

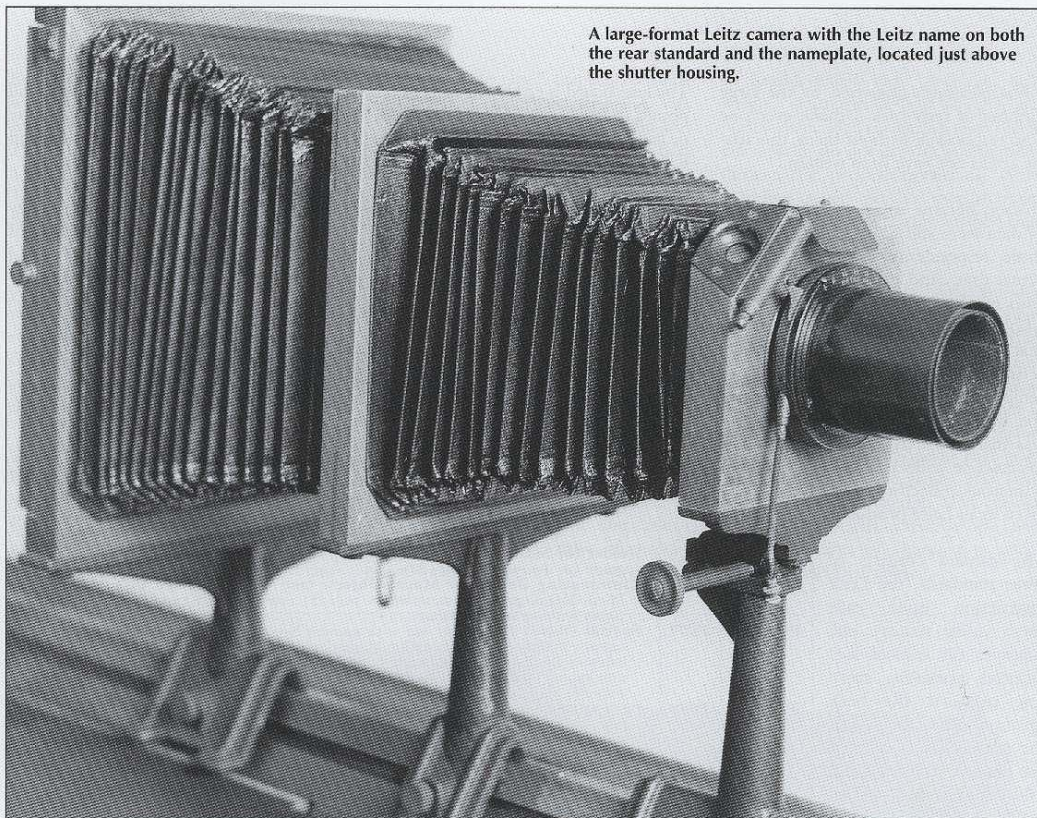
I am proud that this article appeared in the VIEWFINDER, the official publication of the Leica Historical Society of America. It appeared in Volume 40, Number 4.

I have been collecting photographic equipment, images and data since I started in the retail photographic trade, in 1962. This 8 x 10 Leica camera, and the microscope that it accompanies are unique. Few people know of the existence of a large-format Leica; fewer have seen one, because they were manufactured in the early part of the last century, in rather limited quantities.

We reproduce it here (with LHSA permission), in the hope of offering enjoyment, and furthering the cause of the collector.

*Paul Comon
Paul's Photo*

LARGE FORMAT LEICA



A large-format Leitz camera with the Leitz name on both the rear standard and the nameplate, located just above the shutter housing.

LARGE FORMAT LEICA

PAUL R. COMON

Leica manufactured a camera capable of recording 8" x 10" images. The camera was sold separately, or supplied with the Leitz Metallurgical Microscope MM. Although primarily intended for horizontal use on the optical bench, the camera can easily be removed, mounted vertically and used as a copy camera, or placed upon a tripod for conventional use.

The camera pictured in this article (Catalogue Number 29130, Leitz Code Word BEFQP), is capable of recording 8" x 10" images. It bears the serial number 757 and its fabrication was completed on 25-8-1928, according to the E. Leitz, Wetzlar records.

The historical significance of a large-format Leica appears to have gone unnoticed; possibly, this is because so

few of these cameras were manufactured. Their rarity became apparent to me when I acquired one; I had a magnificent instrument, but no accompanying data. Therefore, I wrote a letter to the Leica Historical Society of America publication, *Viewfinder*, asking for help.

My letter was published in Volume 29, number 4 in the fourth quarter of 1996.

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I was pleasantly surprised by the large number of responses. I thank everyone who responded; without them, this article could not have been written.

It soon became apparent that volumes of data were still in existence, but only three respondents had ever seen an actual unit. And the list of Leicaphiles who responded includes a microscope wholesaler (a family-owned business that spans generations), a retired Leica employee (employed by E. Leitz at the time this microscope was manufactured), many microscope collectors and numerous collectors interested in all Leitz products.

The camera consists of three standards (the Leitz instruction book calls them saddle stands): one supports the camera face (shutter assembly, etc.), one supports the back (ground glass, etc.), and the center standard keeps the bellows from sagging. 100 centimeters (40") of bellows needs some center support or it would be sway-backed; this would interfere with the internal path of light.

The camera is truly a Leica; its wooden standards are beautifully finished fine hardwood. The saddle stands are of cast iron; they hold the camera precisely where it was placed, and assure rigidity and correct alignment. Yet the clever method used to attach the camera to the rail, or track, makes installing or removing the camera simple and rapid.

The lens board is equipped with a compound shutter, which allows either time or instantaneous exposures. When photographing at prime focus, a camera lens is not used. Leitz offered a large selection of "Photographic Lenses for the Macrophotographic Arrangement" as well as lenses for general use. And like all large format cameras, any manufacturer's lens, of proper area coverage,

mounted to the proper lens board, will function properly. However, no true collector would consider mounting an after-market lens to a Leica.

According to an E. Leitz, Inc., New York catalogue, printed in October of 1930 (CATALOG No. 1057 [2nd Edition]), the accessories for these conversions were: *

ACCESSORIES FOR THE EXAMINATION AND PHOTOGRAPHY OF COARSE SPECIMENS

TABLE A

Code Word	Cat. No.	Designation	Price
ACCESSORIES FOR THE EXAMINATION AND PHOTOGRAPHY OF COARSE SPECIMENS			
BICQO	29270	Holder for Macro-Objects (see Fig. 14), for use with Micro-Metallograph (as described on page 23)	\$120.00
BEMEV	29274	Illuminating Device for Macro-Objects (see Fig. 14), for use with Micro-Metallograph (as described on page 23), complete with two lamps (when ordering state the voltage)	90.00
FUMAK	29277	Special Object Stage , for use with camera No. 29128, with auxiliary camera bed, the stage consisting of vertical rod to be fastened to the under-surface of the base board of the Micro-Metallograph, swinging arm support with wooden board 30x30cm (see Fig. 15) (as described on page 23)	45.00
BEMFA	29279	Photomicrographic Apparatus "MA-IVa" (see Fig. 16), consisting of base support with vertical column, mounted thereto by clamp on a separate optical bed a camera of 50cm bellows extension, the camera equipped with two plateholders for plates 5x7" having kits for plates 3 1/4 x 4 1/4", one ground glass focusing screen, adapters for photo-objectives, rack and pinion for focusing the objectives and focusing magnifier (as described on page 23)	115.00
BEMGI	29282	Photomicrographic Apparatus "MA-IVa" , same as No. 29279, but equipped with time and instantaneous shutter	135.00
BEMHL	29284	Illuminating Device for Macro-Objects , for use in connection with camera "MA-IVa" (see Fig. 16), consisting of small optical bench attachable to the base of the camera, rider and swinging arms, with two lamps (as described on pages 23 and 24) (when ordering state voltage)	100.00
FOLEK	29286	Tripod Stand with Ball Joint (see Fig. 17), for use with camera "MA-IVa" (as described on page 24)	40.00
SUMAN	28238	Photographic Objective "Micro-Summar" F:4.5, 24mm focal length, with iris diaphragm	36.00
SUMEX	28240	Photographic Objective "Micro-Summar" F:4.5, 35mm focal length, with iris diaphragm	36.00
SUMIT	28245	Photographic Objective "Micro-Summar" F:4.5, 42mm focal length, with iris diaphragm	36.00
SUMOS	28247	Photographic Objective "Summar" F:4.5, 64mm focal length, with iris diaphragm	40.00
SUMUR	28250	Photographic Objective "Summar" F:4.5, 80mm focal length, with iris diaphragm	44.00
SUMMY	28252	Photographic Objective "Summar" F:4.5, 100mm focal length, with iris diaphragm	47.50
SUMZO	28255	Photographic Objective "Summar" F:4.5, 120mm focal length, with iris diaphragm	55.00
BEMIF	29251	Adapter, for attaching "Micro-Summars" 24, 35 and 42mm to camera	1.00
BEMJE	29253	Adapter, for attaching "Summar" 64mm to camera	1.00
BICKL	29255	Adapter, for attaching "Summar" 80mm to camera	1.25
BICLM	29260	Adapter, for attaching "Summar" 100mm to camera	1.50
BICMP	29265	Adapter, for attaching "Summar" 120mm to camera	2.50

* Reproduction of original Leitz data is with permission from Leica Camera, Inc.

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Actually, Table A indicates that there were several large format Leica cameras. At least two of them, (Cat No. 29279 and 29282), were cameras with a maximum of 50cm bellows extension. They can accommodate films no larger than 5" x 7".

The camera also comes with one 8 x 10 plate holder. This plate holder is a marvel in itself; it accepts either plate or sheet film. And several adapters (included), allow the photographer to use many smaller film sizes (to a minimum size of 3 1/4" x 4 1/4").

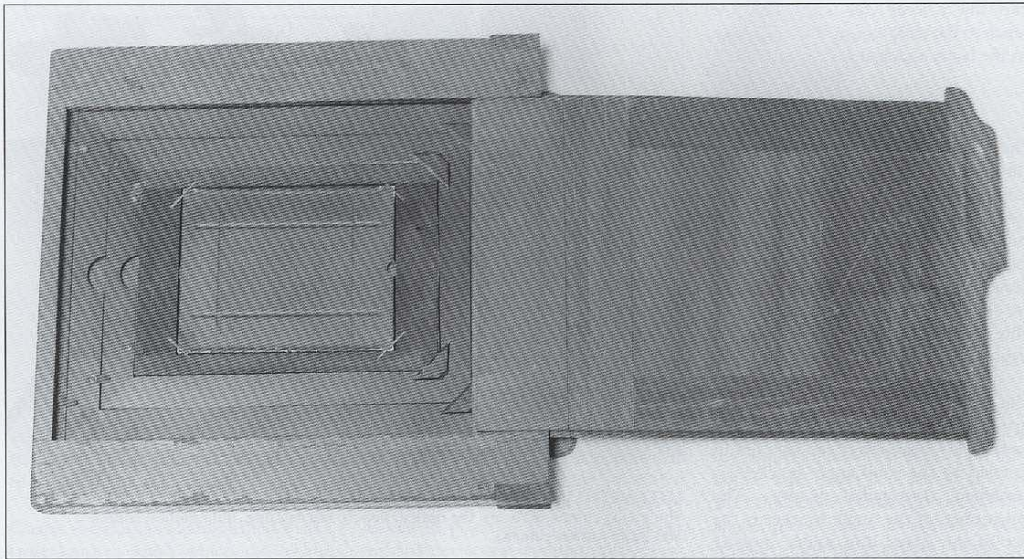
There were offered two different plate holders. One "Plate holder, single type" (catalogue number 29156, Code Word BEFVX), was supplied with some cameras, but additional holders could be purchased for \$11.50 each. "Plate

Holder, double type" (catalogue number 29162, Code Word BEFWJ), was sometimes supplied with the camera and also offered as an optional accessory that could be purchased for \$20.00. In some catalogues, the camera could be ordered with either holder. Naturally, Leitz had a different code word and order number for each combination. A camera with one single plate holder was a BEFPS, Cat. No. 29125. BEFQP, No. 29130 is described thus: "Camera, same as No. 29125, but supplied with two double plate holders." These holders were so beautifully designed and constructed that an entire article could be written about them.

The importance of a film holder that can accept both sheet and plate film cannot be overstated. While most photographers were reveling in the convenience

of flexible-based film (thinness, light weight, shatterproof and lower cost), purists demanded images on glass plates. Glass plates do not expand and contract during the processing/drying cycle, therefore when precise measurements were required, glass plates satisfied their craving for perfection.

Leitz 8" x 10" camera, serial number 757, came as a component of the Leitz Metallurgical Microscope Model MM. Virtually every camera collector is fascinated by precision mechanisms; many have a number of fine microscopes in their possession. So let us briefly explore the other major components that make up this historic collectable. The Leitz Metallurgical Microscope MM consists of an optical bench, a microscope (with stand), a source of illumination and a camera (described above).



"Plate holder, double type" (catalogue number 29156, codeword BEFVX) is beautifully engineered and constructed. With a series of removable inserts, it is capable of holding both sheet film and glass plates. The camera operator may select from an assortment of film sizes from 8" x 10" to 3 1/4" x 4 1/4". The dark slide is not removable, however it can be folded behind the holder by a series of interlocking, light-tight segments that are reminiscent of a roll-top-desk cover.

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THE OPTICAL BENCH

The optical bench and its table support are designed to provide maximum stability and precise alignment. The bench consists of a carefully machined, triangular cast-iron track to which is mounted a centimeter scale (for easy reading of the bellows extension), plus location indexes (indicating the proper placement positions for the microscope and the light source).

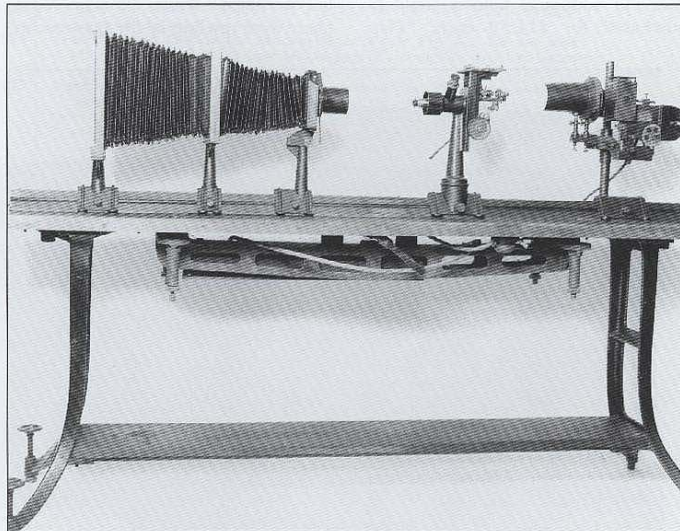
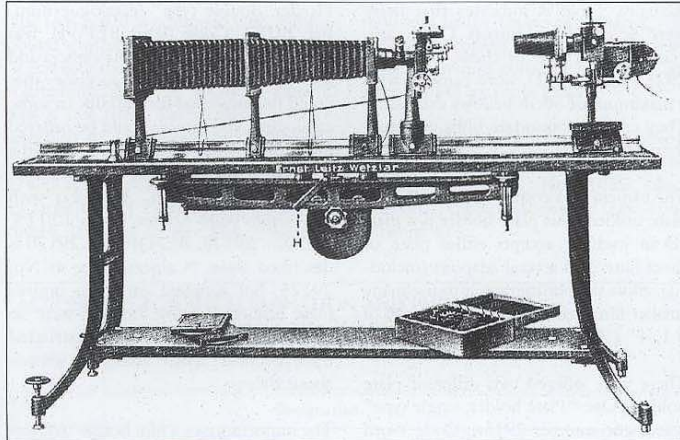
The optical bench is mounted to a heavy "oakwood" table, and the entire assembly is supported by cast-iron legs. Leveling is accomplished via large leveling screws.

Between the legs and the table is a large metal track, supported on coil springs. This vibration absorber is actually attached to the optical bench, and throwing a lever will either lock the bench to the table top, or allow it to float on the heavy shock-absorbing springs.

THE MICROSCOPE

The microscope is amazing in its versatility, because it is an inverted microscope with a vertical illuminator and mechanical stage. Most microscopes cause the observer to look down on the specimen. An inverted microscope allows the sample to be placed on top of the object stage, and viewed from below. This permits the study of any surface, regardless of object thickness.

The microscope stand is solidly constructed, and consists of only two parts. The heavy vertical support is coupled to the solid angle bracket via machined, dove-tailed grooves. The top surface of the angle bracket is the face of the stage; thus joints, moving parts and other causes of vibration have been kept to a minimum. Also, to quote the instruction book, "A guarantee is thus offered that the optical



LEITZ METALLURGICAL MICROSCOPE MM

The major components are the optical bench, microscope, illumination source and large-format camera.

Compare the photograph with the rendition from the original instruction manual. After looking at numerous catalogues (sent to me by different LHSA members), it became apparent that many subtle variations exist (or existed) in the inverted microscope and its stand.

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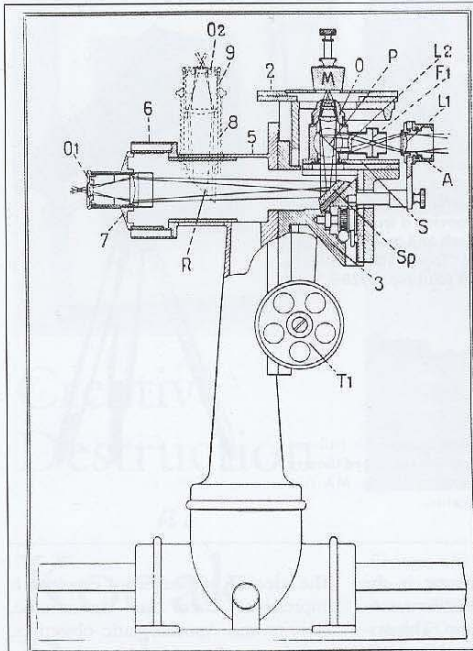
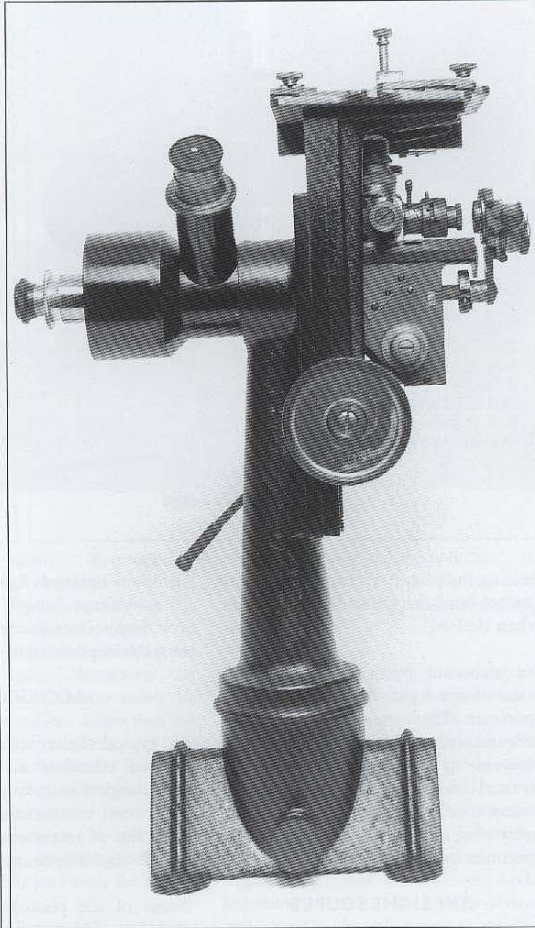


Fig. 4

Designation of numbered parts:

- | | |
|--|---|
| 2—Object stage; | L2—Condensing lens mounted in entrance tube of vertical illuminator; |
| 3—Fine adjustment casing cast in one piece with supporting stand (see Fig. 1); | M—Specimen; |
| 5—Microscope tube cast in one piece with supporting stand (see Fig. 1); | O—Objective; |
| 6—Light-excluding adapter; | O1—Projection ocular inserted into ocular adapter; |
| 7—Ocular adapter; | O2—Ocular for visual observation; |
| 8—Adjustable microscope tube for visual observation; | P—Reflecting prism or reflecting glass plate, directing light towards the specimen; |
| 9—Draw tube controlling the position of prism "R"; | R—Reflecting prism directing rays towards the observer's eye; |
| A—Iris-diaphragm mounted to rack and pinion carrier; | S—Dove-tailed slider for vertical illuminator; |
| F1—Iris-diaphragm mounted in entrance tube of vertical illuminator; | Sp—Metal mirror; |
| L1—Condensing lens mounted to rack and pinion carrier; | T1—Rack and pinion wheel for coarse focus. |



The microscope is amazing in its versatility. It is an inverted microscope with a vertical illuminator and a mechanical stage.

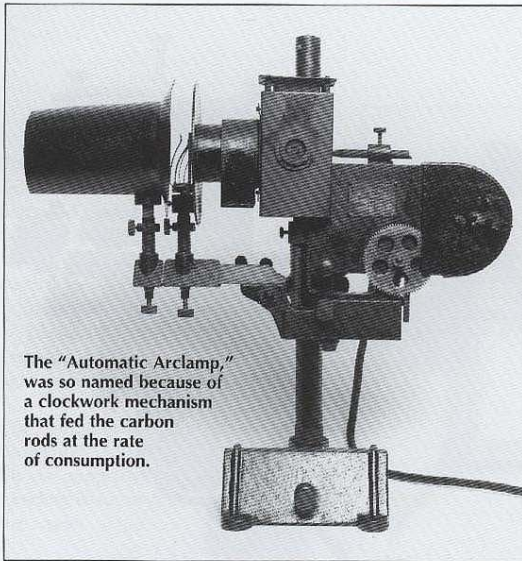
axis remains at all times most accurately adjusted in a perpendicular position to the plane of the specimen."

Coarse focusing is accomplished with a large knurled knob which moves the stage up or down, via a rack-and-pinion system. Fine focus employs a micrometer screw which acts directly upon the objective, and thus acts inde-

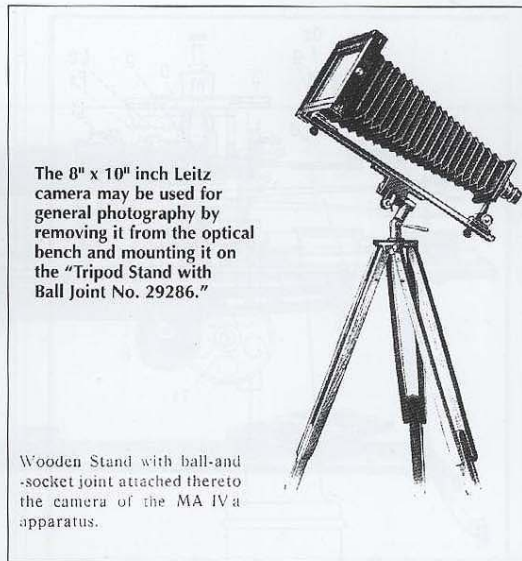
pendently of the coarse focus adjustment. This double system provides another vibration-reducing safeguard because the coarse focusing rack can be locked in position and the fine focus micrometer screw is immune to vibrations. The micrometer adjustment screw contains a graduated drum which permits depth measurements of specimens.

Two microscope tubes facilitate viewing and/or photographing. The horizontal tube mates with the housing on the camera face, while the vertical tube allows the observer to assume a comfortable viewing position. When the system is used for visual observation, a prism reflects the light to the eye piece. Raising the observer's tube opens the horizontal path so that the image-

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The "Automatic Arclamp," was so named because of a clockwork mechanism that fed the carbon rods at the rate of consumption.



The 8" x 10" inch Leitz camera may be used for general photography by removing it from the optical bench and mounting it on the "Tripod Stand with Ball Joint No. 29286."

Wooden Stand with ball-and-socket joint attached thereto the camera of the MA IVa apparatus.

bearing light can travel to the camera's shutter (and the ground glass, or film, when desired).

An elaborate prism/lens/iris system controls the light that illuminates the specimen. The system contains a glass reflecting plate that may be employed (instead of the high-intensity light source) when using lower-power objectives. It also includes an attachment that is used for viewing uneven specimen surfaces.

THE LIGHT SOURCE

Several light sources may be used to illuminate the specimen under observation. According to the catalogue, the illumination source supplied as standard equipment was the "Automatic Arclamp." It was so named because a clockwork mechanism fed the carbon rods at the consumption rate. A more expensive "Arclamp with Electro-Magnetic Feeding Mechanism" was also offered. Arc lighting was recommended because it greatly reduces the photographic-exposure times.

Another optional light source is the "Low-Voltage Lamp" that utilizes a 6-volt 5amp. incandescent lamp. This system can be powered by either AC or DC.

ACCESSORIES

In typical Leitz style, the company offered countless accessories for this metallurgical microscope. Some of them have been enumerated above, but the total list of accessories would virtually stretch to the horizon.

Some of the photographic accessories include: a focusing extension cabinet (a stiff-walled device which functions as a bellows extension), a telescope magnifier and a focusing screen-observation mirror. (These two viewing accessories facilitate ground-glass viewing while operating the microscope.) There is a large list of accessories for the "examination and photography of coarse specimens" which includes: specimen holders, light holders, vertical camera stands, a tripod with ball head, and photographic lenses as well as special filters (used primarily for macro-photography).

The selection of microscope eyepieces is impressive. There are Achromatic, Fluorite and Apochromatic objectives, each in a variety of focal lengths, some designed for oil immersion, some for "dry" use. A device called "Double Vision Ocular" permits two people to view a specimen at the same time, and "micrometer-oculars" permit actual measurements within specimens.

Light source and alternate light source accessories include rheostats, transformers and replacement bulbs.

Design, engineering and construction of this caliber make this microscope system a mind boggling masterpiece. Who else but Leitz could produce a system of this completeness and sophistication?

