Journal of
THE MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA
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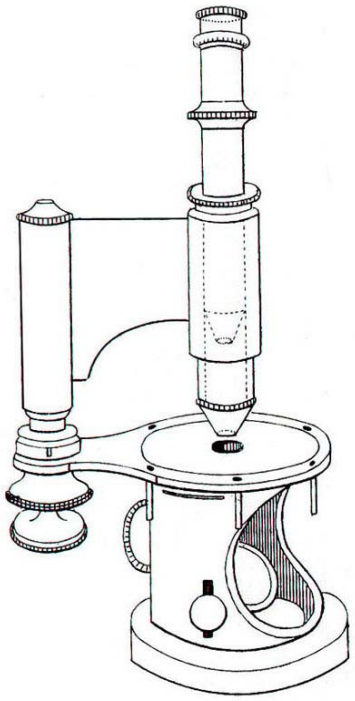
ORIGINS OF THE CONTINENTAL MICROSCOPE

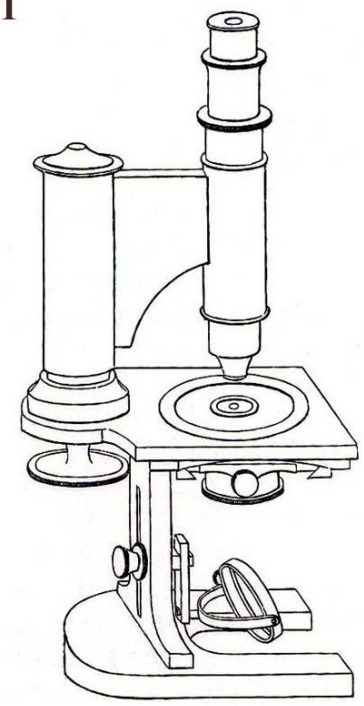
by James D. Solliday

The early gathering of men into scientific societies signaled the beginning of a new age of discovery. Just prior to and in the early years of the 17th century, six critical scientific instruments were invented, the microscope, telescope, thermometer, barometer, air pump and pendulum clock. These new tools provided the means for establishing the scientific method of investigation. This approach to science and the methods used would ultimately have a significant impact on the development of the microscope. This brings to mind the question whether or not the needs of science dictated the evolution of the microscope or did the development of the microscope open new avenues into science?

Plate 1



Straus-Durckheims dissecting microscope, ca.1830



Oberhauser - Hartnack (1848)

Among historians the influence of men like Hooke and Henry Baker on the development of the microscope is well known. However, the influences that contributed to the design of the continental microscope remain somewhat in obscurity. The early development of the microscope both on the Continent and in England continued for the most part much the same. It was not until the first half of the Nineteenth Century that diverging designs emerged. In fact the early designs of the maker Plössl of Vienna were quite large and compared in some respects to the English stands. Important features such as a long tubelength and small stage were quite similar. Curiously, what became the Continental pattern was quite unfavorable if considered as representing an optician's idea of what should be best for a microscope. The eventual popularity and domi-

nance of the short and rather simple Continental design requires an explanation a bit more satisfying then the standard motivation of economics which has so often been put forward.

It would seem reasonable that for an optician to suppress optical advantages in favor of mechanical convenience would likely be at the request of a worker or more precisely a paying client. As the primary users of the Continental pattern were chiefly found among the anatomists, it seems reasonable to look for the original design to be inspired by members of that discipline. It should also be pointed out that the continental pattern endured for a long time, leaving no doubt that it was both successful and popular. The general duration of its reign was from the 1840's into the first quarter of the 1900's. This time period also coincided with our great progress in anatomy and histology.

In order to provide the most original and interesting information on the early development of the continental microscope, I shall rely heavily on the work of a medical doctor whose name was J. B. Nias. Dr. Nias lived in London and published his research into this matter in 1894 (Nias, 1894). But first allow me to review a bit of the information we already know.

According to John Mayall, it was about 1830 when Oberhaeuser introduced his compound dissect-

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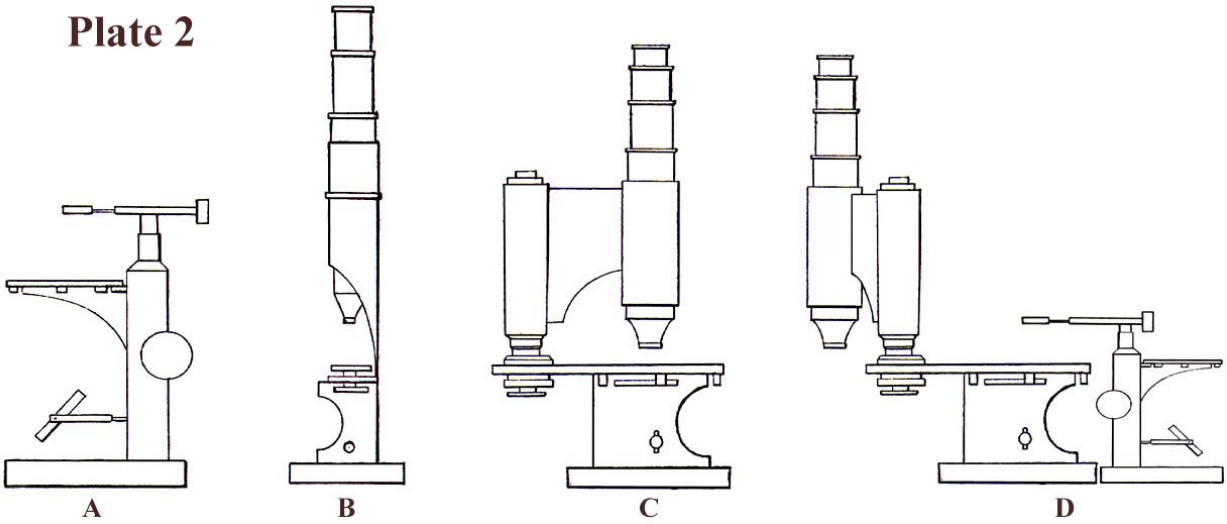
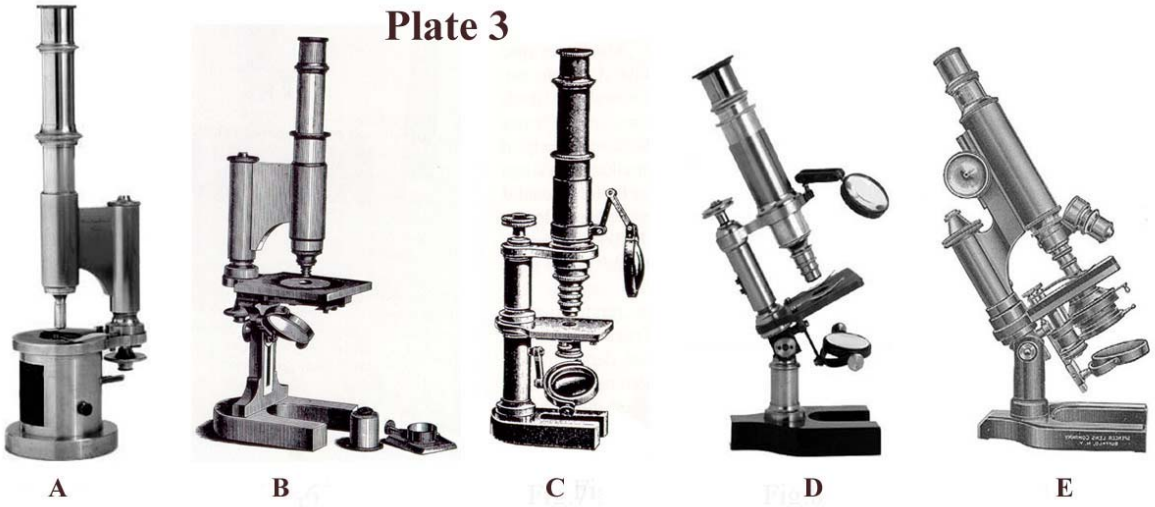
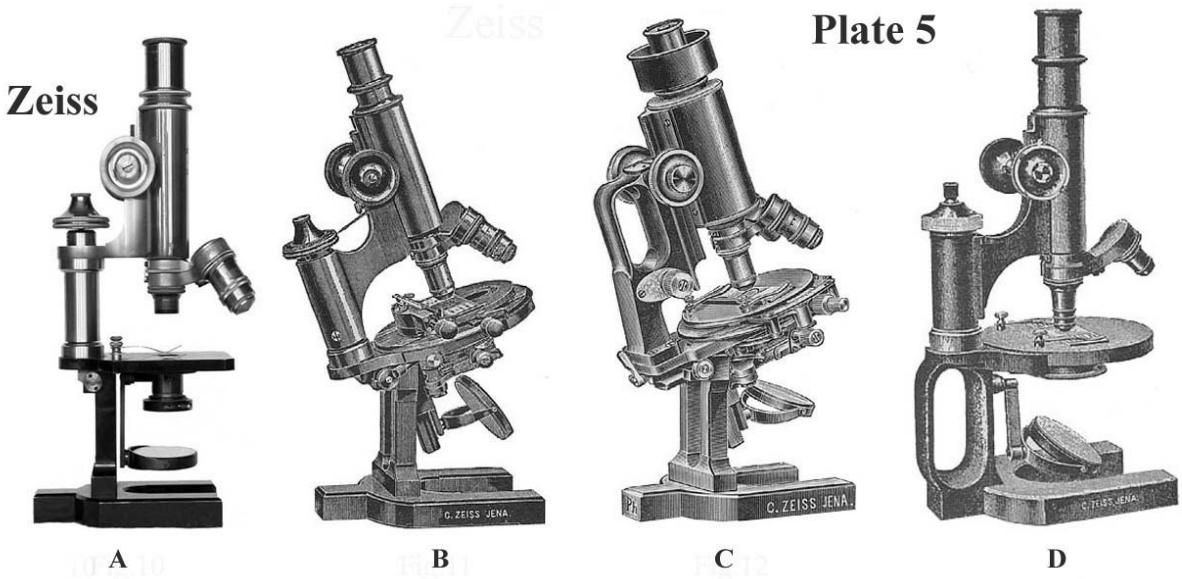


ing microscope (Plate 2-C, Pl.3-A) which incidentally was designed after Frauenhofer's Drum (Pl.2-B). This instrument can best be described as having a Continental body mounted on a drum foot with the fine adjustment located under the limb. At this time Oberhaeuser was partner with Trécourt & Bouquet (Mayall, 1886). The firm manufactured this pattern for a period of about 17 years. Mayall also states that it was Hartnack, (Oberhaeuser's nephew) who substituted the horseshoe foot in place of the drum (Pl.3-B) thus establishing the more familiar form of the Continental pattern (Mayall, 1886). However, Nuttall (1979) says that Oberhaeuser developed the horseshoe foot as early as 1848 (Plate 1). This new type of foot supported a single upright pillar instead of the drum and continued to have the fine adjustment mounted under the limb. It is thought that by 1847 Hartnack was working with Oberhaeuser. Harting (1866) states that from 1848-1850, 236 stands were made and by 1859, 3000 stands of this type were made. Edmund Hartnack (1826-1891) took control of his uncle, G. Oberhaeuser's business in 1860 and changed the name to E. Hartnack. Many of the instruments were signed, *E. Hartnack Sucr. de G. Oberhaeuser, Place Dauphine 21, Paris.* For the next 10 years he operated at this location and by 1870 moved to 39 Waisenstrasse, Potsdam (Berlin), Germany (1870 - ca.1927). The substitution of the horse-shoe foot for the drum-base allowed the use of oblique illumination and the placement of sub-stage apparatus (Pl.3-B). Hartnack was also to have placed the fine adjustment screw at





the top of the limb instead of at the underside (Pl.3-C). Zeiss and Nachet added the heel that extended the base behind the pillar (Pl.3-D, Pl.5-A) making it more appropriate for the inclination joint (Mayall, 1886).

The above remarks by Mayall are considered in the light of instruments signed simply by Oberhaeuser having an inclination joint and a large solid base (Warter collection) similar to one used by Nachet. Also, the fine adjustment screw was placed at the top of the limb by the firm of Oberhaeuser in ca.1853. Again, we do believe Hartnack was working with Oberhaeuser by the late 1840's, long before the partnership began in 1857 and his own business was established in 1860. It seems reasonable to have confidence in Mayall as he actually spent time with Hartnack on his visits to the Continent. Adding more diversity to the development of the Continental microscope there was a solid rectangular form of foot advertised by Chevalier in 1841. This might be considered an intermediate form (Pl. 4) (Nuttall, 1979, p.24). However, there can be very little doubt that it was Hartnack who popularized the horseshoe foot Continental microscope.

Another important maker on the Continent was Camille Sebastian Nachet who began by grinding objectives in the shop of Vincent Chevalier. Once established in his own business, his first instruments were based on the drum type after the models of Oberhauser. He contributed much to the advancement of the Continental microscope. Nachet improved the movement of the Continental fine adjustment by reversing the action of the spiral pressure spring. The spring now pulled the body down instead of pushing it upwards. The screw was now allowed to control the movements by the contact of its point on a steel-plate, lowering the usual amount of friction (Mayall, 1886).

From the late 1840's the number of European manufacturers proliferated with only minor differences in the design of the stands. By the late 1860's almost all the large and elaborate microscopes produced by makers like Schiek and Plössl were gone. Even Chevalier's popular horizontal universal had dropped out of production. The Europeans had developed a reputation of being practical and pragmatic. Much of the microscopic work was done by men receiving personal financial support or who were associated with a University. Unlike England and America, there were few Clubs or Societies dedicated to the advancement of the instrument. Consequently, the microscope on the Continent became smaller while the stands in England and American grew larger. English opticians were encouraged to make the best possible optical instrument while the European makers were encouraged to produce small and usable models. Having the biggest and best microscope was of little consideration to the continental worker.

I would like now to return to the beginning of the so-called Continental pattern as revealed by Dr. Nias. The Parisian maker Oberhaeuser has historically been given credit for the origins of the Continental design. As mentioned above, the European microscopes were as large as the English stands in the early days of the Nineteenth Century. The stands by Selligue and Chevalier were very much like the microscopes of Tulley, Pritchard and James Smith. So, why were the new instruments by Oberhaeuser so different? According to Dr. Nias, Oberhaeuser was working under the direction of the anatomist, Strauss-Durckheim. Strauss-Durckheim was a student of Cuvier and at the time (ca.1828) was working on the anatomy of the common cockchafer (Coleoptera). Dr. Nias talked with Strauss-Durckheim himself and was assured that it was indeed he who first designed the original continental stand. Strauss-Durckheim stated that the microscope was made for him by the same firm that Oberhaeuser was associated. He also tells us that *"with his sanction it was patented by them, so as to give them for a certain period a monopoly of the manufacture."* Another good example of this sort of relationship is the fact that the anatomist Dujardin also permitted the firm of Oberhaeuser to do the same thing with his achromatic condenser. This all fits well with the fact that it was this same firm who was the first in France to patent inventions associated with the microscope.

Strauss-Durckheim wrote a detailed account of his invention in a letter he sent to the French optician Chevalier in 1850. This letter is included in the biography of Charles Chevalier by his son, Arthur. In 1842, Strauss-Durckheim published his work entitled *Treatise on Comparative Anatomy*, in which he figured two unique microscopes. According to Dr. Nias they appear to be indeed the earliest type of the Continental pattern.

Strauss-Durckheim indicated that the original microscope he used for his work was of the typical drum type (Pl.2-B). He described it as common and a microscope, *"which by kind of chance was of a small dimension."* The fact that it was small was one of the only convenient elements of its design. This instrument seems to account for his early high-powered compound work but the majority of his efforts were done with the simple-dissecting microscope. His dissecting microscope was common at the time, however, Strauss-Durckheim added his own stage, which was specifically made to rotate (Pl.2-A). The stage was also provided at its margins with multiple sockets for stage forceps. This feature of rotation allowed the specimen to be turned into a convenient position for dissection. Keeping the hand that held the tool stationary while rotating the specimen allowed for very delicate work.

The idea to have the stage rotate for the purpose of dissection was also introduced by Strauss-Durckheim, a claim that Dr. Nias could find nowhere in dispute. In his letter to Chevalier, Strauss-Durckheim specifically wrote that the first microscope of this kind was constructed for him by the optician Cauchoix before 1824 (Pl.2-A), four years before the publication of his work on the Coleoptera (Nias, 1894). The use of this simple microscope also had a very important impact on the design of many of the Continental compound stand to come in the near future. Strauss-Durckheim's compound microscope was eventually designed with the limb consisting of two tubes or sleeves, the outer of which was intended to allow the body to be swung to one side at lease 90

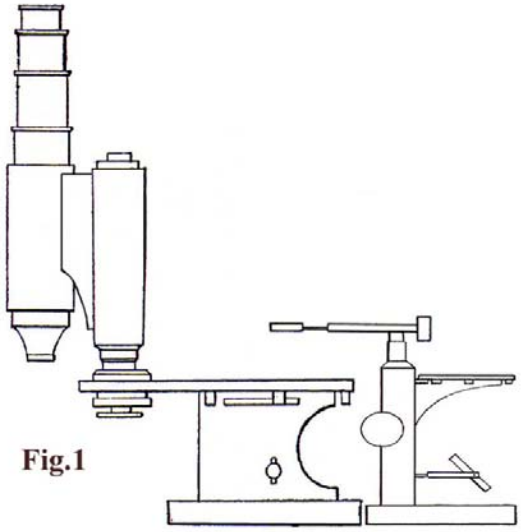


Fig.1

degrees (Pl.2-D). This was to accommodate the use of the simple microscope when it was to be brought over the dissection (Fig.1) (Pl.2-D). The specimen remained secured on the stage of the compound microscope leaving it undisturbed when switching between the two microscopes. It is fairly certain that only an anatomist would have anticipated this design.

In the early days, the work of dissection required the alternate use of the simple and the compound microscope with as little disturbance as possible to the specimen. These two instruments needed to be designed to work together and at the same time allow for ease of manipulation and comfort in its use. The development of the Continental pattern was clearly inspired by the necessity of function and at the inspiration of the worker. Thus the results of his experience were soon directed to the improvement of the compound microscope. Among his considerations were first the need for a rotary stage, second a limited height and third to maintaining a horizontal work surface (Pl.2-C). Keeping the stage flat was needed for the work of dissection and forced the necessity of maintaining the vertical position of the instrument. This fact contributed to the need for keeping the microscope as short as possible and ran contrary to the experience of the optician. Actually, he stated that *"the first requisite of the microscope is to have in all about 12 inches in height, so that the observer, comfortably seated at the table at which he is working, and on which the microscope is placed, may have his hands on the stage of the latter where the object is which he is examining, whilst he looks into the eyepiece to see what he is doing while dissecting the object; which amounts to saying that the proportions which have appeared to me most suitable are those where the stage is raised about 4 inches above the table, and the entire tube of the microscope is only about 8 inches long"* including the working distance. This requirement ultimately led to the fixing of the 160mm tube-length for which the continental objectives are corrected.

A description of his microscope can best be stated as having a round foot filled with lead and supporting a drum cylinder made of brass. There was a large cut on one side of the drum allowing the admission of light to the mirror, which swung between pivots that projected through the sides. At the top of the drum was a slit, which gives passage to the edge of a circular diaphragm. The stage itself was round much like that of his dissecting microscope and had on its margins the same stage forceps (Pl.2-C, Pl.3-A). However, when the stage was rotated and the forceps or sockets were in use, their projecting ends would come in conflict with the limb of the microscope. The solution to this problem was to separate the stage and the limb from rigid contact with the foot. Instead the limb would be connected to a projection on the stage and be turned in tandem with its rotation. The stage itself would rotate on a rim at the top of the drum. At the location of the connection of the limb to the stage there was a hole, which accommodated the mounting of the fine adjustment. *"It was expressly admitted by Strauss-Durckheim that M. Trecourt, Oberhaeuser's senior partner, effected the working out of this requirement (Nias*, 1894). The fact that the milled head for the fine adjustment was placed at the bottom was also the result of ergonomic considerations. It was necessary that the rotating stage be carefully centered, as careless craftmanship would allow the specimen to travel out of the field causing great inconvenience. The bodytube itself was for the most part adapted directly from the original drum microscope. The only change was that it was *"double within, so as to permit of the use of a second objective above the first, as an erector, an original feature for which Strauss-Durckheim can also claim priority (Plate* 1) (Nias, 1894).

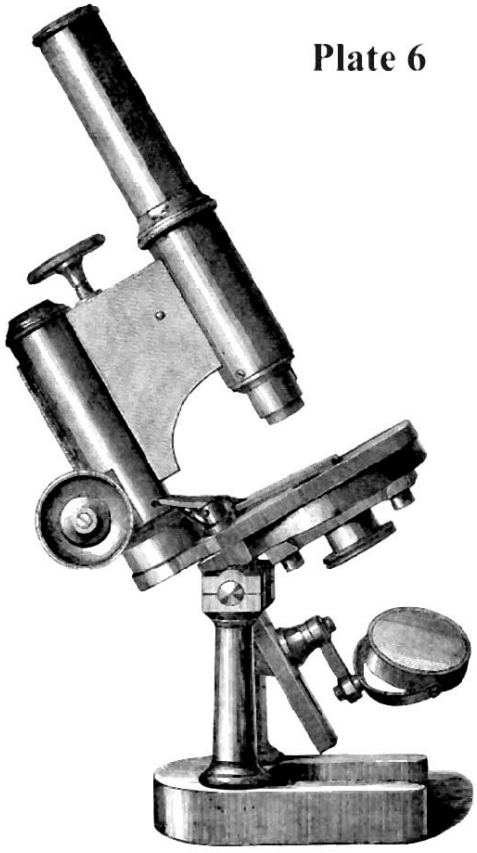
Dr. Nias emphasized *"enough has been quoted to suggest that we meet here for the first time with a precise definition of what has become the standard dimensions of the Continental microscope."* Before the introduction of this model, there was no real uniformity in the design and it appeared to Dr. Nias that, *"this pattern succeeded in ousting all others by conforming in some degree, as described above, to the proportions of the human body, much as a spectacle frame is adapted to the face."*

For the first half of the Nineteenth Century it was the French that contributed most to the development of the Continental microscope. The Germans took up the cause in the late 1840's after much of Europe's political difficulties were beginning to subside. The French had entered into the Nineteenth Century with a history of supporting science as well as their instrument makers (see Daumas, 1989). The Academie des Sciences, Paris, had been established to present and publish works of interest to the academic community. The actual scientific research was approached in the same way earlier scientists had done for much of the previous century. The simple microscope was considered the primary instrument with only occasional reference to the compound microscope. Improving the stage of the simple microscope was a needed step in the development of the Continental pattern. The subsequent combined use of the two instruments was also very much to be expected. Developing features for a microscope that conformed to its intended use was also of great importance. Unlike the English, the Europeans were less concerned with the optical performance and more concerned with its functionality and output. This brings me back to my original question, whether or not the needs of science dictated the evolution of the microscope or did the development of the microscope open new avenues into science? Like most questions involving human endeavor it becomes a bit complicated when looked at through the eyes of history. The Continental microscope was indeed very much influenced by the needs of the worker, where as the English were more responsible for the early improvement of the optical systems. However, much of the actual science of biology came to us by the labor of men using rather simple Continental type microscopes. As the microscope improved both mechanically and optically the opportunity for discovery also improved. Thus, the answer to my question seems to be that it worked both ways. Throughout its history the microscope has established a wonderful track record in the service of man and the potential for future contribution continues to expand.

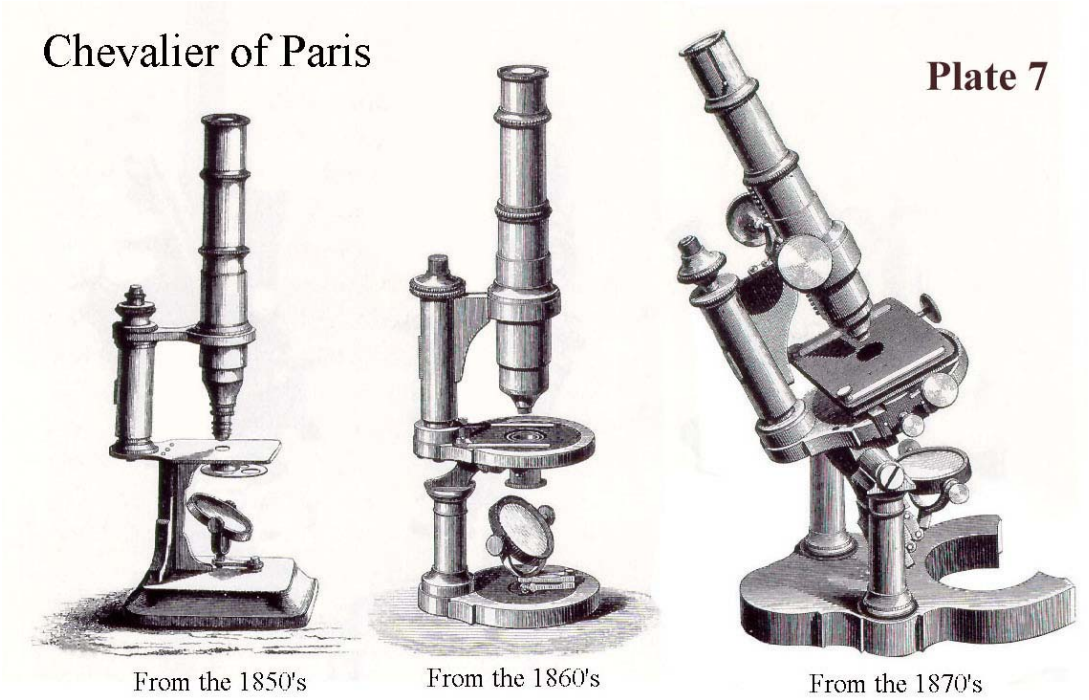
Plate 4

Chevalier Compound Dissecting Microscope, ca.1850

Plate 6



Schmidt & Haensch, Large Model No.10, ca.1880


Chevalier of Paris
Plate 7
From the 1850's
From the 1860's
From the 1870's

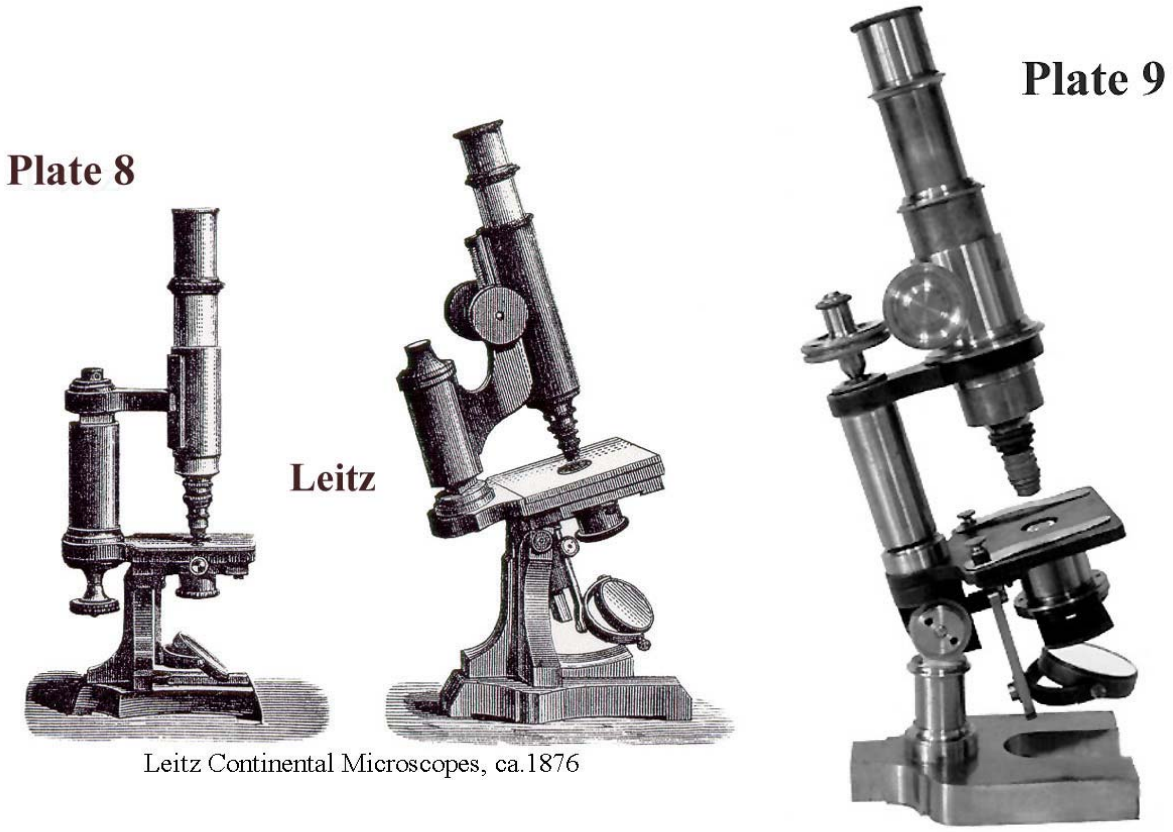


Plate 8
Leitz
Plate 9
Leitz Continental Microscopes, ca.1876
E.D. Messter of Berlin
ca.1882

Description of Illustrations

Plate 1. Strauss-Durckheim's dissecting microscope, ca.1830, Oberhauser-Hartnack (1848) (Illustration from Moe, after Oberhauser)

Plate 2. (A) Simple microscope by Cauchoix of Paris, ca.1824 (from Nias).
(B) Fraunhofer's drum, ca.1811 (from Nias).
(C) Strauss-Durckheims compound dissecting microscope, ca.1830 (from Nias).
(D) Combined use of the compound and simple microscopes (Solliday)

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Plate 7. Microscopes by Arthur Chevalier (from Harting, 1866).

Plate 8. Leitz Continental Microscopes, ca.1876 (from Moe).

Plate 9. E. D. Messter, of Berlin, ca.1882 (from photograph).

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WORKSHOP OF THE MICROSCOPICAL SOCIETY OF SOUTHERN CALIFORNIA

by George G. Vitt, Jr.

Date: Saturday, 2nd February 2002
Location: Izzy Lieberman's Residence

1. Jim Solliday stated that Leonie Fedel, our new Journal Editor, will be mailing the January 2002 issue of the Journal in about 2-3 weeks. He urged members to submit material for publication.

2. Pete Teti asked the members to submit ideas on subjects for our planned hands-on workshops. He then read a list of subjects that had been compiled to date. Pete exhibited a slide making kit (with tools and materials), that he had put together at minimal cost, to attract young people to microscopy and also for use in our workshops. At the moment, he has 5 such kits available (see photo).

These workshops will take place in a special room at NewRoads School on the 3rd Saturday of each month, 9-12 AM. Pete then announced that Chris, at the George Page Museum at LaBrea Tar Pits, will arrange a tour of their restoration facility.

3. Jim Solliday described the items that had been brought for sale at the workshop, including Gary Legel's immaculate Leitz Ortholux.

4. Ken Gregory showed eight German-made small size Continental Microscopes, c.1900 (see photo). Most of these are equipped with divisible objectives (for change of magnification) and a variety of focusing means. These microscopes are:

1. "Gottingen"
2. "Perfect"
3. Schutz - English foot
4. Schutz - horseshoe foot
5. Paul Waechter - English foot, jug handle

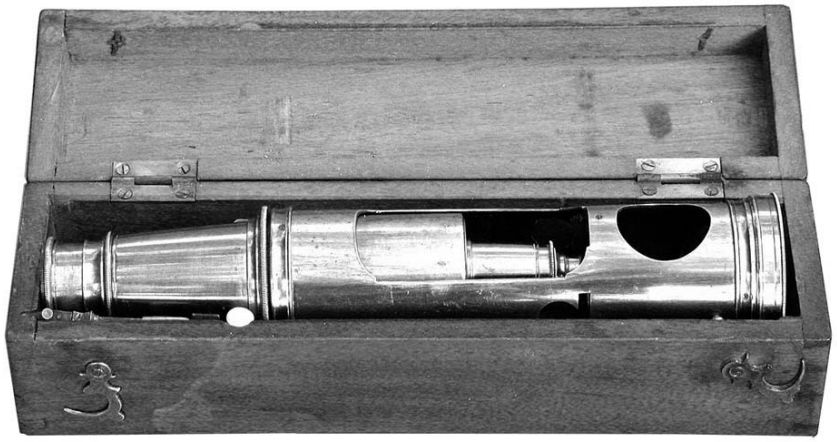
6. F.W. Schieck - horseshoe foot, tilting stage, fine focus
7. Leitz - detachable base for use as surface mic.
8. Zeiss Stand VI. (Early style with sliding tube coarse focus)

5. George Vitt showed and described a graphics tablet that he is now using in Photoshop, the 'Graphire2' made by WACOM. It comes with a wireless (and battery-less) stylus and mouse, and Adobe Photoshop LE (which used to cost $99 all by itself). The cost of the outfit is $99.00. He highly recommended its use for any and all computer applications, especially Photoshop.

6. Stuart Warter showed an undocumented Benjamin Martin (unsigned) drum microscope and commented on the intricate cabinetry of its case (see photo). He noted that Martin died in 1782 and that, in those days, this form of scope, was called "Pocket Compact Microscope". He also showed another cased drum scope, probably also by Martin (see photo).

Martin "Drum"
Stuart Warter
MSSC 02-02

7. Jim Solliday exhibited an American microscope made by: E.B. Meyrowitz, Maker, New York, Serial No.112, ca.1894. This microscope represents one of Bulloch's *"Bacteriological"* models which was manufactured by Meyrowitz after the death of Mr. Bulloch. In fact, the complete signature on the foot reads as follows: "*Bulloch's Patent, E.B. Meyrowitz, Maker, New York, PAT'D 1880, 112.*" The overall pattern of the microscope is a Lister type with a double-slide for the fine adjustment. The fine adjustment is operated by a long lever hidden within the arm and actuated by a micrometer screw located on the top of the arm. The coarse adjustment is by the usual rack and pinion. It features a circular stage measuring three inches in diameter. The top surface is made of glass having a knurled brass ring around the margin. Attached to the microscope at the specimen plane is a swinging substage stem with a mirror and a Bausch & Lomb Abbe condenser, all mounted on a sliding sleeve. The microscope stands on a large "Y" foot, which in turn supports a single brass pillar. The pillar terminates at a large cradle joint which facilitates the inclination of the instrument. The microscope is accompanied by three Bausch & Lomb *"First Class"* objectives. The first is a 1/12th inch immersion with a correction collar. The second is a B&L 1/6th inch First Class with correction collar and finally, a B&L 1 inch. There are 5 Bausch & Lomb eyepieces, 0.5 inch, 0.75 inch, 1 inch, 2 inch and a top-hat type 1 inch. The microscope is all brass with the



Martin "Drum" Scope - Stuart Warter MSSC 02-02

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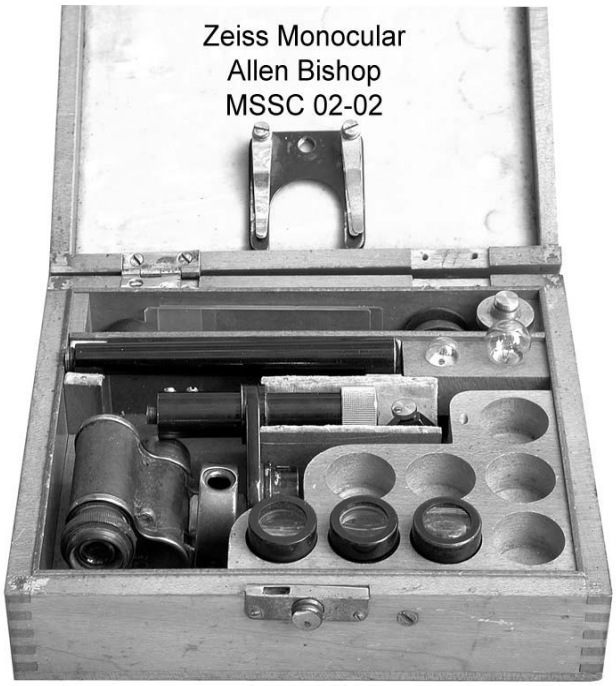
lacquer remaining in very good condition. It is stored in a beautiful mahogany case with a lock and key. It also features two sliding drawers, a live-box, camera lucida and a paper-wrapped French specimen slide. In 1875, E.B. Meyrowitz had established himself at 104 East 23rd St., New York N.Y. and by 1885, he was located at 295 and 297 4th Ave., N.Y. In 1890, W.H. Bulloch issued a catalogue witch stated that for the New York area the "Meyrowitz Brothers" were "Sole Agents" (*The Microscope*, 1890, ad). According to Padgitt, Meyrowitz himself was advertising as Bulloch's *Sole Agents for New York and Vicinity* (Padgitt, *History American Microscope*). After the death of Bulloch, Meyrowitz purchased his patents. According to Mr. Tolman's Columbian Exhibition report, Meyrowitz "manufactured" stands made popular by the late W.H. Bulloch, such as the *"Bacteriological"*. A total of three different models are mentioned (AMMJ.1893). In fact we now know that by 1893, E.B. Meyrowitz began manufacturing these stands for himself. His most recognized model was almost identical to the *"Bacteriological"*. Meyrowitz issued a Microscope catalogue in 1898.

8. Dave Hirsch reminded us that the annual dues are now payable.

9. Jim Clark showed his new Nikon Mod. 775 digital camera which is a marvel of compactness and good looks!

10. Larry McDavid brought freebie magazines and also showed small samples of expanded cell Teflon flexible material, known as Goretex, that is used for thermal insulation in clothing, a cushioning material in shoes, and also as a most flexible electrical insulating material in high quality electronic cables and wires. As an example of such use in electronics, he cited a recent project of his, an oxygen/CO_2 monitor for monitoring premature babies, which uses a 14-conductor Goretex insulated cable. Larry then showed some "Gel-Pac", a material that has a permanently tacky surface. He then showed a plastic dust cover for scientific equipment made by Visilex Seals, Inc., 16 East Lafayette Street, Hackensack, NJ 07601, (201) 487-8080. The company will fabricate custom shaped covers to order at $12.00 each.



11. Ellen Cohen described her visit to the museum of Mechanical Musical instruments "San Sylmar" in Sylmar, CA and recommended that we pay a visit to this most interesting museum.

12. Allen Bishop showed a cased B&L Mod. BH scope, c.1916, set up for incident illumination (with illuminator) which features moving stage focusing and an inclination joint lock (see photo). It was decided that this was a special order instrument for ore analysis and/or metallography. Attached to the rear of the foot is a metal label with the name "Sauveur", a prominent metallurgist of the period who probably designed the instrument and had B&L make it for him to special order. Allen then showed a Zeiss single ocular distance loupe (see photo). A second example recently appeared on eBay.

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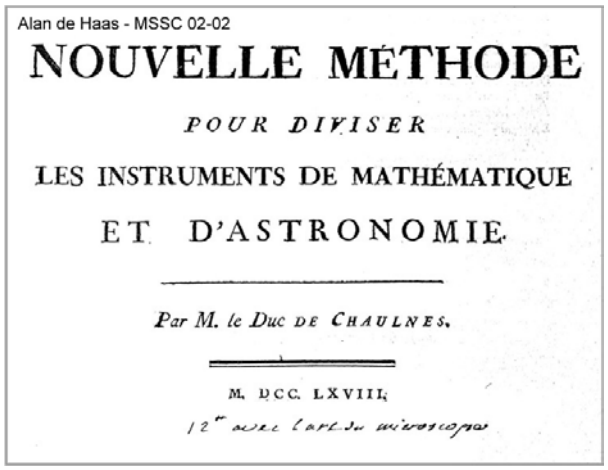
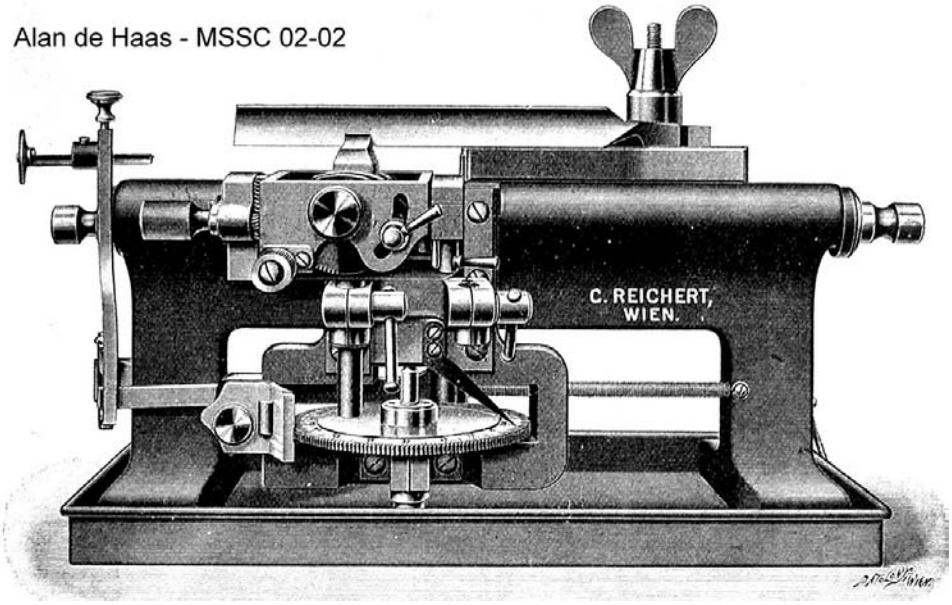


13. Alan de Haas showed an extremely rare, very large two-volume book set (see photo) by the Duc de Chaulnes, 1768. The books contain superb engravings showing instruments he had designed such as the spherometer, goniometer, dividing engine, etc. He was the tutor to the Dauphin (Prince Royal) of France. Alan then showed a rare lab. Instrument catalog containing excellent engraved illustrations, among many others, of many varieties of Reichert microtomes (see the engravings of the microtomes).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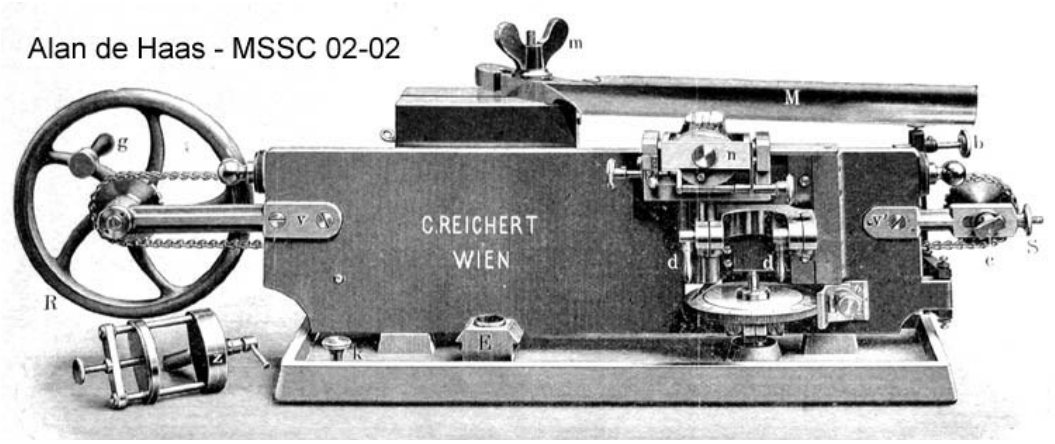
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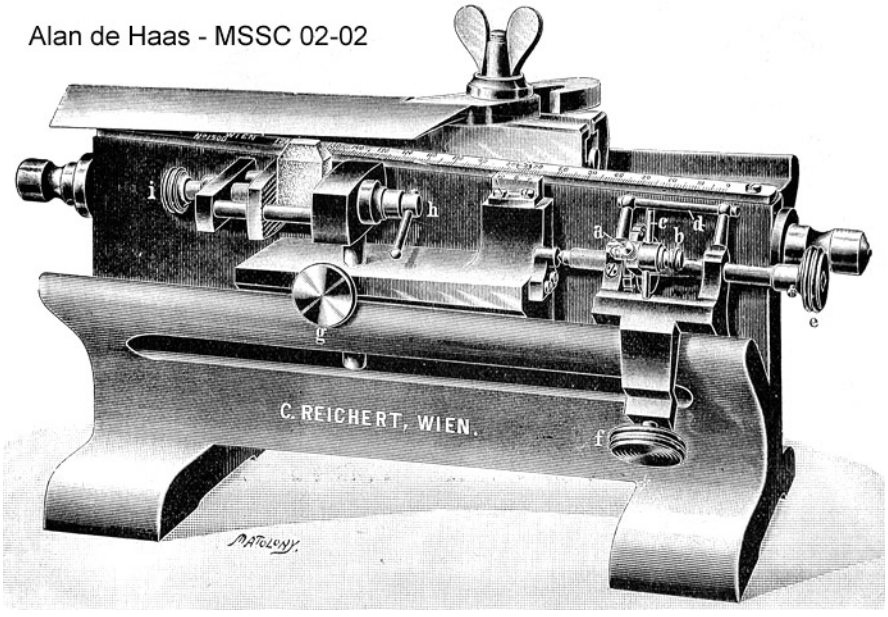
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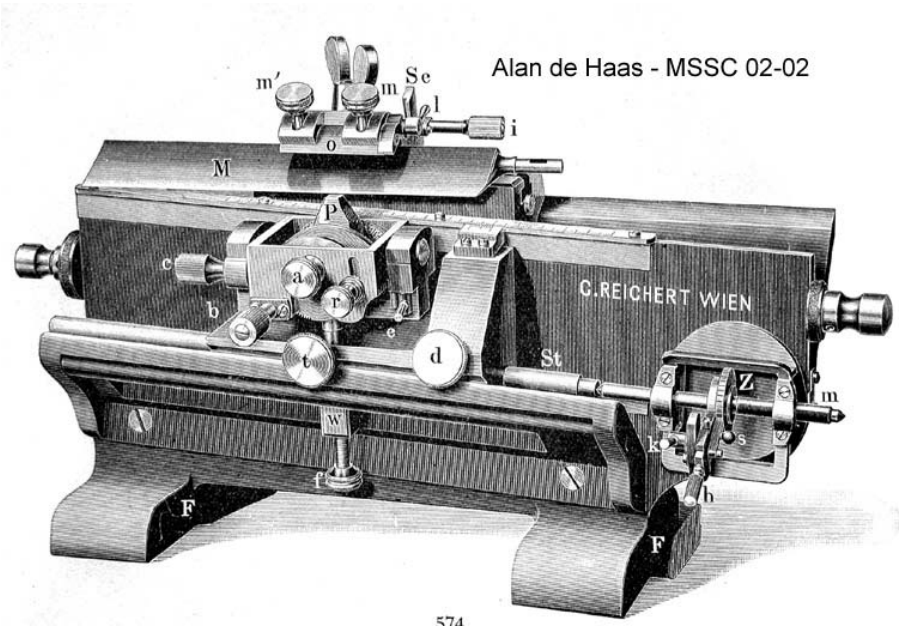
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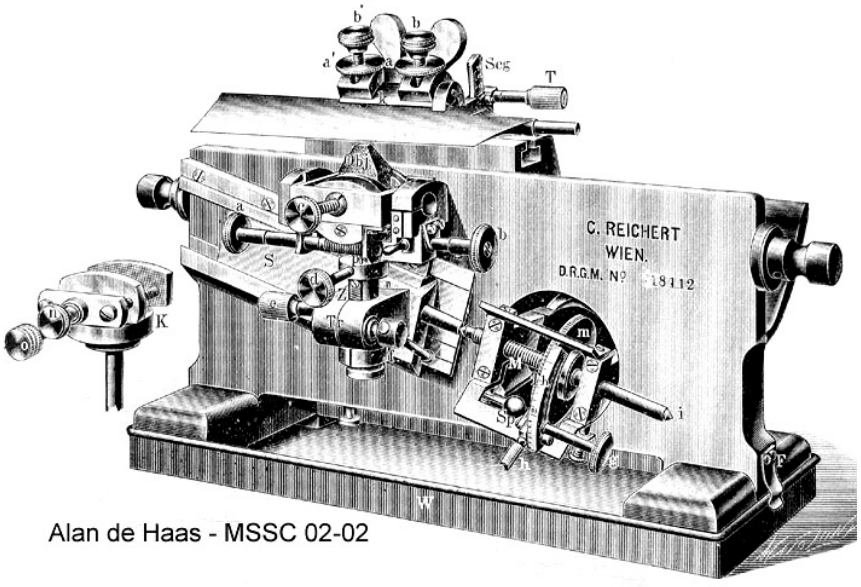
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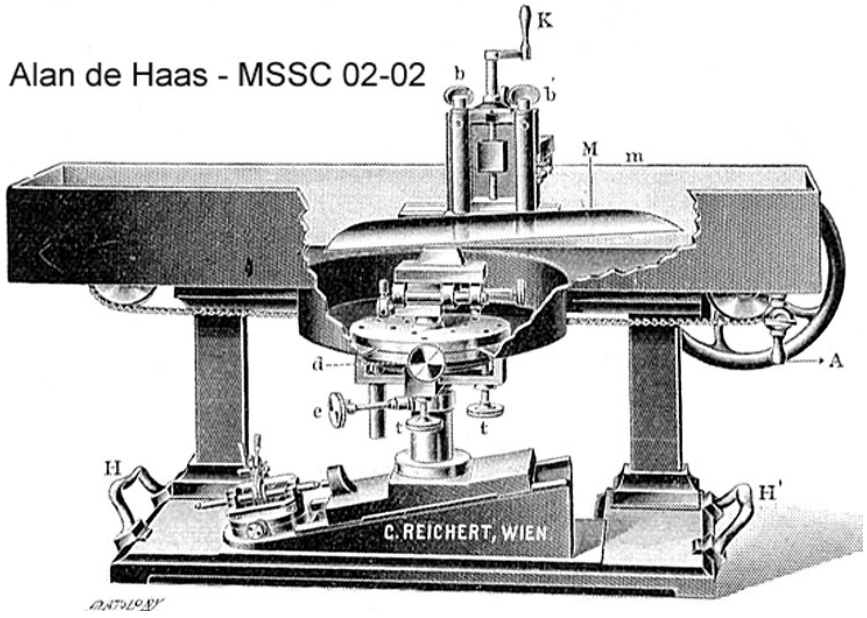
Alan de Haas - MSSC 02-02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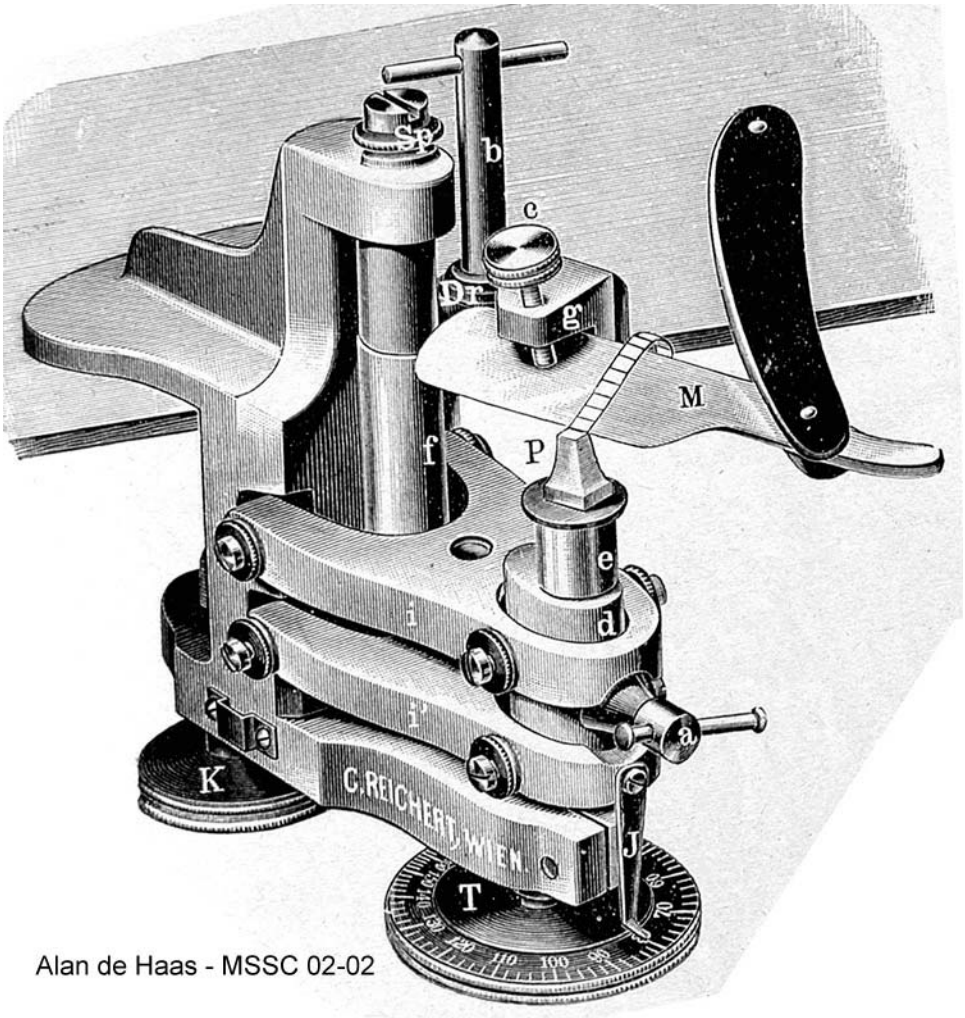

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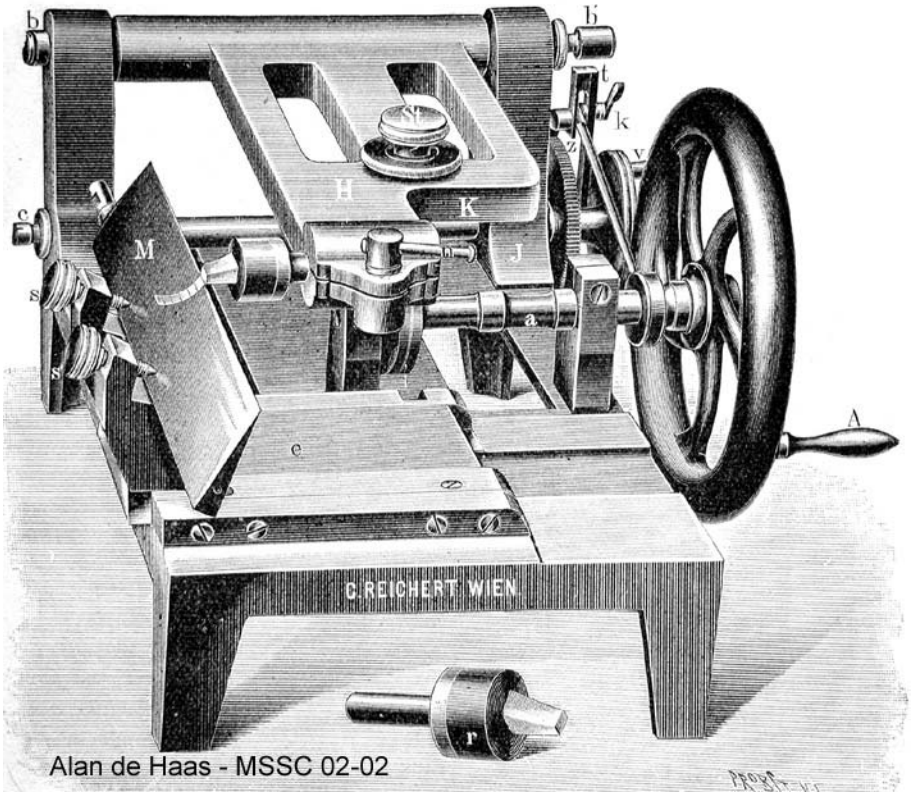

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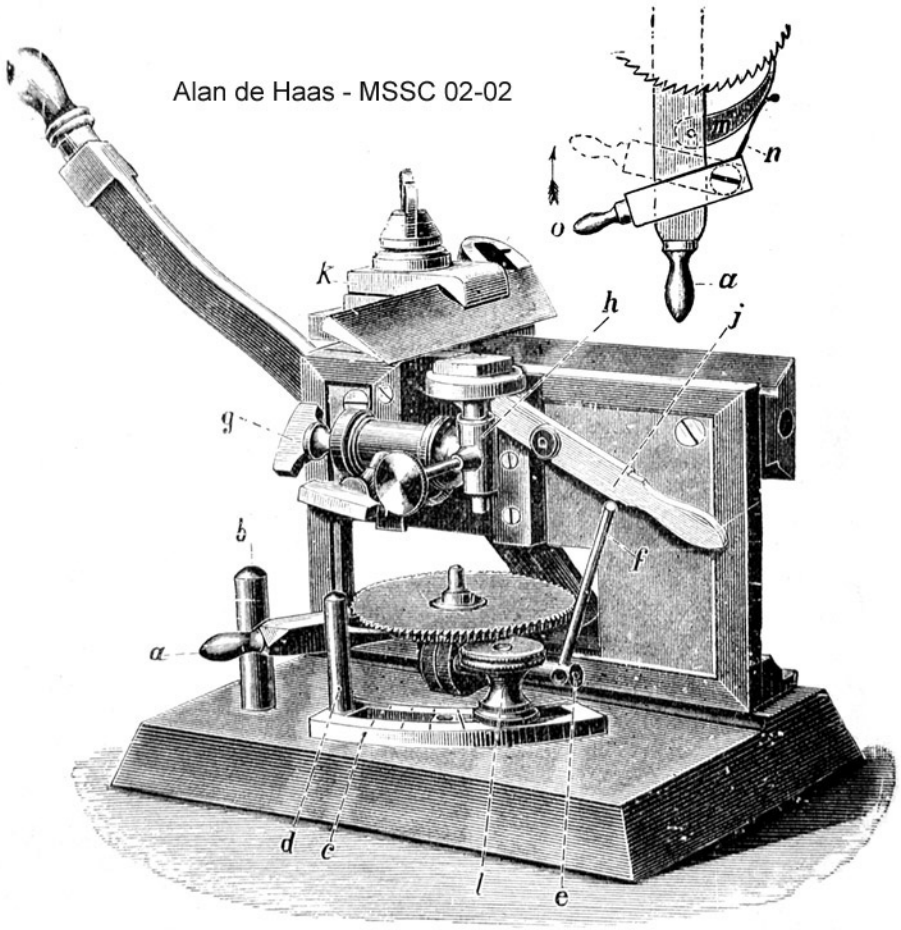
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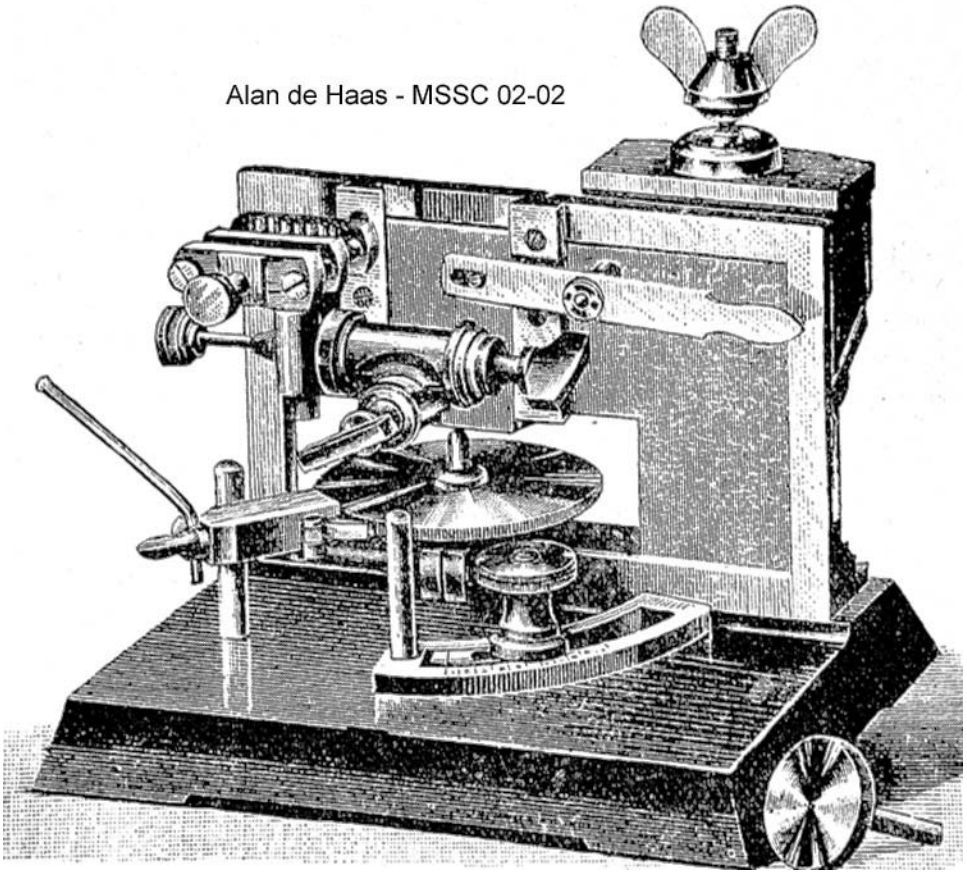
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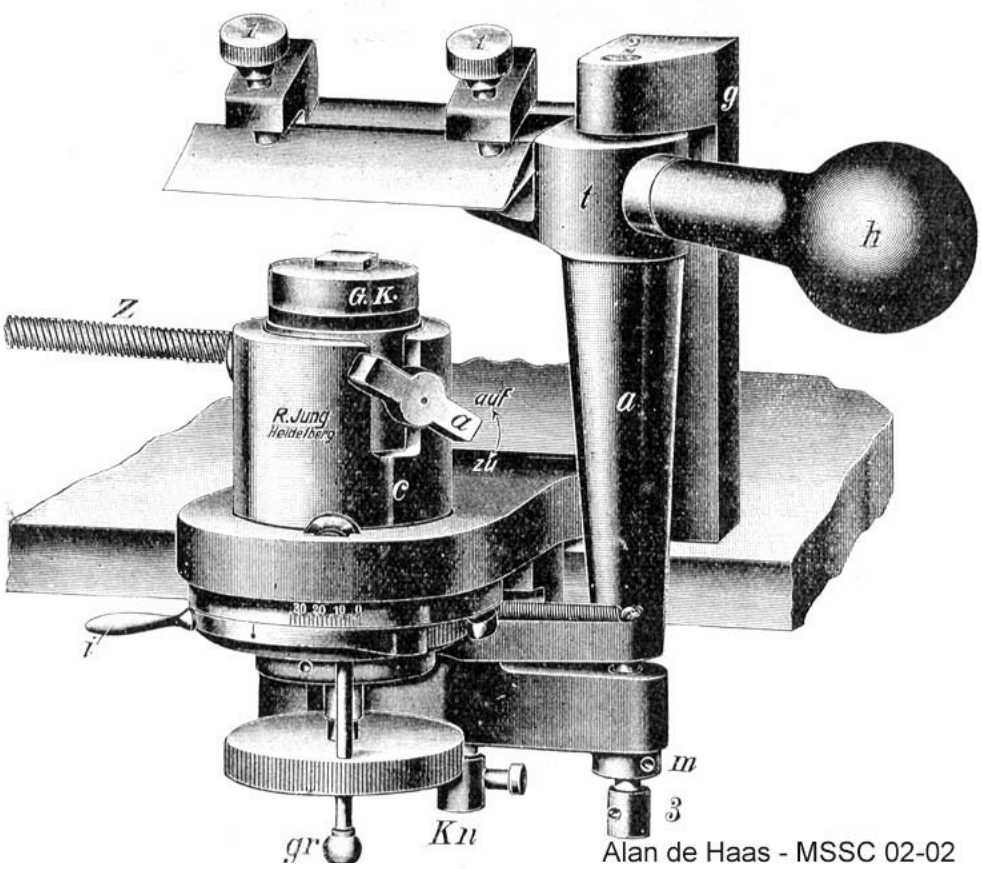
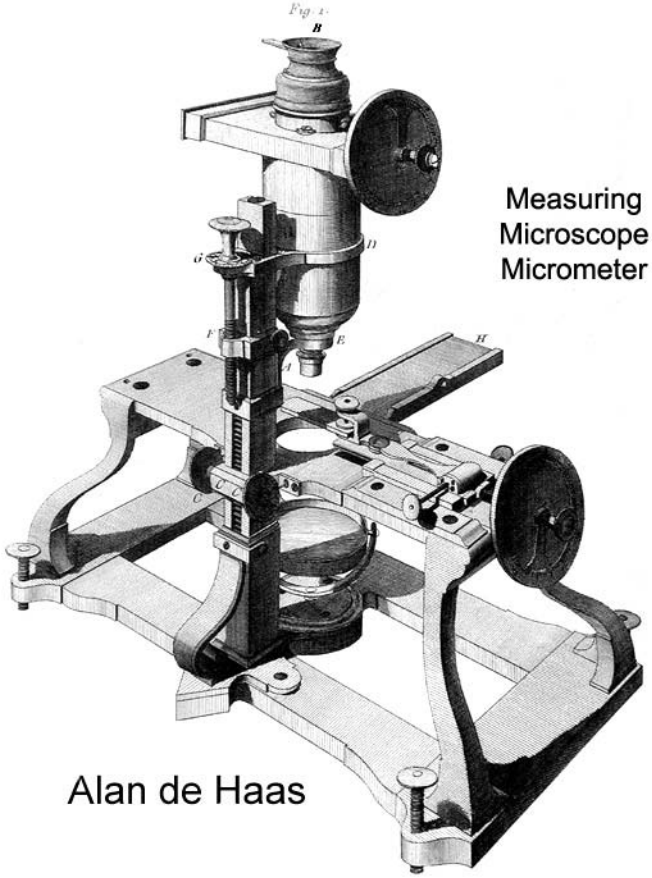


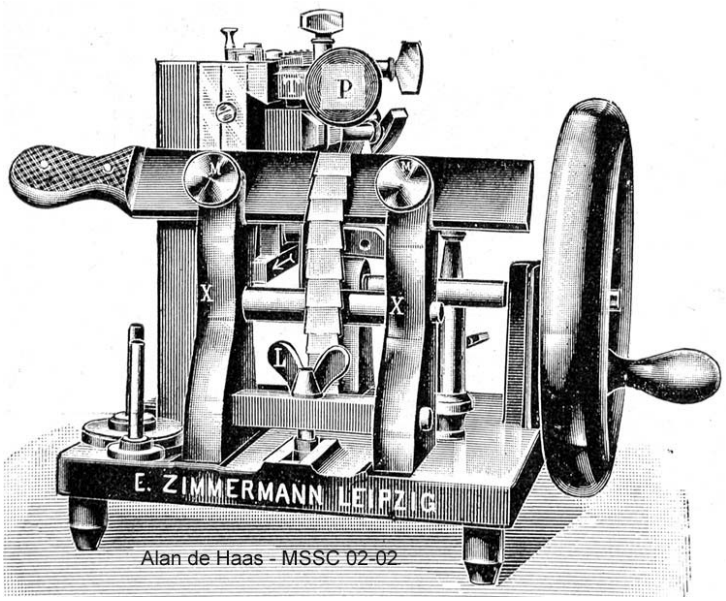
Alan de Haas - MSSC 02-02

Par M. le Duc DE CHAULNES.



Measuring
Microscope
Micrometer

Alan de Haas



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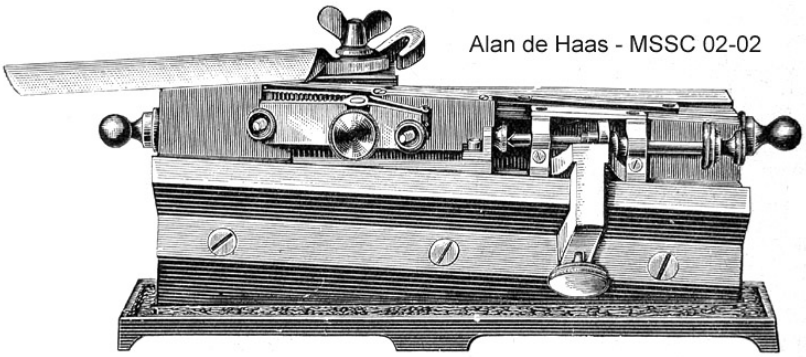
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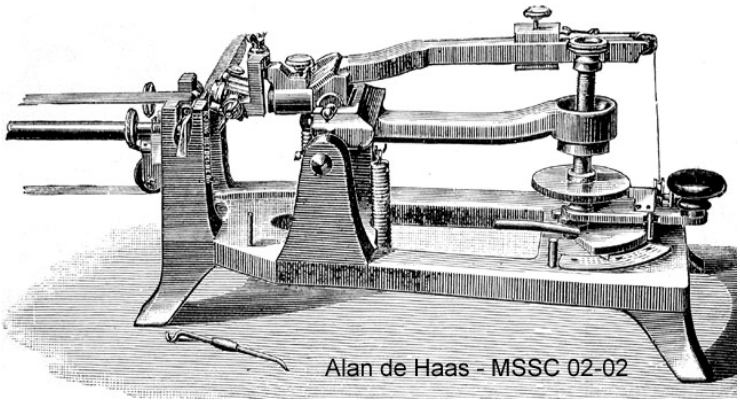
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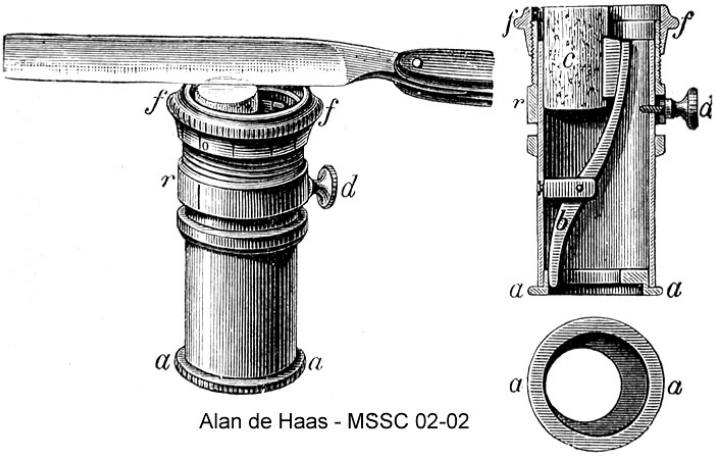
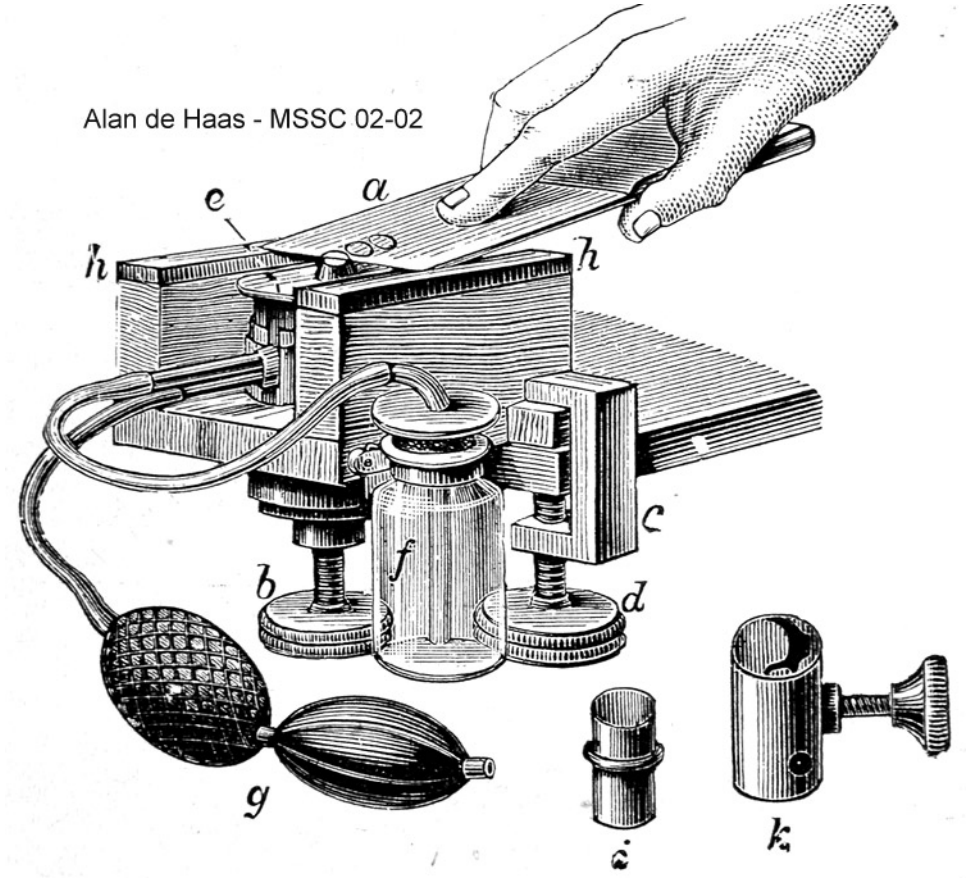


Alan de Haas - MSSC 02-02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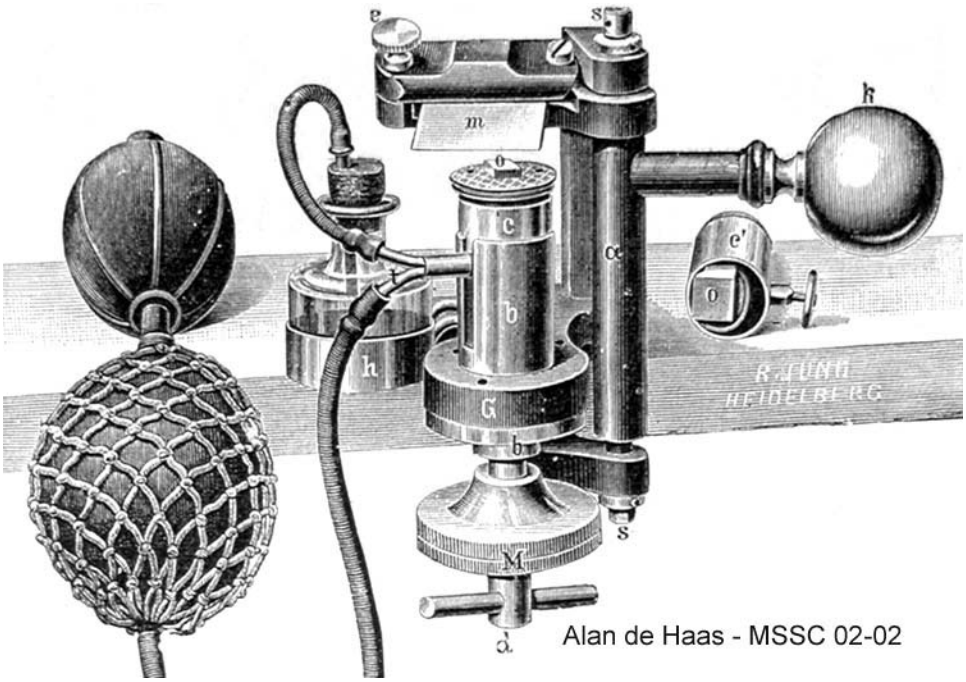
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Alan de Haas - MSSC 02-02

MSSC Meeting

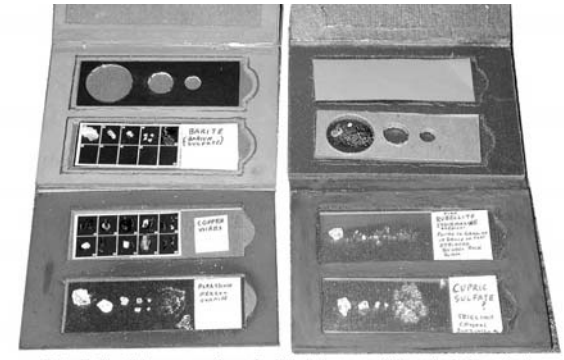
7:00pm 20th Feb. 2002

at New Roads School

This month's meeting was well attended. We were pleased to hear from an associate of Ken Gregory and Stuart Warter, Dr. Dessie Underwood, who has studied the social behavior of a certain butterfly in northern Mexico. At our meeting she shared her discoveries with Society members. See last month's Journal Vol 7 No 1 for an abstract of her presentation.

Dessie's presentation was followed by a very informative talk on noise reduction in relation to microscopy by Alan de Haas.

Pete Teti then outlined the program for the planned practical workshops to be held the third Saturday of every month. Since space for these workshops is limited, enrollment would be on a first come, first-served basis. Pete detailed what equipment people would require in order to take part in the workshops and exhibited a couple of slide making and field trip kits he had put together very cheaply for this purpose. The first workshop will focus on crystal production and will be held on **Saturday March 16th 9am at Steve Craig's house**. Contact Pete Teti for further details or to sign up for this or future workshops.



Pete Teti's slide preparations for Workshops on Minerals & Chemicals

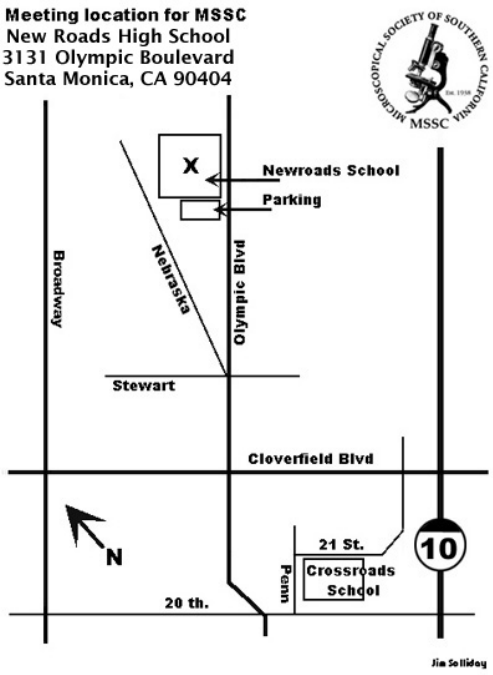
MSSC - 20 Feb 02

Pete Teti's Workshop slide making kit

MSSC Meeting Announcement

7:00pm 20th Mar. 2002

at New Roads School



This month we had hoped to have Edward Tarvyd as our speaker, giving a talk and slide presentation about Charles Darwin, the man, his personal history, and how he became the person he was for the rest of his life. Unfortunately Mr Tarvyd was subsequently unable to make the March meeting, but will be giving his talk to the April meeting (April 17th).

Instead Ken Gregory, Larry Albright and Parke Meek will present a talk entitled "Quack, quack, quack!". A demonstration of various 20th Century quack medical items from their collections. This will include among others violet ray generators, electrical stimulators and Phrenology devices. Not to be missed.

After the break Alan deHaas will continue his discussion on noise reduction. This week he will be leading us into techniques associated with the confocal microscope. Many have asked about this

microscope but, to date, few answers have been forthcoming. With Alan's help and extensive knowledge we will have an opportunity to learn a great deal more on this subject.

Also, if you have something to share or sell, please bring it along for the table.

For those of you who like to eat dinner we will be meeting at the usual Coco's restaurant at about 5:30pm (near Ocean and Bundy, Santa Monica).

I look forward to see all of you there.

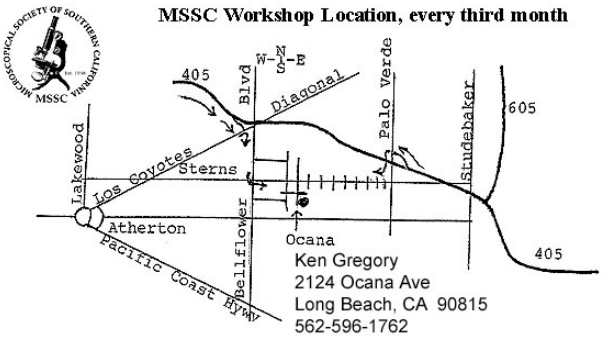
Sincerely, Jim Solliday (President)

Saturday Workshop Announcement

9:00am 2nd Mar. 2002

At the home of Ken Gregory

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



From the 405 West, take the Bellflower Blvd exit which ends on the Diagonal. Jog left, then right onto Bellflower Blvd. Go to Sterns, turn left, thru the Mall, turn right on Ocana Ave. (2nd Street).
From 405 East or 605, exit at Palo Verde, turn left on Palo Verde, then right on Sterns, then left on Ocana Ave.

The activities should begin by 9:00 AM. You are invited to bring any and all manner of items related to microscopy. If you have something new or old, its time to share it with the membership. If you have something you would like to sell, please feel free to bring it and set it up at the sales table. 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...

Sincerely, Jim (MSSC).

Practical Workshop Announcement - Making Crystals

9:00am 16th Mar. 2002

At the home of Steve Craig

3455 Meier St
Los Angeles CA 90066
310-397-8245

[Take the I-10W for Santa Monica. Leave at the National Blvd exit. Turn Left onto National. Stay straight to go onto Palms Blvd. After about 2.7 miles, after crossing over Centinela Av., turn right onto Meier St.]

Pete Teti is organizing a program of practical workshops to be held the third Saturday of every month. Since space for these workshops is limited, enrollment would be on a first come, first-served basis. The first workshop will focus on making crystals for viewing under the microscope.

Contact Pete for further details and to sign up for this or future workshops. Tel: (323) 660-9259 or email: tetip@earthlink.net.

Internet Resources

For those of you who may have forgotten ...

MSSC

Home of the Microscopical Society of Southern California
See: http://www.plasma-art.com/MSSC.html

This is the website of MSSC hosted and maintained by Larry Albright. Here you will find details and maps for forthcoming meetings and workshops, and links to numerous microscopy related websites.

Microscopy UK

Home of Informal Microscopy on the Web
See: http://www.microscopy-uk.org.uk/#top

This is the website of an informal group of artists, writers, enthusiast microscopists, and computer techies working together from different countries for free. They dedicate their skills towards promoting the study of the very small world around us - the microscopical world. Their site is now probably the most visited microscopy site in the world and they recognize their responsibility to ensure the site remains vibrant and caters for a diverse range of tastes and likes.

The site editor is David Walker. He has kindly put MSSC's website up within Microscopy UK (Select "Clubs" on the left side of the website, then look at the bottom). This means MSSC now have a link to connect us with microscopists around the world.

This site is well worth the visit - take a look for yourself.

Thanks to Reino Mascarino for sending in this link.

Editor's Note.

This month I would like to thank all those who sent in articles for the Journal. In fact, I have held back some articles for inclusion in the next Journal as the February workshop write-up was so extensive, else this Journal would have been close to becoming a book! I would also like to give credit to Nirvan Mullick who produced the cartoon of Alan de Haas on page 22.

Nonetheless your contributions are still desired. This could be articles, photos, details of forthcoming events or websites to include in the new Journal section *Internet Resources*. I would particularly welcome short profiles from newly joined MSSC members describing their background and interests. Please send material to me:

Leonie Fedel
10945 Rose Avenue #209
Los Angeles CA 90034
(310) 839-9881
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 me, I'd be happy to help.

Leonie Fedel

We are also happy to include advertisements within the Journal either from individual members wanting to sell an item to other members, or from companies wishing to promote their products and services to the MSSC membership. If you wish to place such an advert, please contact our Treasurer, Dave Hirsch for further details and charges.

Dave Hirsch
11815 Indianapolis St. LA, CA 90066
(310) 397-8357
dlhirsch@verizon.net

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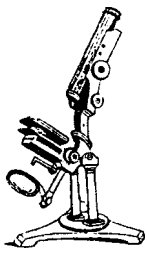

Microscopy Books Bought & Sold