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OLYMPUS

OM
SYSTEM

MANUAL FOR
PHOTOMICROGRAPHY
GROUP

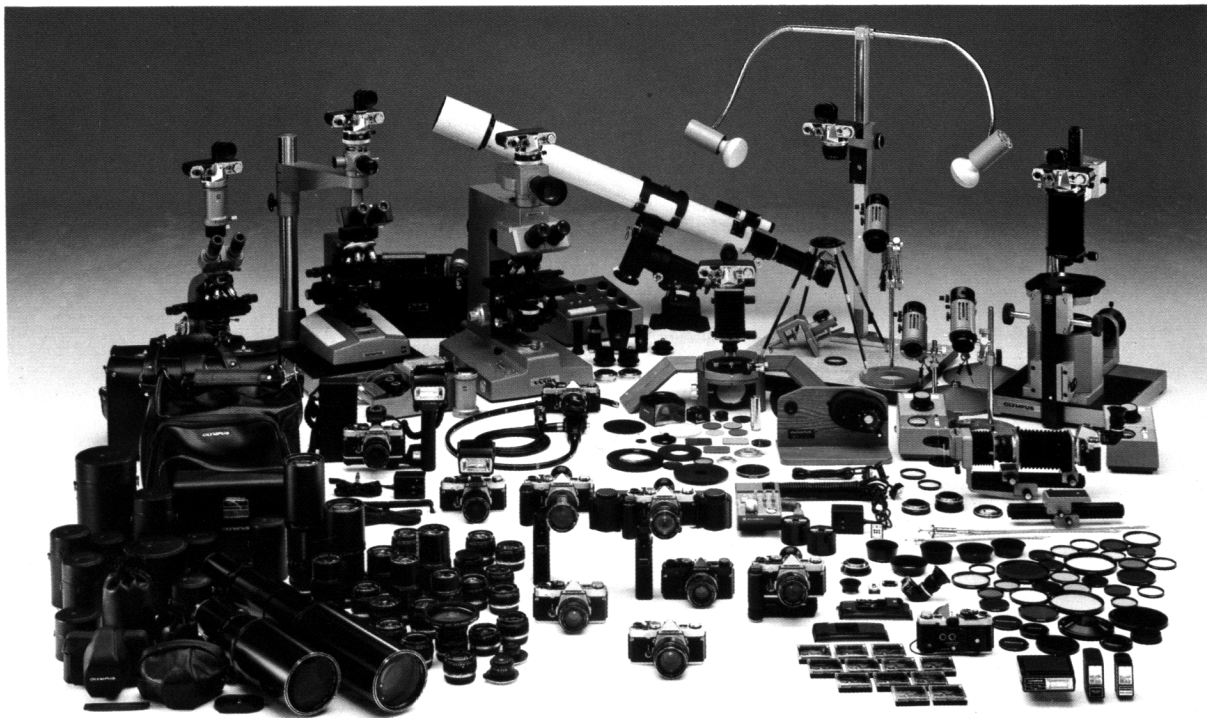


PHOTOMICROGRAPHY WITH THE OM SYSTEM

"From the stars to microorganisms" is the theme of the Olympus OM System and there is no limit to the subjects that

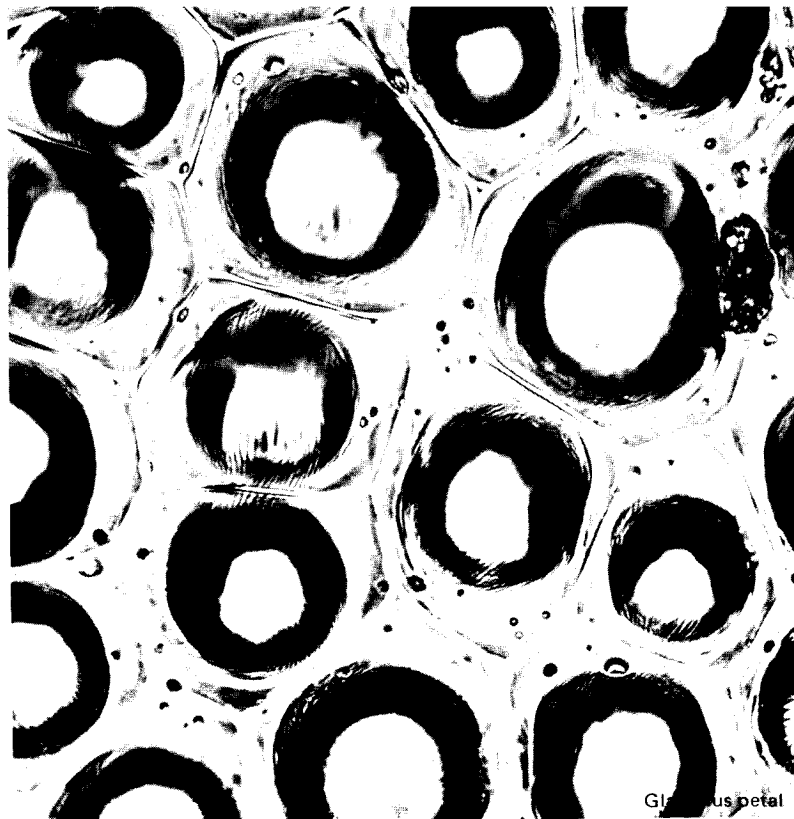
can be tackled by this superbly comprehensive photographic system. This booklet is intended to introduce the

owner of an OM camera to the exciting possibilities of photomicrography with the OM System Photomicro units.





● THE PHOTOMICROGRAPHIC WORLD	3	● MICROSCOPE CONNECTING UNITS	12	● SPECIAL UNITS	16
● PHOTOMICROGRAPHY GROUP SYSTEM CHART	5	Eyepiece Adapters PM-ADF, PM-ADP & PM-ADG	12	Photomicrographic Exposure Meter EMM-7	16
● CHART OF PHOTOGRAPHIC RANGES	6	Photomicrographic Supporting Stand PM-PSS	12	Screen Viewer PM-VSC	17
● SELECTION OF VIEWFINDER UNITS	7	● FULLY AUTOMATIC PHOTO-MICROGRAPHIC SYSTEM	13	5X Magnifier	17
Focusing Screens 1	7	Auto-Photomicrographic System		Focusing Magnifier FT	17
Varimaghi Finder	8	PM-10-A	13	● OTHER OM SYSTEM UNITS	19
Eyecup 1	8	Automatic Exposure Body		Motor Drive Group	19
Dioptric Correction Lenses 1	8	PM-PBA	14	Recordata Back 1	20
Eyecoupler	8	Automatic Exposure Control Box		OM-Mount Endoscope Adapter	20
● SELECTION OF CONNECTING UNITS	9	PM-CBA	14	OM-Mount MTX Adapter	20
● CAMERA CONNECTING UNITS ..	11	Focusing Telescope PM-VS	14	● HOW TO USE THE PHOTOMICRO ADAPTERS L & H	21
OM-Mount Photomicro Adapter L ..	11	● MANUAL PHOTOMICRO-GRAPHIC SYSTEM	15	21
OM-Mount Photomicro Adapter H ..	11	Manual Photomicrographic System		● USE OF THE ADAPTER L	22
35mm SLR Camera Adapter		PM-10-M	15	Function of the Adapter L	22
PM-D35S	11	Manual Exposure Body PM-PBM ...	16	● USE OF PHOTOMICROGRAPHIC STAND PM-PSS	26
				● USE OF THE ADAPTER H	27



The next time you come across a pretty flower, such as a morning glory, during a stroll, try collecting some of the pollen and preserving it in an alcohol solution in a watch glass. Then take a look at the pollen through a microscope with a 10x eyepiece and 10x objective. The white pollen will swell to the size of golf balls. To get the best image of this kind of subject, a highly suitable microscope illuminator is the Olympus Trans-Illuminator Model LSD, whose light intensity can be adjusted by the voltage control of the transformer provided. However, since changes in voltage affect the color temperature of the light source, for color photography it is preferable to adjust the intensity by means of neutral density compensation (ND) filters.

An interesting exercise is to collect the pollen of various different flowers in separate watch glasses, and stain them with easily available pigments. These will not only provide microscopic images of great beauty, but will allow you to study the form, texture and composition of the pollen samples.

Place a circle of black paper some 10–15mm in diameter on a circular ground glass of 32mm diameter, and insert this "bull's eye" glass into the filter mount of the substage condenser. Open the aperture iris diaphragm of the condenser fully, adjusting the concave mirror in the microscope base so that proper illumination is directed to the specimen, and you will be rewarded by a brilliant image of beautifully stained

pollen samples against a dark background. You might well be tempted to capture this vibrant, living image for permanent record. If so, you have only to mount the OM camera body and an eyepiece of your choice onto the microscope by means of the Photomicro Adapter L and an Eyepiece Adapter. If your microscope is a drawtube type, make sure to tighten the coarse adjustment knobs before mounting the camera, so as to avoid the risk of the drawtube dropping suddenly under the extra weight. To focus the camera accurately you should use the interchangeable Focusing Screen 1-12. To take the picture, if you are using an OM-2 camera on "AUTO", simply press the shutter button. For "MANUAL" operation with the OM-1 or OM-2, you must first rotate the shutter dial to centralize the indicator needle on the exposure index in the viewfinder. If necessary, fine adjustments can be made by adjusting the aperture iris diaphragm of the condenser. It is also necessary to put color temperature compensation filters in front of the microscope illuminator. Photo 1 (P.30) shows morning glory pollen photographed in this way. When the pollen is dispersed in the bright field of view, advance the exposure one stop more than indicated by the meter. By sticking four sector shaped pieces of variously colored cellophane, e.g. red, green, yellow and blue, around the periphery of the bulls eye on the 32mm diameter glass, you can obtain a vari-colored background to make the image

still more spectacular. Photo 2 (front cover, left) of a spider's web utilizes this effect.

Using a polarizing filter is another way to ensure beautiful coloration for photomicrography. Rotate the polarizer on the microscope filter mount to get the darkest possible field of view as seen through the eyepiece. A crystal specimen placed in this dark field will take on the most beautiful hues. (See Photo 3 of Glucuronic acid on the front cover, right.) If you place a thin mica filter in the condenser, the beautiful color is spread over the field. (See Photo 4 of a Quinine crystal on the front cover, center.)

Other equipment needed for successful photomicrography includes a microscope. A medium class model is satisfactory for this purpose. Objectives of 4x and 10x magnifications are most frequently used. A 40x objective is the next higher power. As the magnification increases, so does the resolution, but the field of view and depth of field become smaller. For eyepieces, the photo eyepieces FK, which are specially designed for photomicrography, are especially recommended. The eyepieces P5x and P10x are also highly suitable. As with the objectives, higher magnification eyepieces decrease the field of view and the image brightness. Excessive objective and eyepiece magnifications should therefore be avoided.

The smaller the aperture of the condenser iris diaphragm, the darker the field of view, the larger the depth of field, and

the less the resolving power. You should make full use of these optical properties. If you have an Abbe condenser, unscrewing the top lens of the condenser for use with the objective 4x will give more even illumination.

Make sure that the light beam emitted by the illuminator or reflected by the substage mirror passes through the objective and goes toward the eyepiece on a correct path. Usually the plain surface of the mirror is used with bright field light. When the Trans-Illuminator LSD (a low voltage illuminator with a 6V, 5A bulb) is used, the light beam can be adjusted by means of the field iris diaphragm, bulb centration and focusing adjustment of the illuminator. A practical way to check for correct illumination is to put a piece of white paper in place of the specimen on the microscope stage. A simple way to ensure appropriate, effective illumination is to align the microscope and illuminator base on a sheet of paper, marking in their relative positions for easy realignment during subsequent use. If the microscope has a built-in illuminator this procedure is still simpler. (Y. Ito, photographer)

PHOTOMICROGRAPHY GROUP SYSTEM CHART

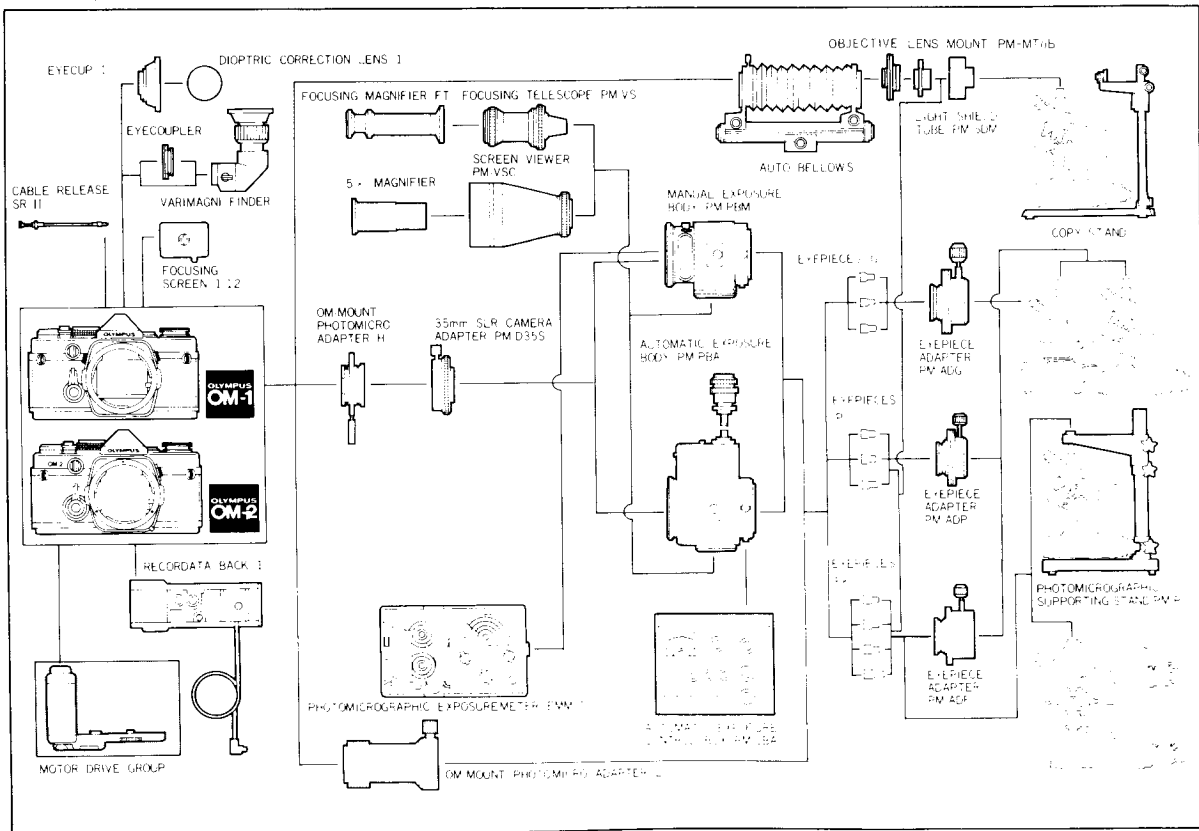


CHART OF PHOTOGRAPHIC RANGES

OBJECT (mm) 240 × 360 120 × 180 48 × 72 24 × 36 12 × 18 4.8 × 7.2 2.4 × 3.6 1.2 × 1.8
 AREA (inch) (9.44 × 14.17) (4.83 × 7.09) (1.92 × 2.87) (0.94 × 1.41) (0.47 × 0.71) (0.19 × 0.28) (0.09 × 0.14) (0.047 × 0.071)

MAGNIFICATION

1.0 1.5 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 TIMES

GROUPS

BASIC METHODS

1.7 1.11 INTERCHANGEABLE LENSES

2.5 0.4 MACRO 50mm F3.5

1.36 2.3 1.1 MACRO 80mm F4

1.2 6.11 MACRO 38mm F3.5

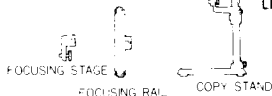
4.5 12.4 MACRO 20mm F3.5

1.24 16.6 MACRO PHOTO LENS EQUIPMENT PMT-35

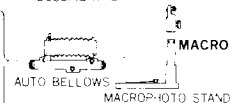
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OM-MOUNT PHOTOMICRO ADAPTER EYEPIECE ADAPTERS

ZUIKO INTERCHANGEABLE LENS GROUP



MACROPHOTOGRAPHY GROUP



PHOTOMICROGRAPHY GROUP



AUXILIARY METHODS

1.77 3.36 STANDARD LENS + CLOSE-UP LENS

1.77 1.16 MACRO 50mm F3.5 + CLOSE-UP LENS

1.34 1.23 EXTENSION TUBE 7

1.36 1.23 EXTENSION TUBE 14

1.24 1.18 EXTENSION TUBES 7+14

1.21 1.16 EXTENSION TUBE 25

1.16 1.13 EXTENSION TUBES 7+25

1.13 1.11 EXTENSION TUBES 14+25

1.11 1.09 EXTENSION TUBES 7+14+25

1.2 EXTENSION TUBE 25 MACRO 50mm F3.5

1.14 4.1 OR MACRO 50mm F3.5 OR STANDARD LENS

STANDARD LENS MACROPHOTOGRAPHY GROUP

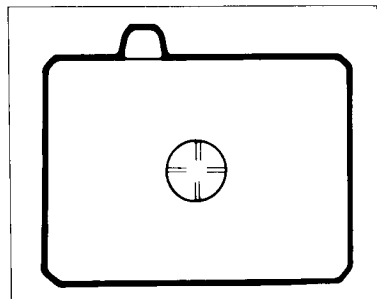
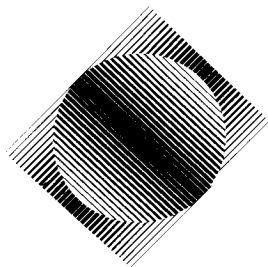


The single lens reflex camera viewfinder plays a vitally important role in photomicrography. The photographer looks through the finder to adjust focus, lighting and composition. In photomicrography, the picture magnification is extremely large compared with ordinary photography. The greater the image magnification, the more conspicuous the graininess of the focusing screen, and the more difficult it is to focus and ensure proper lighting. For this reason, the Focusing Screen 1-13, usually mounted on the OM body as standard, should be replaced with the Macroprism-matte Focusing Screen 1-12, specially designed for photomicrography. This transparent screen with a cross hairs reticle in the center provides an unusually bright clear viewing area.

To focus with the Focusing Screen 1-12, correct your diopter to see the cross hairs and bring the subject into focus.

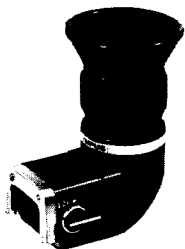
When the sharp images of the cross hairs and the subject are seen simultaneously, the subject is correctly focused.

Photomicrography requires more accurate diopter correction than general photography. Make a point of using the most effective combination of dioptic correction lenses and focusing screens.



■ Focusing Screens 1

Of the 13 OM System interchangeable focusing screens, the Cross Hairs-Clear Field type 1-12 is exclusively used in photomicrography. This transparent screen assures an unusually bright field of view with high contrast. To focus, first correct your visual acuity with Dioptic Correction Lenses or the Varimaghi Finder in conjunction with the Eyecoupler, so that the double cross hairs can be seen clearly and separately. Then bring the subject into focus so that the cross hairs and subject can be seen clearly at the same time. The TTL meter indicates proper exposure, but depending on the subject conditions, the reading should be modified by adjustment of shutter speed, aperture, etc.

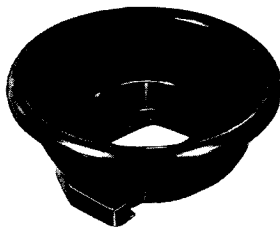


■ Varimagni FINDER

The Varimagni FINDER magnifies the viewfinder image, and rotates through 360° allowing accurate focusing from any position, including waist-level and downward viewing camera positions. It slides onto the viewfinder and can be adjusted for individual eyesight.

Images reflected on the finder glass can be changed from 1.2x to 2.5x magnification by a convenient selector switch. To view the entire field through the eyepiece for framing and composing, set the switch to "1.2x". Then, for critical focusing, turn to "2.5x".

For photomicrography, the Eyecoupler should be used between the camera and the Varimagni FINDER.



■ Eyecup 1

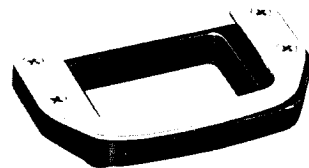
Designed to prevent glare and loss of contrast caused by stray light hitting the eyepiece. Made of rubber for soft contact with the eye socket. A dioptic correction lens can be fitted into a slot in the Eyecup and is held by a threaded retaining ring. The OM body requires use of the Eyecup 1 or Varimagni FINDER for photomicrography.

■ Dioptic Correction Lenses 1

If the Varimagni FINDER is not available, Dioptic Correction Lenses should be used when necessary to assist focusing.

These lenses snap into a slot provided in the Eyecup. They are available in 8 different diopters:

+2, +1, 0 diopters for long sight; -1, -2, -3, -4 and -5 diopters for short sight. The appropriate choice of Dioptic Correction Lenses eliminates the need for eyeglasses.



■ Eyecoupler

The Eyecoupler is used with the OM body and the Varimagni FINDER for photomicrography. It attaches between the camera and the Varimagni FINDER, extending the FINDER away from the camera for more convenient viewing.

When using the Motor Drive 1 in conjunction with the 250 Film Back 1, the Eyecoupler is required for mounting the Eyecup 1 to the camera.



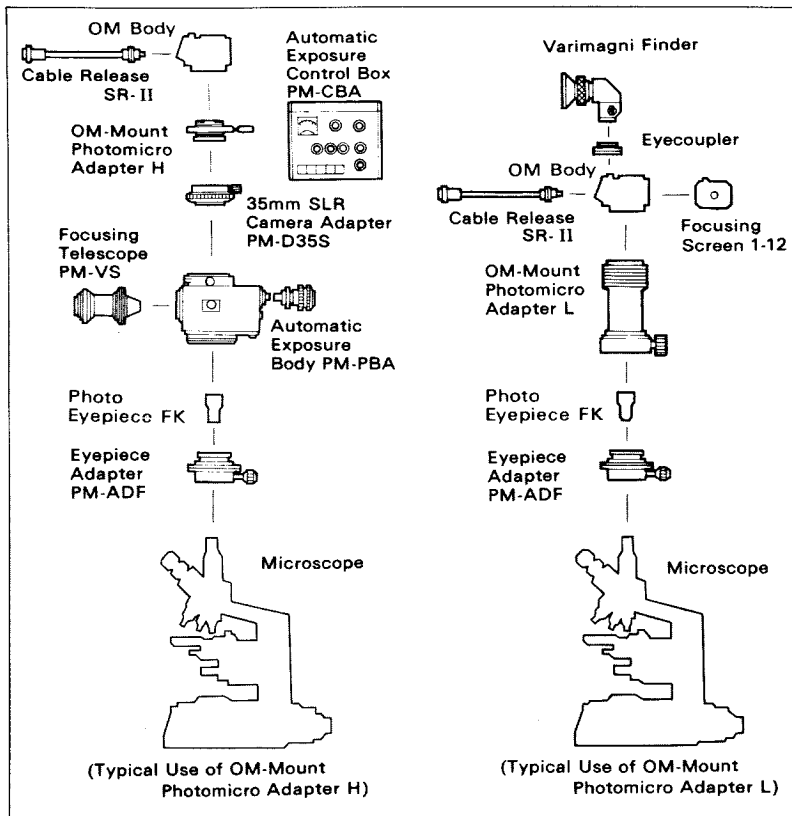
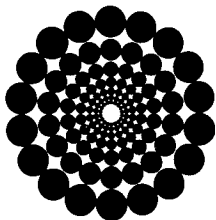
Leaf of Japanese pepper tree

For photomicrography, the camera must be mounted on a microscope by means of connecting devices. One of the key functions of these devices is to prevent the transmission of shutter vibration to the microscope. As the effects of this vibration depend on the magnifications involved, connecting units of the camera and microscope must be selected according to your photographic purposes.

The connecting units used on the camera include the Photomicro Adapter L for total magnifications up to 250x (chiefly with objectives of up to 20x), or the Photomicro Adapter H for magnifications higher than 250x. The Photomicrographic Supporting Stand PM-PSS reduces any vibration transmitted with the use of these adapters.

The connecting units used on the microscope are the Eyepiece Adapters PM-ADF, PM-ADP and PM-ADG, according to the type of eyepiece in use. A series of FK Eyepieces provides the most versatile means for high resolution photomicrography, and the eyepieces P, corrected for chromatic aberration and astigmatism, are used for both observation and photomicrography with high power objectives. The eyepieces G are for use in stereo-microscopy and photomicrography.

The diagram at right illustrates two examples of the most typical combinations of connecting units available in the OM System. Your selection should be based on the use you intend to make of them.





CAMERA CONNECTING UNITS



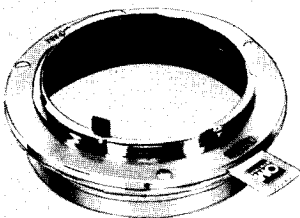
■ OM-Mount Photomicro Adapter L

For photomicrography with the OM body, the Adapter L is used to mount a low power eyepiece on the camera.

For this, each eyepiece requires an eyepiece adapter for use with Olympus microscopes other than the Universal Research Microscope VANOX and the Photomicrographic Stand PM-PSS.

The Adapter L accepts the Eyepiece Adapter on its slip-on mount and the OM body on its bayonet mount.

The Focusing Screen 1-12 facilitates focusing for photomicrography.



■ OM-Mount Photomicro Adapter H

For mounting the OM body on the Photomicrographic System PM-10, automatic or manual version, or the Macrophotographic Equipment PMT-35 in conjunction with high power objectives, the Adapter H is used together with the 35mm SLR Camera Adapter PM-D35S.

The Adapter H also permits attachment of the OM body to the Olympus Motorized Operating Microscope Model OMB for recording of micro-surgery.

The Focusing Screen 1-12 is recommended for use with the Adapter H in photomicrography.



■ 35mm SLR Camera Adapter PM-D35S

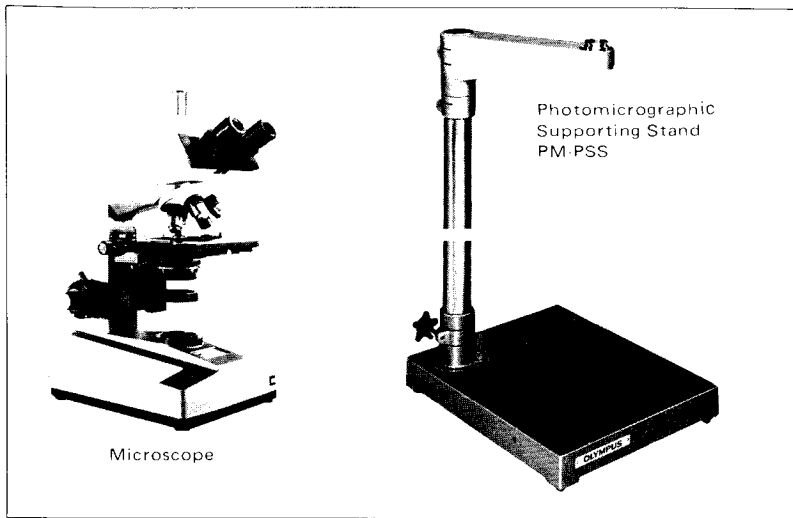
This is used with the OM-Mount Photomicro Adapter H to connect the Automatic or Manual Exposure Body, PM-PBA or PM-PBM, of the Model PM-10 to the OM body for photomicrographic work.



■ **Eyepiece Adapters PM-ADF, PM-ADP & PM-ADG ***

These adapters are used between eyepiece and microscope. They are available in three types: Adapter PM-ADF for photo eyepieces FK, Adapter PM-ADP for eyepieces P and Adapter PM-ADG for eyepieces G. Of these three eyepieces, the newly designed photo eyepieces "FK" are exceptionally well suited for photomicrography with the OM body.

*NOTE: Contact the Olympus Microscope Distributors for further details.



■ **Photomicrographic Supporting Stand PM-PSS ***

This is a convenient unit for photomicrography at high magnifications. The unit supports the entire weight of the camera, isolating it from the microscope. The weight and solidity of a separate stand alone, tends to reduce any transmitted vibration. Other bench vibrations are absorbed by the stand's rubber feet and a rubber mat minimizes transmission of

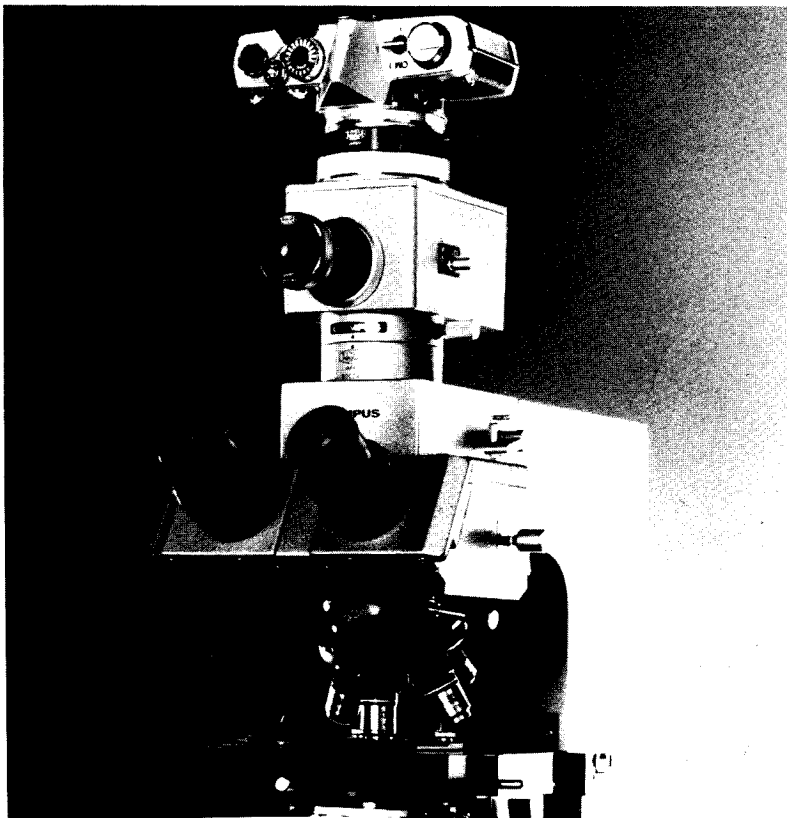
vibration from the microscope. The PM-PSS stand may be used with any Olympus microscopes or other microscopes having a vertical photo tube or a vertical draw tube. Camera and microscope operation is not impaired by the use of the stand, and all controls remain fully accessible. The Photomicro Adapter L or H is required for use with the OM body.

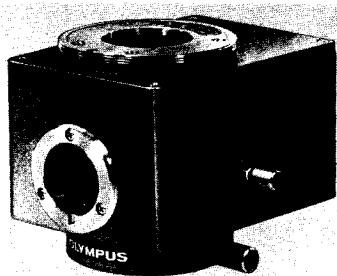


FULLY AUTOMATIC PHOTOMICROGRAPHIC SYSTEM

■ Auto-Photomicrographic System PM-10-A *

The PM-10-A is one of the main microscope connecting units. The built-in vibration-proof electronic shutter permits a wide range of automatic exposures from 1/100 sec. to 32 minutes, and is especially suitable for color photography. The PM-10-A consists of 17 units, including the Automatic Exposure Body PM-PBA, Control Box PM-CBA, etc., to automatically determine correct exposure time, compensate for reciprocity failure, and advance film after each exposure. A built-in color temperature metering and regulating system balances the color temperature of the light source with the color temperature of the film. Easy interchangeability of many accessories permits use of various large format film sizes as well as 35mm sizes. The PM-10-A requires the Photomicro Adapter H and 35mm SLR Camera Adapter PM-D35S to mount the OM-1 or OM-2. It is necessary to set the OM-2 to manual operation for use with the PM-10-A, since the PM-10-A functions as a completely automatic photomicrographic exposure system.

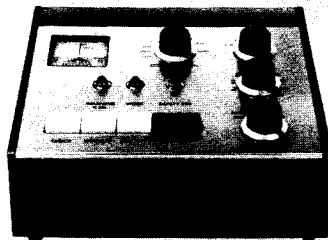




■ **Automatic Exposure Body PM-PBA***

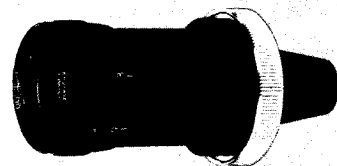
The PM-PBA Exposure Body automatically determines the correct exposure time in conjunction with the Automatic Exposure Control Box PM-CBA. It incorporates electronically controlled shutter in an automatic exposure range from 32 min. to 1/100 sec., 3 position light path selector knob with sliding prisms, quick clamp adapter for attachment to a microscope photo tube, and connecting cord to Control Box PM-CBA.

The PM-PBA requires the Photomicro Adapter H and 35mm SLR Adapter PM-D35S to mount the OM body.



■ **Automatic Exposure Control Box PM-CBA***

This is a control unit for the PM-PBA. Its console cabinet is provided with switches for automatic exposure, time exposure and flash synchronization, and dials for ASA fine adjustment and color temperature adjustment. Push-button operation permits automatic shutter release, manual shutter operation, film advance and light check.



■ **Focusing Telescope PM-VS***

Used with either the Automatic or Manual Exposure Body. Provided with a double cross-line diopter adjustment, four fixed frame reticles indicating 35mm, 120 roll film, 3¼" x 4¼" and 4" x 5" film sizes, and a knurled ring to clamp to the Exposure Body.

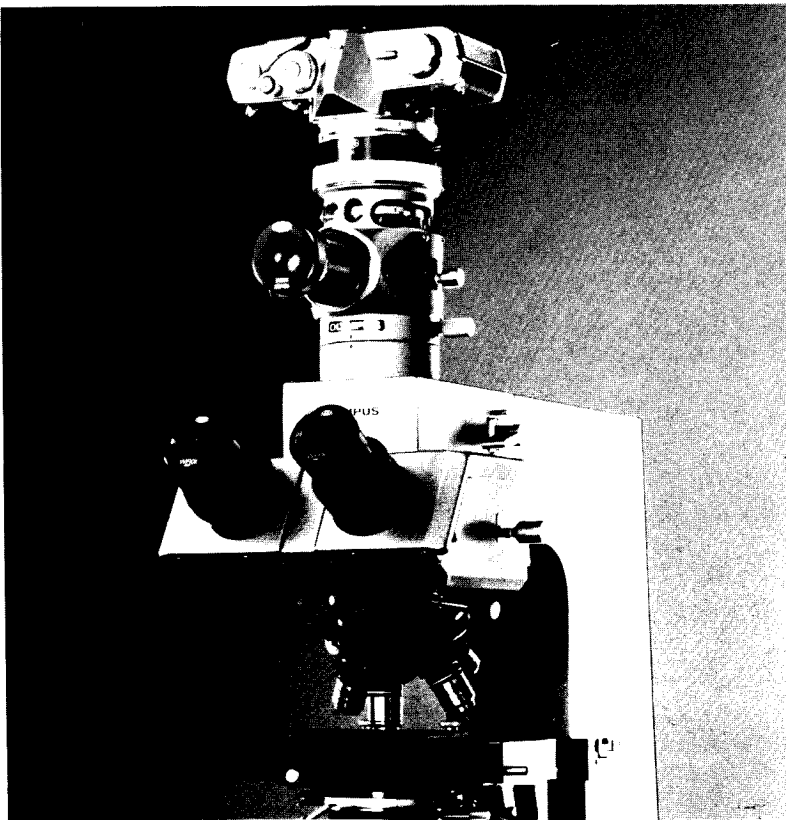
*NOTE: Contact the Olympus Microscope Distributors for further details.

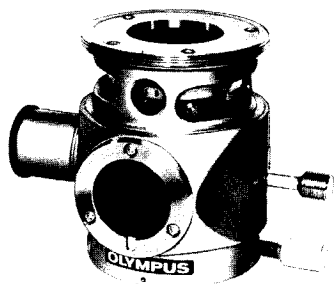
■ Manual Photomicrographic System
PM-10-M *

This is a popular manual version of the PM-10, consisting of 8 units, that includes the Manual Exposure Body PM-PBM, Eyepiece Adapters, Focusing Telescope, Magnifier, etc.

The PM-10-M, when used with the OM-1 or OM-2 in manual operation, facilitates photomicrography especially at high magnifications. This system requires the Photomicro Adapter H and 35mm SLR Adapter PM-D35S for mounting on a microscope with the Photomicrographic Supporting Stand PM-PSS or Eyepiece Adapters.

The light path selector control can be adjusted to transmit all light to the observation eyepiece for focusing and composing in low light situations, to divide light between viewing and film planes, or to send all light to the light measuring port, which accepts the photosensitive cell of the Photomicrographic Meter Model EMM-7. The OM-2 does not require the EMM-7 because of its built-in automatic exposure control system.

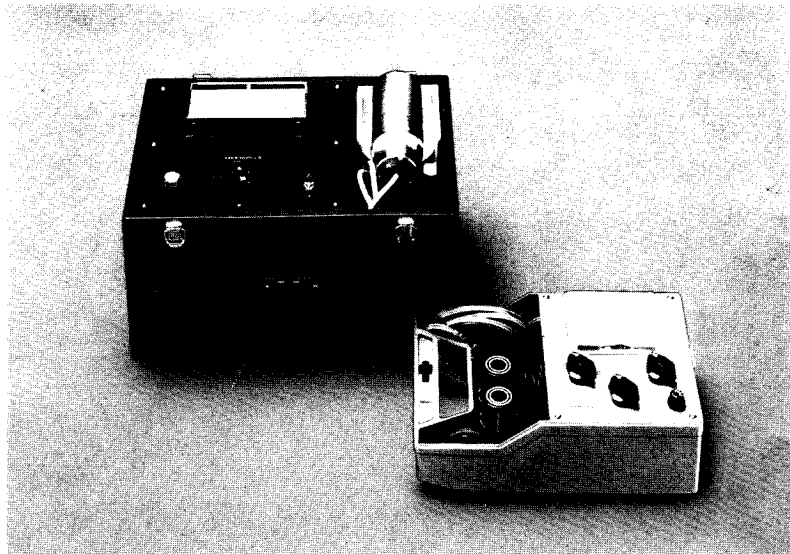




■ Manual Exposure Body PM-PBM *

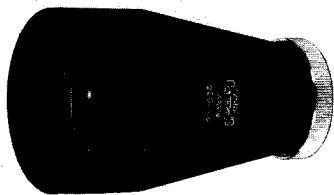
Provided with an integrated mechanical shutter in a vibration-proof rubber mount, permitting shutter speeds from 1/250 to 1 sec and "B", 3 position light path selector knob and quick clamp mount for the Focusing Telescope. Shutter cocking lever, flash synchro socket and shutter speed setting lever are also provided. A light measuring port accepts the photocell of the Olympus Exposure Meter EMM-7. The cable release has a time exposure locking device. Among the focusing units available, the Screen Viewer PM-VSC is recommended for objectives lower than 4x, the Focusing Telescope PM-VS for higher objectives.

* NOTE: Contact the Olympus Microscope Distributors for further details.



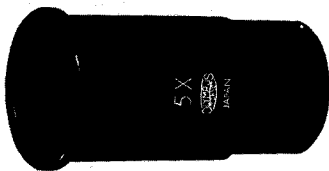
■ Photomicrographic Exposure Meter EMM-7* (shown right)

This exposure meter assures accurate control of both exposure and color temperature with the Manual Exposure Body PM-PBM. Complete with exposure and color temperature probes, color compensating filters and adapter for use with the OM body.



■ **Screen Viewer PM-VSC ***

Designed for use with objectives of up to 4x magnifications. A hood is provided to reduce extraneous light on the viewing screen. A clamping ring holds the Viewer to the automatic or manual exposure body.



■ **5X Magnifier ***

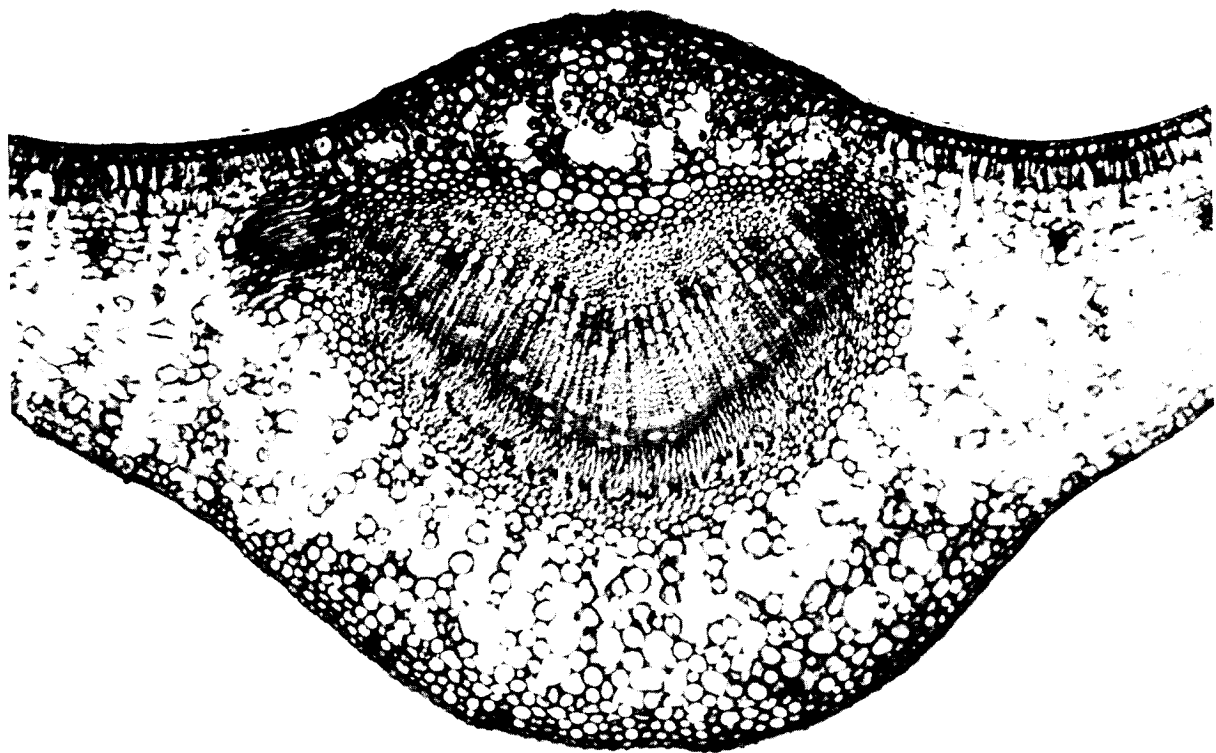
This magnifier is used with the Screen Viewer to facilitate more critical focusing. The front lens of this unit can be moved in and out to magnify any part of the subject area and focus correctly.



■ **Focusing Magnifier FT ***

The Magnifier FT enables the photographer to magnify the central part of the image and bring the subject into sharp focus in conjunction with the Focusing Telescope. The front lens portion of the Focusing Magnifier can be displaced laterally to permit focusing on the frame reticles of the Focusing Telescope. The mounting ring fits on the front lens portion.

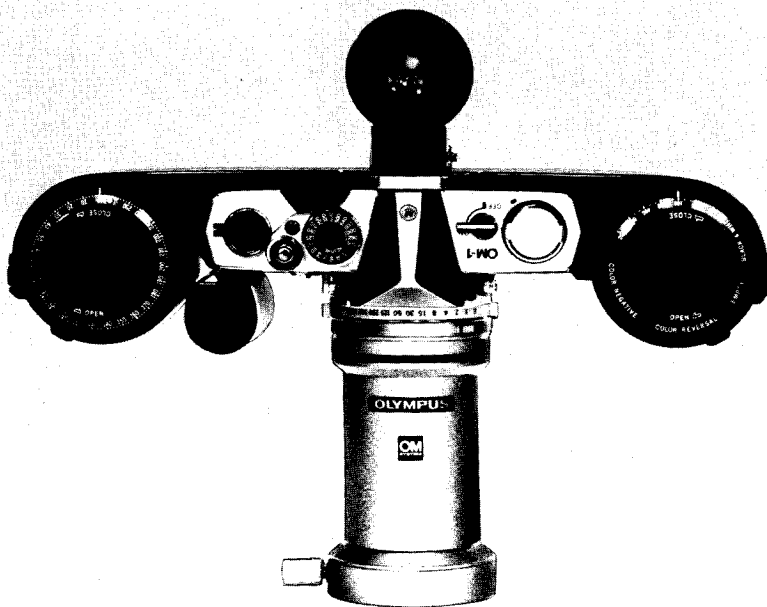
*NOTE: Contact the Olympus Microscope Distributors for further details.

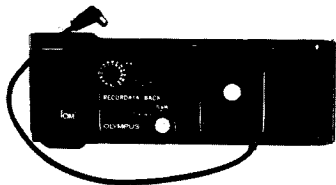


Leaf of camellia

■ Motor Drive Group

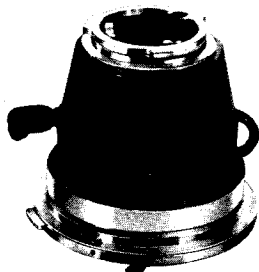
The Motor Drive Group includes a number of units for sequential or intermittent exposures in close-up and copying photography, photomacrography and photomicrography. A remote control mechanism can be used for a series of exposures over a short time period, exposures taken intermittently in conjunction with a timer for photography of cell division over a prolonged time, etc., or a long series of exposures with bulk film. The Motor Drive 1 is the core of the OM System Motor Drive Group. It mounts directly on the camera base to make one of the most compact and maneuverable motor drive systems available. The M. 18V Control Grip 1, rechargeable M. 15V Ni-Cd Control Pack 1, or M.AC Adapter attaches to the Motor Drive 1 to power and control it. The Motor Drive 1 not only frees the photographer from the burden of advancing the film manually, but also allows him to shoot series of pictures that might be lost through the time-consuming manual wind-on method.





■ **Recordata Back 1**

The Recordata Back 1 converts the OM body into a data camera, by enabling imprinting of numerical and alphabetical data directly onto the photograph. An indicator switch permits selection between color and B&W photography. Electrical connection is made by inserting the connecting plug of the Back into the synchro socket of the OM body.



■ **OM-Mount Endoscope Adapter ****

This adapter is used to mount the OM body on the Olympus fiberscopes for endoscopic photography. The Focusing Screen 1-9 is specially designed for this use.



■ **OM-Mount MTX Adapter ***

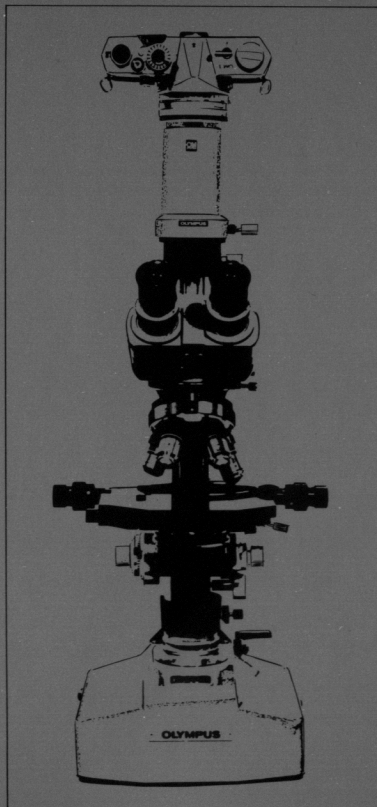
A bayonet mount adapter allowing the OM body to be easily attached to the Operation Microscope Model MTX to meet the exacting requirements of microsurgery.

The OM System lets the Operation Microscope Model MTX record the operation in detail. When used with the Motorized Operation Microscope Model OMB, the OM body requires the Photo-micro Adapter H.

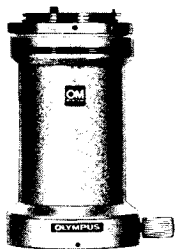
*NOTE: Contact the Olympus Microscope Distributors for further details.

**NOTE: Contact the Olympus Fiberscope Distributors for further details.

As previously mentioned, the connecting units employed in the Photomicrography Group can be divided into two groups, according to the total magnification. One group centering on the Photomicro Adapter L is chiefly used for total magnifications of 250x and lower; the other group, centering on the Photomicro Adapter H, for magnifications higher than 250x.

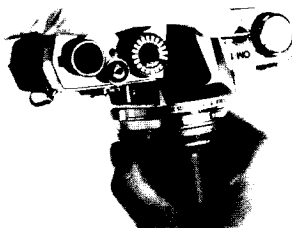


Whatever the magnification, to master photomicrographic techniques you must first become familiar with every unit. The following pages describe how to use the Photomicro Adapters L, H, Eyepiece Adapters PM-ADF, PM-ADP, PM-ADG and Photomicro Stand PM-PSS.



■ Function of the Adapter L

For photomicrography with the OM body, this adapter is used to mount a photo eyepiece on the camera. The eyepieces available for this use are the FK, P and G. Each of them requires a specific eyepiece adapter PM-ADF, PM-ADP or PM-ADG. For 20X objectives, with total magnification up to 250x, the Adapter L directly connects to either of these three eyepiece adapters. Note, however, that the Olympus Universal Microscope VANOX and the Photomicrographic Stand PM-PSS do not require any eyepiece adapter for photomicrography with the OM body through the whole range of magnification.

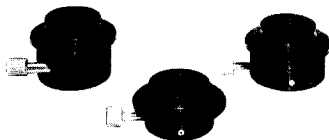
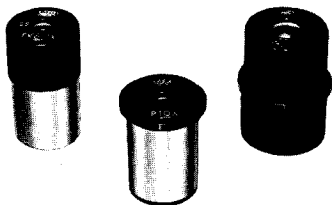


■ Use the Adapter L.

1. Replace the standard Focusing Screen 1-13 with the Screen 1-12.
2. Mount the Photomicro Adapter L to the OM body. The Adapter L is attached to the camera in the same manner as a normal interchangeable lens.

Eyepiece	Picture Magnification
FK	FK Eyepiece Power X Objective Power
P & G	P or G Eyepiece Power X Objective Power X Approx. 0.5

3. Determine the magnification. Picture magnification is determined by the above formula.



4. In photomicrography, microscopes require special eyepieces FK, P or G for use with the OM body and Adapter L for low power magnification.

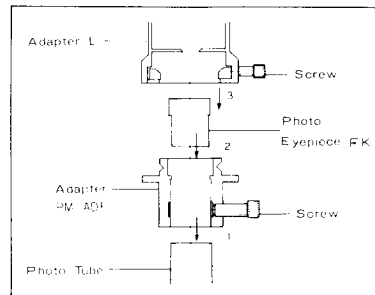
- 1) When either eyepiece FK or P is suitable, FK is preferable to P, since it is specially designed for photomicrography.
- 2) Only the objective has resolving power. The eyepiece serves merely to enlarge the image resolved by the objective. For a given total magnification involving different combinations of eyepieces and objectives, the use of a higher power objective will result in finer resolution.

5. Select an eyepiece adapter suitable for the eyepiece in use.

- Eyepiece Adapter PM-ADF for Photo Eyepieces FK
- Eyepiece Adapter PM-ADP for Eyepieces P
- Eyepiece Adapter PM-ADG for Eyepieces G

NOTE:

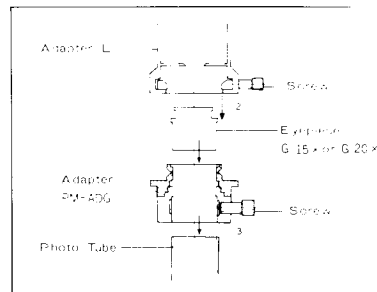
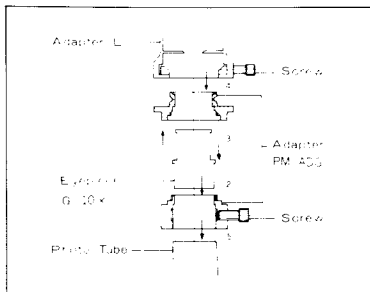
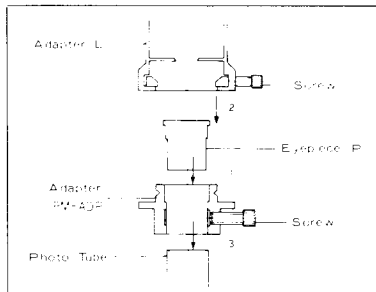
The VANOX and PM-PSS do not require any eyepiece adapter.



6. Mount the Adapter L with camera onto the microscope.

After selection of the Eyepiece/Eyepiece Adapter combination, mount the entire camera assembly on the microscope as follows:

- a. For Photo Eyepiece FK
 - 1) Attach the Eyepiece Adapter PM-ADF to the photo tube of microscope, and clamp with screw provided.
 - 2) Insert the selected Eyepiece FK into the Eyepiece Adapter PM-ADF, fit the Adapter L over the Eyepiece Adapter PM-ADF pushing all the way down, and clamp the entire camera assembly.



b. For Eyepiece P

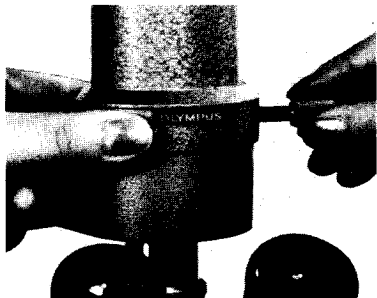
- 1) Fit the Eyepiece Adapter PM-ADP to the photo tube pushing all the way down.
- 2) Insert the Eyepiece P into the photo tube.
- 3) Pressing down the eyepiece against the photo tube slightly, raise the Eyepiece Adapter until it contacts with the eyepiece flange (be sure the eyepiece flange is in contact with both the photo tube and Eyepiece Adapter) and lock the adapter firmly with clamping screw.
- 4) Fit the Adapter L over the Eyepiece Adapter pushing all the way down and clamp the entire camera assembly.

c. For Eyepiece G10x

- 1) Unscrew the upper part of the Eyepiece Adapter PM-ADG, insert the G10x into the lower part, and replace the upper part of the Adapter.
- 2) Attach the Eyepiece/Eyepiece Adapter combination to the Adapter L, and clamp.
- 3) Insert the entire camera assembly into the microscope eyepiece sleeve pushing all the way down, and clamp.

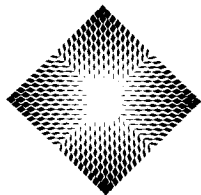
d. For Eyepieces G15x and G20x

- 1) Attach the Eyepiece Adapter PM-ADG to the eyepiece sleeve, and clamp.
- 2) Insert the G15x or G20x into the Adapter PM-ADG.
- 3) Fit the Adapter L over the Eyepiece Adapter pushing all the way down, and clamp the entire camera assembly.



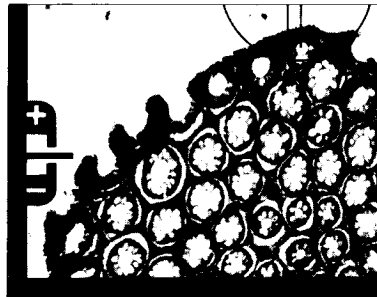
7. Adjust the camera position.

If it is necessary to adjust the camera position, loosen the clamping screw provided on the Adapter L, rotate the camera to the desired position, and reclamp.



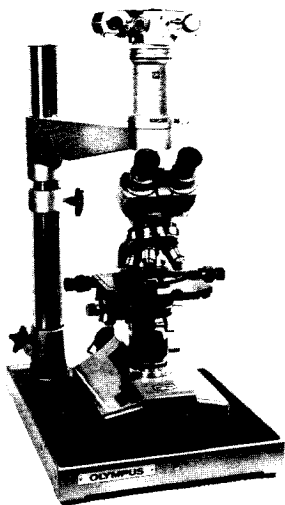
8. Focus.

- 1) Focusing with the OM System Focusing Screen 1-12.
 - (1) Use the Dioptic Correction Lens or the Varimagni Finder, so that the double cross hairs within the field of view can be clearly recognized as two lines; otherwise correct focus cannot be obtained.
 - (2) Adjust the coarse and fine adjustment controls of the microscope to bring the specimen into focus. Check again if both the double cross hairs and the specimen are equally sharp in focus.



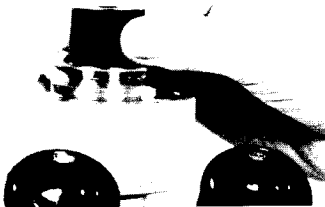
9. Determine the exposure.

- 1) For the OM-1 and OM-2 in manual operation: Rotate the shutter speed ring or adjust light intensity by means of voltage adjustment of the light source or ND filters, until the needle in the viewfinder comes to the center of index marks.
- 2) For the OM-2 in automatic operation: You can use the automatic exposure control system built in the OM-2.
 - * If the subject is darker than the background, turn the exposure ring or exposure compensation ring to over-expose by one or two F stops according to the situation.
 - On the contrary, if the subject is brighter than the background, turn the ring to under-expose.



To set up the microscope on the PM-PSS, as illustrated above, please read the instructions provided with the stand, and then proceed as follows:

1. Set the Focusing Screen 1-12 to the OM body.
2. Place the microscope on the base of the PM-PSS, so that the photo tube comes directly under the camera supporting arm.



3. Insert the eyepiece into the photo tube.

1) For Photo Eyepiece FK

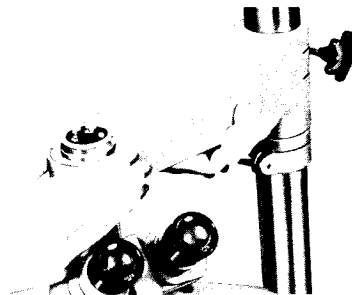
Put the light shield tube on the microscope photo tube, into which the selected Photo Eyepiece FK is inserted slowly.

2) For Eyepiece P

Insert the selected Eyepiece P into the photo tube without the light shield tube.

4. Looking through the camera mounting hole in the arm, let down the arm until the Eyepiece enters the hole (if necessary, adjust the microscope position so as to accurately center the Eyepiece in the hole).

5. Loosening the clamping screw provided on the Adapter L, put the Adapter L over the camera mounting hole, and clamp.

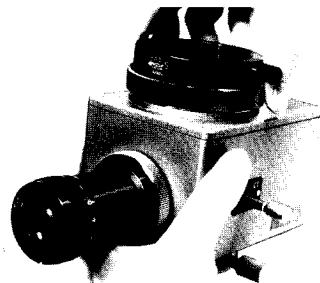
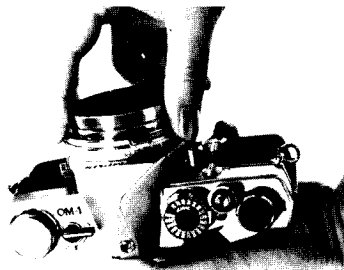
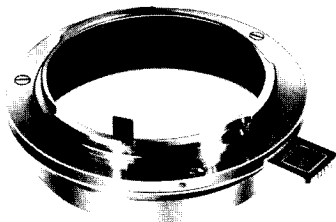


6. Lower the arm slowly until it stops (at this height, the diaphragm inside the Adapter L touches the top of the eyepiece).

Then raise the arm by about 1mm so that the Adapter L floats off to the Eyepiece. Take care not to allow the periphery of the Eyepiece or light shield tube to come into contact with the edge of the camera mounting hole. Then raise the collar to support the arm.

7. Mount the OM body on the Adapter L.

8. Focus and expose.



The Adapter H is a convenient unit for high magnification photomicrography with the Automatic Exposure Body PM-PBA or Manual Exposure Body PM-PBM. The Adapter H is used with the PM-D35S.

■ **Use the Adapter H.**

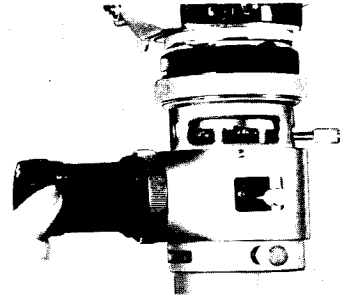
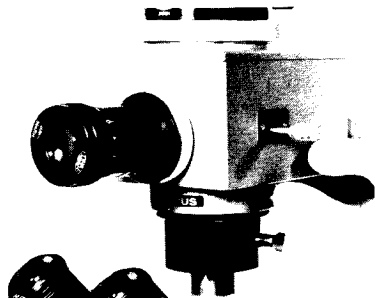
1. Set the Focusing Screen 1-12 to the OM body.
2. Mount the Photomicro Adapter H on the OM body in the same manner as a normal interchangeable lens.

3. Attach the 35mm SLR Camera Adapter PM-D35S to Automatic Exposure Body PM-PBA or Manual Exposure Body PM-PBM.

NOTE:

To install the PM-D35S, align its locating pin with the locating groove on the automatic or manual exposure body and tighten the clamping ring. Insert the Photomicro Adapter H plus OM body into the PM-D35S, and clamp with locking knob.

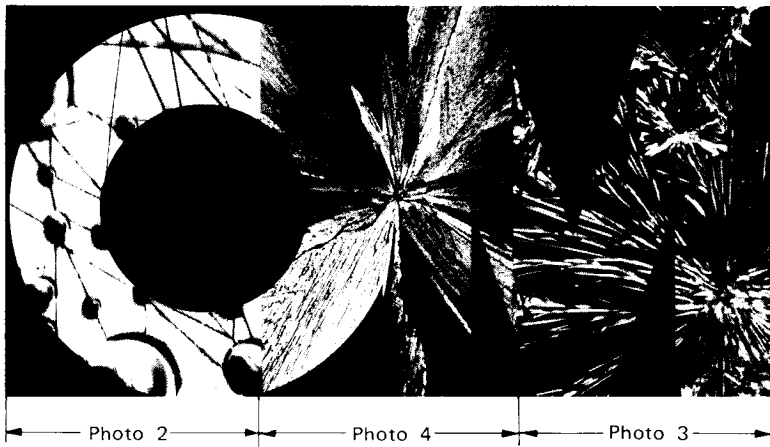
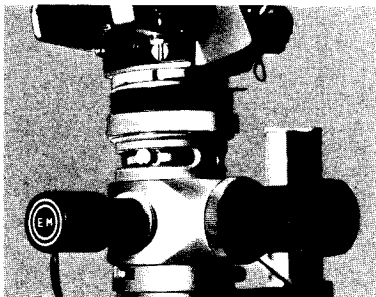
Eyeiece	Picture Magnification
FK	FK Power X Objective Power
P & G	P or G Power X Objective Power X Approx. 0.5



4. Determine the magnification. Picture magnification is determined by the above formula.
5. Olympus microscopes require Eye-pieces FK, P or G for use with the OM body and Adapter H for high power magnification.
6. Select an Eyepiece Adapter appropriate to the Eyepiece in use.

7. Mount the Adapter H with camera body onto the microscope.
8. Adjust the camera position.

9. Focus and exposure. For easier and more accurate focusing, it is recommended to use the PM-PBA or PM-PBM. Their uses are explained in detail in their instruction manuals.



	Exposure Measurement	
	OM-1	OM-2
Automatic Exposure Body PM-PBA	Usable with the TTL meter built into the OM-1, but use with the control box PM-CBA is preferable.	Usable either with the automatic exposure meter built into the OM-2 or with the PM-CBA.
Manual Exposure Body PM-PBM	Usable with the TTL meter built into the OM-1, but use with the exposure meter EMM-7 is preferable to obtain accurate measurement.	Usable with the automatic exposure system built into the OM-2.

Photo 1 on the opposite page shows the pollen of a morning glory.

(See page 4 for further details.)

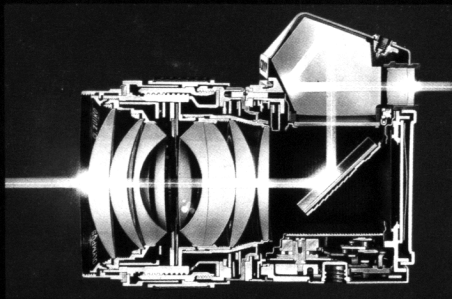
Front Cover Photos

Photo 2 : Spider's web and waterdrops.

Photo 3 : Glucuronic acid.

Photo 4 : Quinine crystal.

OLYMPUS



OLYMPUS OPTICAL CO. LTD.

43-2 Hatagaya 2-chome, Shibuya-ku, Tokyo, Japan Tel. 03-377-2111

OLYMPUS CAMERA CORPORATION

145 Crossways Park, West Woodbury, New York 11797, U.S.A. Tel. 516-364-3000

OLYMPUS OPTICAL CO. (EUROPA) GMBH.

2 Hamburg 1, Steindamm 105, West Germany Tel. 040-248021

OLYMPUS OPTICAL CO. (U.K.) LTD

2-8 Honduras Street, London EC1Y 0TX, England Tel. 01-253 2772