and exploding cigars refuses to go away. Computer savvy persons can log onto the Internet and access a search engine such as Google. Type in 'kaleidoscopes' and note the vast number of web sites devoted to kaleidoscopes, thus confirming the continuing popularity of Brewsters' tshotchke. Somewhere in the dictionary there exists the definition of objects which have a specific function but are packaged to resemble totally unrelated items. A cigarette lighter made to look like a small caliber pistol comes within that definition. Another object would be a kaleidoscope in the guise of a 16th Century and beyond scientific instrument. The 'Panoramic Teleidoscope' shown in fig. 1 is such an artifact. The tripod support suggests a Culpeper microscope, but the resemblance ends there.

Figure 1: *The "Culpepper" Panoramic Teleidoscope*

Carrying such a project to completion results in yet another faux 'scientific instrument', three things are necessary to get the ball rolling: First, books, catalogs and other references replete with pictures of old scientific instruments. Second; Odds and ends of materials such as brass and various woods and finally, the motivation and will to carry on. The latter involves a modicum of tact and diplomacy when a spouse is in the picture. How do we placate the Missus, considering the household chores which will be put on hold while our 'Ultimate Creation' is still in the gestation stage? Be advised that the project per se is child's play in comparison to contending with the wrath and blandishments of the little woman. Eschewing feelings of guilt, we ' bite the bullet', pick up our tee square and bow compass and join the fray.

Our objective (once again, not a pun), is to create another kaleidoscope system to resemble an 'antique scientific instrument'. By definition, the simplest form of kaleidoscope is: "An instrument containing loose bits of colored glass between two flat plates and two or more plane mirrors so placed that changes in position of the bits of glass are reflected in an endless variety of patterns". The multiplicity of images changes when the angle between the mirrors is changed. In addition to bits of glass, other objects such as tiny shells, miniature fasteners, etc. may be included in the capsule. When the capsule is shaken or rotated, the enclosed objects shift position. The arrangement of mirrors reflects the objects as multiple geometric images. The teleidoscope uses the same mirror arrangement as the kaleidoscope but the capsule containing the glass chips and other items is replaced by a glass sphere or hemisphere. For this project an aspheric lens which deviates slightly from the spherical profile is used in the teleidoscope head. When the

teleidoscope head is rotated, the attached adjustable mirror "sees" a changing visual aspect which, as with the kaleidoscope, contributes to the formation of multiple geometrically similar images

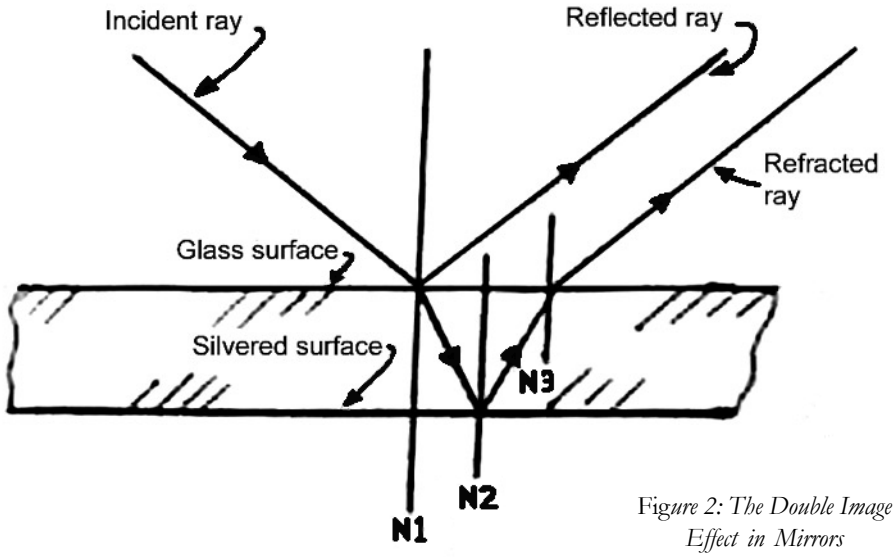


Figure 2: *The Double Image Effect in Mirrors*

Let's digress for a moment and discuss mirrors. Ideally, a first-surface mirror on which the reflection occurs at the surface is recommended for kaleidoscopes. Such mirrors may be made of polished metal, opaque plastic or flat glass with a metalized aluminum coating which comprises the reflecting surface. A plastic mirror was used here. Mirrors with silvering on the far side are not recommended because such mirrors are subject to double reflection. This phenomenon is shown in fig. 2. In such a mirror, the incident light ray strikes the mirror surface and is reflected. The ray then passes through the glass and slows down in the denser medium (is refracted), bending toward the normal before striking the silvering. It then reflects from the silvering to the glass surface and speeds up (is refracted) in the air away from the normal. The eye then perceives two parallel rays. The separation of the two rays will also be proportional to the thickness of the glass; the medium with the higher refractive index,

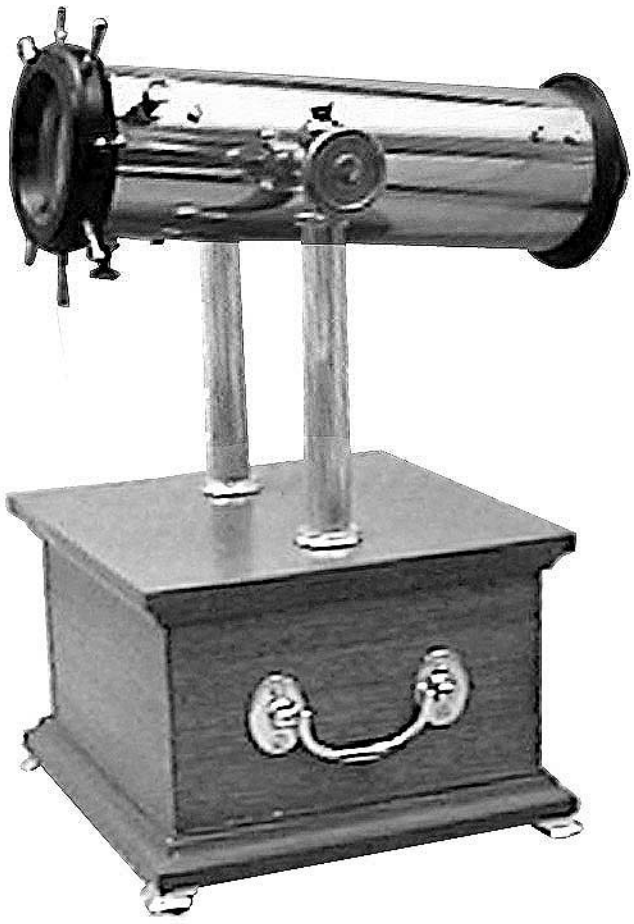


Figure 3: *A Pseudo Scientific Instrument*

What then, will serve as our inspiration? We pore through those 'purty' pictures in auction catalogs put out by firms such as Christies and Sotheby's, plus a plethora of coffee table books on ancient scientific instruments. Our interest is piqued by table-top terrestrial telescopes made by the likes of Short and Nairne. Availing ourselves freely of artistic license, the pseudo scientific instrument shown in fig. 3 came into being. What appears to be a telescope is in reality, a kaleidoscope/teleidoscope

hybrid. Would this 'scientific instrument' be at home among bona fide instruments on display in prestigious surroundings such as the magnificent collections in the British .Museum and similar institutions? Or better yet, what sort of bids would it draw on eBay?

Four years of my youth were spent as a not too willing 'employee' of the US government. I learned about saluting, short arm inspections, how to stand at attention and other things which would prove useful in civilian life. Everything was done in a military manner and 'by the numbers'. The latter became a creative attribute when employed in design and fabrication. A minimum number of sketches defined the configuration and a bill of material listed and described the parts to be implemented. Despite expletive outbursts, cut and splinter pierced fingers; the ingestion of wood and metal particles and occasional spousal complaints, the project was completed.

Now, for the boring details. The base and drawer are made of Honduras mahogany and given a dark finish. The brass hardware, with the exception of the feet and bails was hand made. The pair of support columns are fluted brass tubing with turned end caps. A pair of knurled knobs secures the body tube which, in turn, can be elevated and locked into position. Both the viewing end and the exit head assemblies were turned from solid maple and finished in a dark hue. Separate head assemblies were fabricated for the kaleidoscope and teleidoscope functions. Each assembly was provided with eight uniformly spaced handles. The handles present a 'ships wheel' appearance and serve to facilitate rotation of the head assemblies. The three-inch diameter body tube is brass. The exit end of the tube as shown in fig. 4 has three spring-loaded adjusting knobs spaced 120 degrees apart The screws retain the respective head assemblies during rotation. Also shown, is the end view of the two mirrors which are set at 45 degrees apart.

The teleidoscope head assembly is stored in the accessory drawer as shown in fig.5. Included with

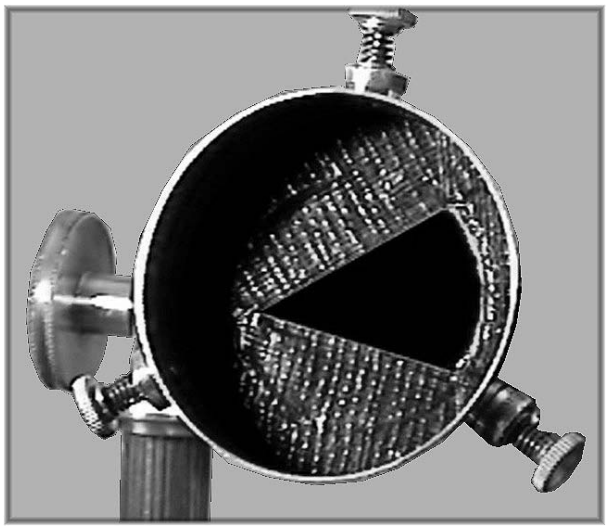


Figure 4: *The Exit End of the Body Tube*

the head assembly is the adjustable plano-concave mirror, cannibalized from a microscope. The mirror serves to reflect images from the environment into the kaleidoscope mirrors. The drawer also holds fittings for the mirror and a bottle of mixed objects for the kaleidoscope capsule.

A frontal view of the kaleidoscope head assembly with the capsule in place is shown in fig. 6. The container portion of the capsule is transparent. The translucent lid shown in the figure is removable for access to the contents of the capsule. Fig.7 shows the instrument with the teleidoscope head assembly in place. In use, the plano-concave mirror is adjusted to reflect a por-

Figure 5: *The Accessory Drawer*

tion of the environment. When the head assembly is rotated, the images reflected into the kaleidoscope mirrors appear as constantly changing multiple images.

This finished project combined a kaleidoscope and a teleidoscope in a single instrument. It provided both interesting and a challenging hands-on experience in the design and fabrication of scientific instruments in a format suggestive of instruments produced by makers of the past. What will be our next project?

□

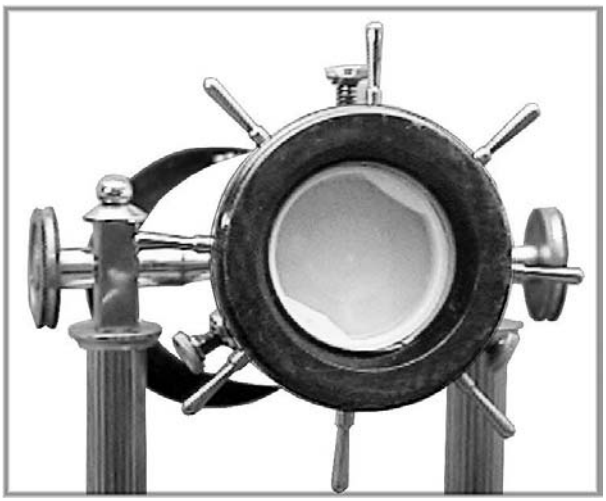


Figure 6: *Front view showing Kaleidoscope Capsule In Place*

Figure 7: *The Finished Instrument*

ANNUAL MSSC EXHIBITION MEETING

Reported by Leonie Fedel,
Meeting photos by George G. Vitt Jr.

7:00pm 20th November 2002 at New Roads School.

MSSC Exhibition Meeting - November 2002

Jim Solliday opened the meeting stating he was very pleased with all the exhibits present at tonight's annual exhibition meeting. He explained that there would be no meeting next month, instead the Society would gather for its annual Holiday Banquet at Sabors Restaurant known for its Southern Latin flavors on Sunday 8th December 2002. Jim confirmed that there will still be a monthly workshop on Saturday 7th December 2002 at Ken Gregory's residence which will be a silent auction of microscopes, accessories and numerous books from Jim Fidiam's estate, who passed away in early November.

Jim also stated how grateful Majorie and Karen Legel had been at the attendance and support of twelve Society members at the funeral of their father, Gary Legel, on Saturday 16th November 2002.

This was the Society's annual exhibition meeting. In all, fourteen members brought exhibits.

1) Peter Fischer exhibited a Wild M400 'Photomakroskop' setup with slides of fruit sections.


Exhibit 1: Peter Fischer

MSSC Exhibition Meeting - November 2002

2) Jim Clark displayed a rock section using a Spencer No 42 Pol Microscope.

Exhibit 2: Jim Clark

3) Alan deHaas displayed a diatom using a variant of critical illumination. He used an eyepiece fed by a fiber optic bundle as the main illuminant condenser thereby providing an achromatic illuminant to the main achromatic condenser. The result was a 0.45na test diatom with all parts visible with a 0.24 illuminating cone.

Exhibit 3: Alan deHaas

4) John deHaas exhibited a selection of micromounts using a TV camera, monitor and macro lens.

Exhibit 4: John deHaas

5) Ed Jones' exhibit was entitled "Mysteries from the Miocene Era" and was a collection of '3D bugs'. These were bugs fossilized in silica which he had extracted from field-collected nodules by dissolving them in acid. Several intact bugs were shown as well as a specimen preserved in amber.

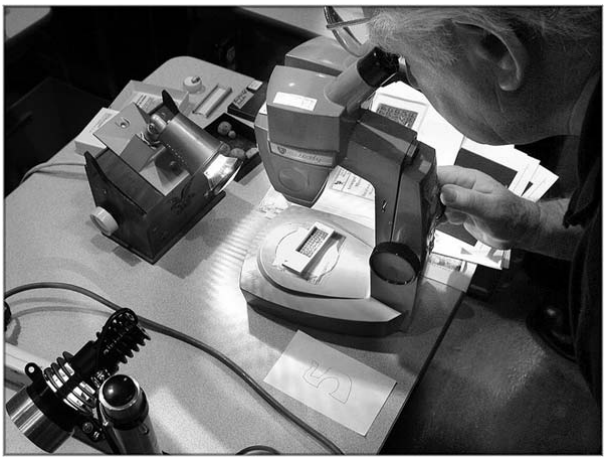


Exhibit 5: Ed Jones

6) Ellen Cohen displayed a selection of opals from around the world and used illumination to highlight their diverse colors. Included were some black opals from Lighting Ridge in New South Wales, Australia. She also exhibited an elongated fossilized bone and a fossilized clam shell.

Exhibit 6: Ellen Cohen

7) Stuart Warter exhibited a collection of prisms and demonstrated Abraham's achromatic lenticular prism.

Exhibit 7: Stuart Warter

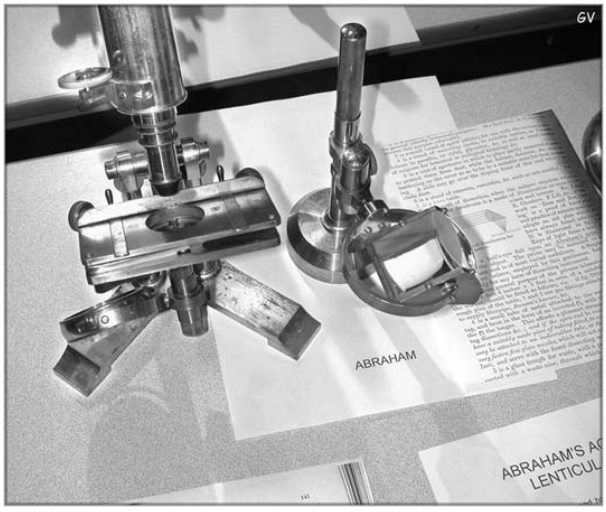


Exhibit 8: Ken Gregory

8) Ken Gregory exhibited a collection of stereophotographs including 3D pictures with viewers and the cameras which were used to produce them He also displayed a microscope stage made especially for producing stereo pair drawings of specimens.

9) Pierrino Mascarino exhibited a giant live amoeba he named 'Sebastiano'.

Exhibit 9: Pierrino Mascarino

10) Leon Stabinsky exhibited a collection of photometry equipment including an early Wheatstone Photometer and two photometers by Watkins (one from 1890, and the other called the beemeter). He also demonstrated a Bunsen Photometer and a Flicker Photometer.

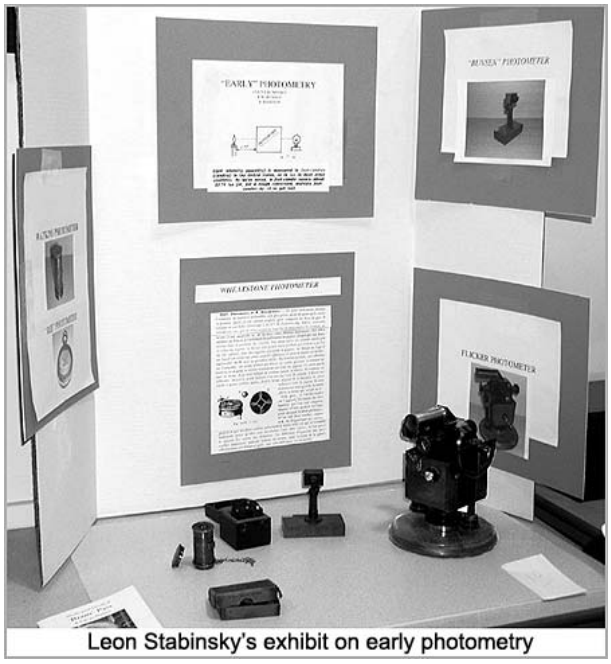


Exhibit 10: Leon Stabinsky

11) Jim Solliday used an Armstrong & Brother microscope to show the image of a girl as seen through the eye of a beetle.

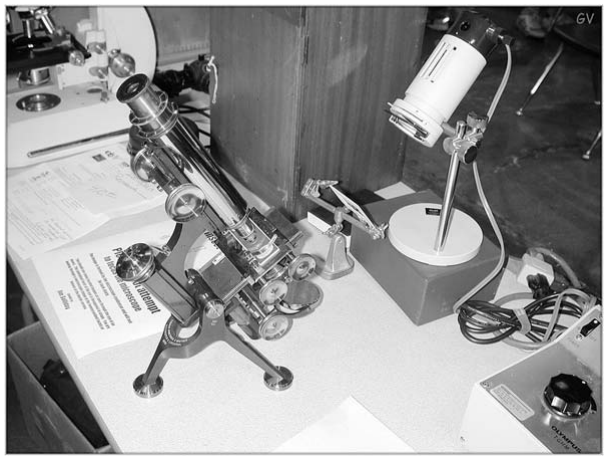


Exhibit 11: Jim Solliday

12) John Fedel used an Olympus BHS Microscope with an Olympus MS Plan 20 long-working-distance objective to display an eprom and a transistor.

Exhibit 12: John Fedel

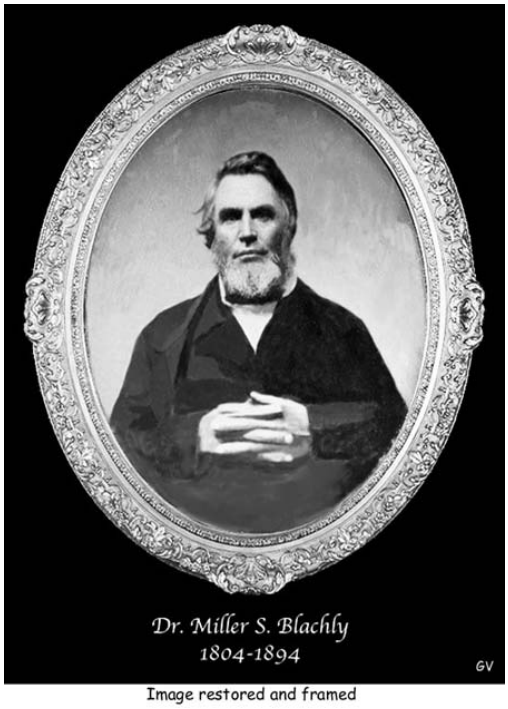


Image restored and framed

13) Fred Khan exhibited a collection of 1830's medical tools which had been owned and used by his great-great grandfather Dr. Miller Blackly.

14) Nirvan Mullick exhibited four microminiature sculptures of seahorses which he had carved from various types of clay (no photo).

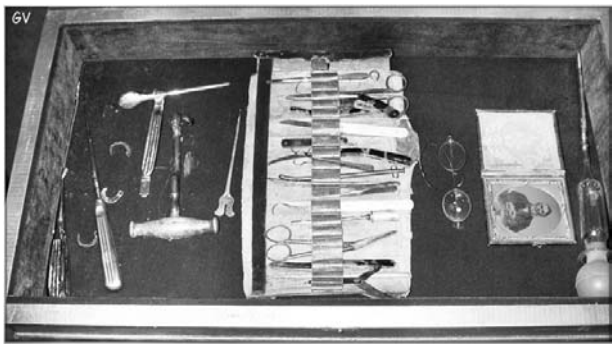


Exhibit 13: Fred Khan

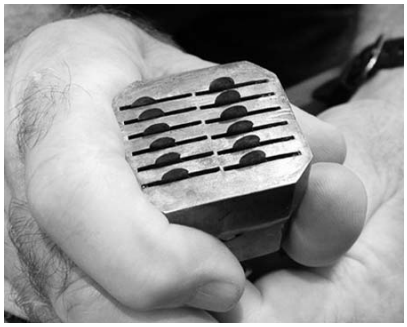


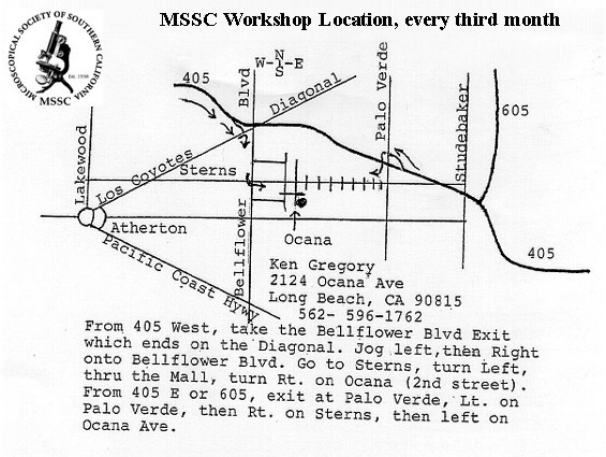
Exhibit 14: Nirvan Mullick

After the members had voted, it was decided that Alan deHaas should win best exhibit and a year's free membership to the Society. Leon Stabinsky was selected as the runner-up and won a set of brass balance weights. □

Saturday Workshop Announcement

9:00am 7th December 2002
At the home of Ken Gregory

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



This workshop will be held at Ken Gregory's. Activities will start at 9:00am. This workshop will be a silent auction of microscopes, accessories and numerous books from Jim Fidiam's estate, who passed away in early November. The proceeds will go to Phyllis Fidiam. Please bring your check book or cash on the day to make immediate payment for anything purchased.

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

Jim Solliday (MSSC President). □

No Meeting this Month, Instead the Society's Annual Holiday Banquet

Sunday 8th December 2002
at 3:30-7:00pm
at Sabors Restaurant
Santa Monica

All members are invited to attend the Society's annual Holiday Banquet for a meal and a slide show presentation by Jim Solliday.

Sabors Restaurant is known for its Southern Latin flavors and is located at 3221 Pico Blvd, Santa Monica, CA 90405 just west of Bundy Blvd. Phone: 310 829-3781

The cost will be $18.^{00}$ per person, to be paid on arrival. Dinner will be served at 4pm. Meal choices are chicken, steak or salmon. Dessert is not included so please feel free to bring along something to share. Please contact Pete Teti by 28th November 2002 to confirm your attendance and meal choice. Tel (323) 660-9259 or email tetip@earthlink.net. □

Drawing by Nirvan Mullick

EDITOR'S NOTE

Please send any articles, photos, member profiles, notifications of forthcoming events and website summaries for inclusion in forthcoming journals to me at:

Leonie Fedel
10945 Rose Avenue #209
Los Angeles CA 90034
(310) 839-9881,
email: mssc@attbi.com

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

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

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

INTERNET RESOURCES

Check out the following website, sent in by Jim Solliday. (Leonie Fedel, Editor)

The Micropolitan Museum of microscopic art forms (presented by The Institute for the Promotion of the Less than One Millimeter)
See: www.microscopy-uk.org.uk/micropolitan/index.html

For several centuries artists have depicted the human figure, still-lifes, landscapes or non-figurative motives. One subject has been widely neglected all those years: Micro organisms!

The Micropolitan Museum is finally exhibiting these often overlooked works of art which are only visible with the aid of the microscope. Curator Wim van Egmond has collected the finest microscopic masterpieces nature has ever produced during eons of natural selection and other life-sculpting mechanisms. □