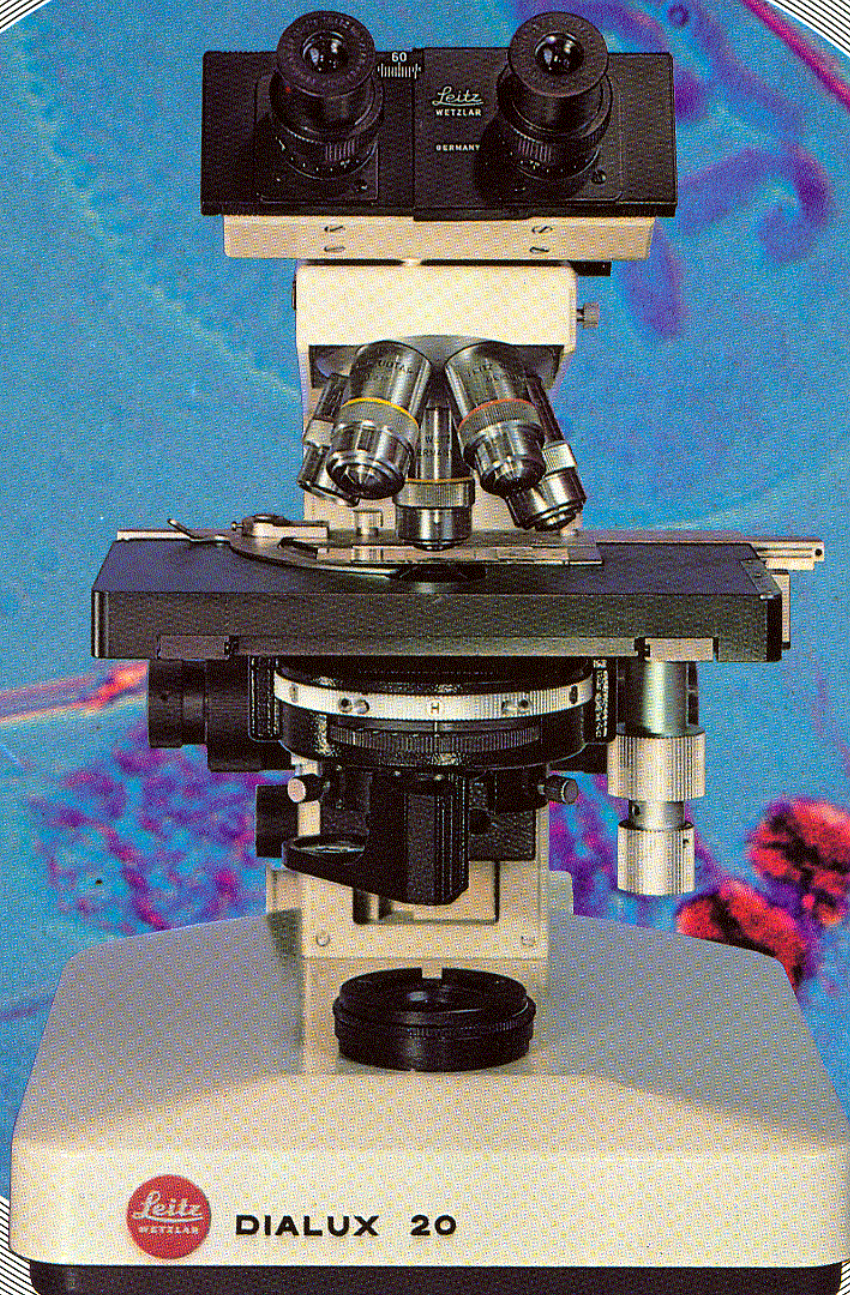
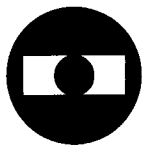


LEITZ DIALUX[®] 20

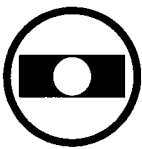


Laboratory and Research Microscope





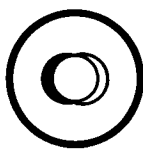
Brightfield



Darkground



Phase contrast



Interference contrast



Fluorescence with transmitted-light excitation



Fluorescence with incident-light excitation



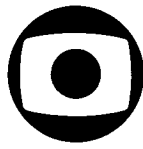
Discussion device



Micro-projection



Photomicrography, 35mm and other formats



Television microscopy



Heating-stage microscopy



Observation in polarized light (qualitative)

Best possible optical and mechanical precision combined with considerable resistance to external influences

Effortless adaptation to any microscopic problem arising in the biological and medical laboratory

Great operating convenience at maximum setting accuracy of all functions.

These are the demands that from the outset have determined the joint considerations of Wild Heerbrugg and Leitz Wetzlar when they developed this laboratory and research microscope.

The outcome is the **LEITZ DIALUX 20**

Which means:

Combination and further development of all the advantages of the LEITZ DIALUX and Wild M 20 transmitted-light microscopes of proven reliability the world over.

A basic instrument for all optical microscopic routine investigations of transparent objects, with great performance reserve for biological research.

Novel, considerably improved arrangement of the optical illumination system.

Enlargement of the microscopic field of view, at critical sharpness to the very edge of the picture, by more than 23% compared with conventional microscopes by means of the excellently corrected FLUOTAR objective series.

Reliable tool of microscopic diagnostics, at optimum cost efficiency. A comprehensively constructive concept based on the LEITZ modular principle, ready to accept also future tasks in laboratory microscopy.



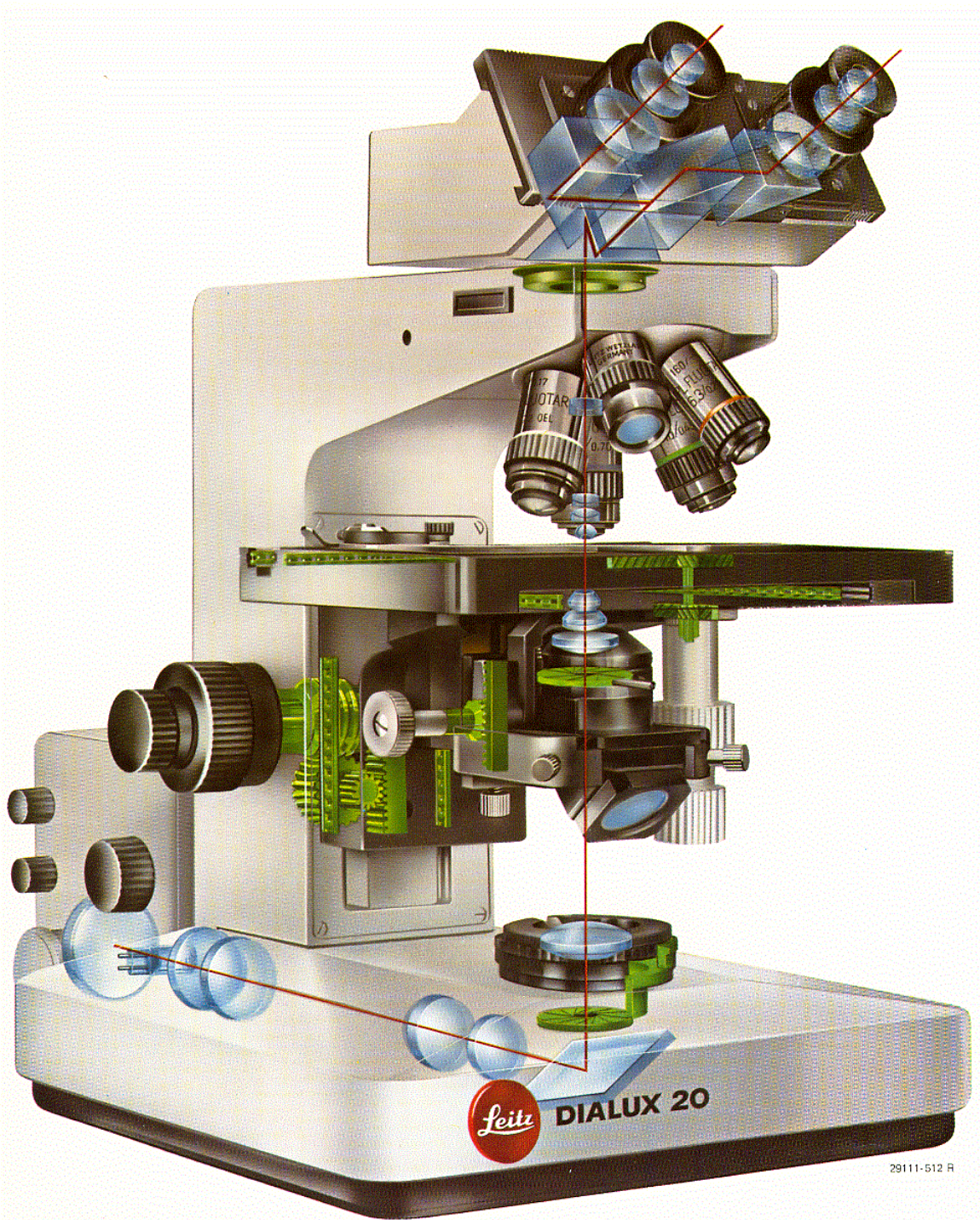
**Urinary sediment,
crystal in phase contrast.
NPL FLUOTAR 16/0.45 PHACO
microscope magnification 100x**



**Pig, liver.
Glisson's triads; 7 μ m. Trichome staining after
Goldner. Neutral formol fixation.
NPL FLUOTAR 25/0.55
microscope magnification 150x
Preparation: Prof. Dr. Th. Peters,
Zentr. f. Anatomie u. Cytobiologie, Gießen.**



**Tradescantia.
Interference contrast.
NPL FLUOTAR 40/0.70 IC T
microscope magnification 140x**



29111-512 R

The foot, measuring 26 x 25 cm of the LEITZ DIALUX 20 stand offers a particularly broad base to the microscope and therefore extraordinary rigidity. It is enclosed both top and bottom, protecting the illuminating elements incorporated in it against dust. External shocks are practically eliminated by means of 4 vibration damping feet.

The very robust microscope carrier is important to the steadiness of all settings, and it supports the weight of attachment cameras and other accessories far more effectively than one would ordinarily expect of a microscope in this class.

Coarse and fine adjustment actuate the object stage through two coaxial knurled knobs arranged on both sides of the stand. Their position immediately above the broad hand-rests on the foot of the stand allows effortless operation with completely relaxed posture of the user.

The fine adjustment acts on the entire 35 mm focusing travel of the object stage through a maintenance free recirculating ball gear. It has a graduation, scale unit 0.002 mm.

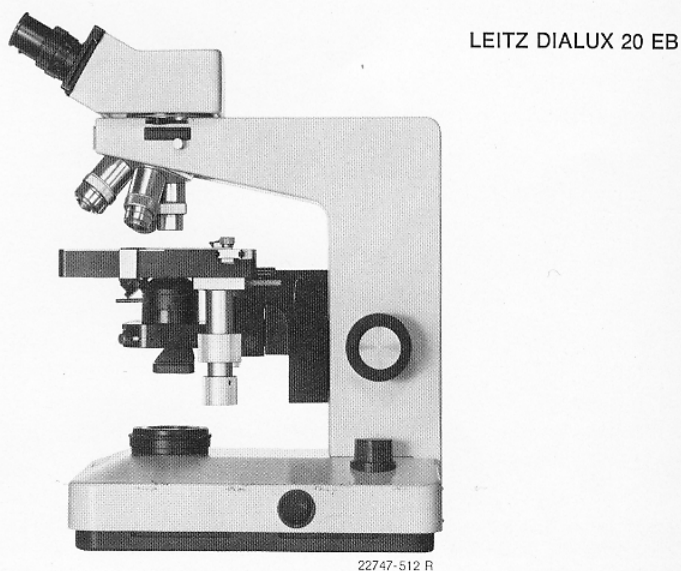
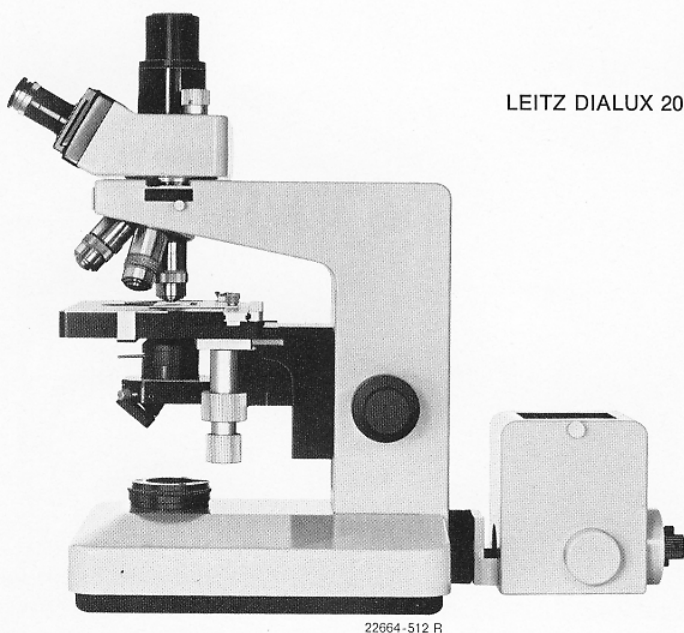
Two versions of stand

Two versions of stand are available to adapt already the basic outfit of the LEITZ DIALUX 20 to the requirements of its practical use as closely as possible: For routine investigations of transmitted-light specimens in brightfield, dark-ground, phase and interference contrast a tungsten halogen lamp of sufficient intensity is basically adequate.

Here the stand with built-in illuminating unit is recommended.

In the DIALUX 20 EB illuminating system, filament lamp, and transformer are built into the foot of the stand. This results in a particularly space-saving installation of the microscope.

The DIALUX 20 with attachable lamp housing' 102 Z is suitable for all investigations of specimens produced with very different methods of preparation and staining and whose microscopic, photomicrographic, and cinemicrographic representation requires the use of different light sources. In this version of the stand the lamp housing for filament and gas discharge lamps of up to 100 W is locked to the foot of the microscope by means of a bayonet mount and can be detached at any time (see also p. 12).



The observation tubes

All observation tubes for the LEITZ DIALUX 20 microscope can be mounted on the hard-chromium-plated rapid changing device of the stand and rotated through 360° .

Binocular tube S

This serves for the convenient binocular observation of the microscopic image. Both eyepiece tubes can be independently adjusted and are graduated so that changes of the mechanical tube length at different interpupillary distances of the observes can be immediately compensated and these settings reproduced at any time. Adjustment range of the interpupillary distance from 55 to 75 mm.

Binocular phototube FSA

In this tube the functions of a binocular observation tube and of a phototube are combined. With the adjustment of the observation eyepieces to the individual interpupillary distance the mechanical tube length is automatically compensated. As a result, the images both in the observation and in the film plane are equally in focus and the control of the photographic setting with the LEITZ system camera attachment, COMBIPHOT-AUTOMATIC and ORTHOMAT is carried out exclusively on the binocular tuben without any separate focusing telescope. When the FSA tube is used it is therefore possible to adapt a photomicrographic device at any time.

The beam splitting system built into the FSA permits 3 different settings of the guidance of the image-forming ray:

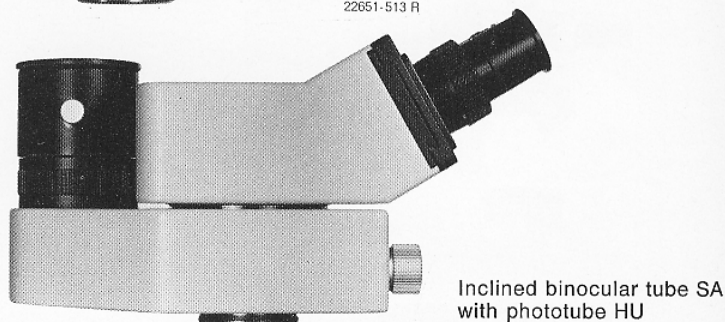
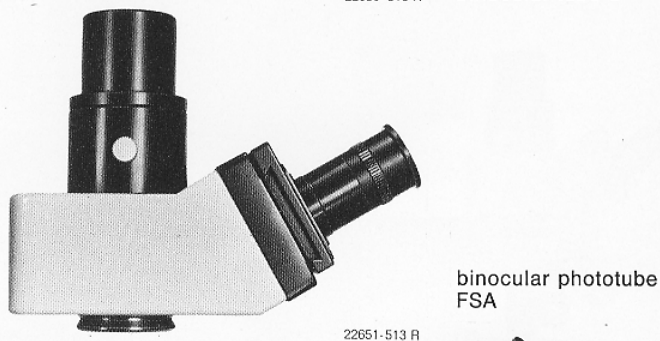
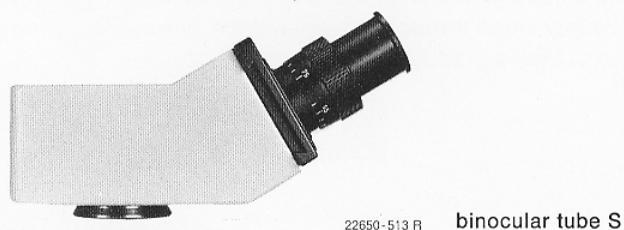
- 100 % of the light coming from the objective is available for binocular observation.
- 90 % of the light coming from the objective passes through the phototube, 10 % serves for binocular observation.
- 50 % of the light coming from the objective is directed to the binocular tube, 50 % to the phototube.

The beam guidance a) serves exclusively for binocular observation in extremely unfavourable lighting conditions: example: very weak fluorescences can be evaluated at great accuracy, because no light is being lost. Dependent on the quantities of light available through the density of the specimen or the nature of the optical method (phase contrast, interference contrast, fluorescence, darkground) the

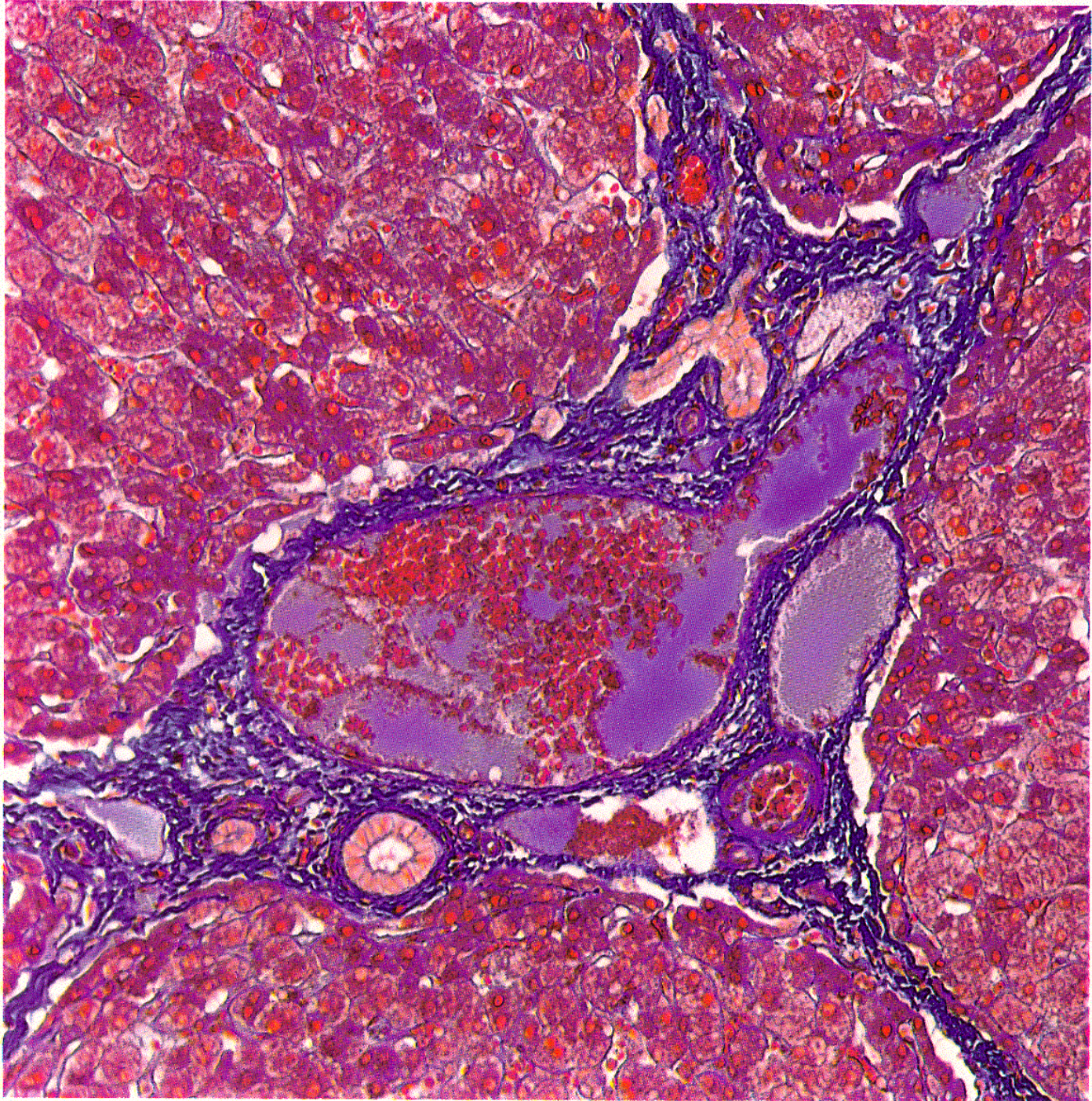
settings b) and c) serve for simultaneous observation and photomicrography or microphotometry.

Inclined binocular tube SA

This tube ensures strainfree binocular observation with convenient posture of the head. The interpupillary distance can be adjusted within the range of 55-75 mm. The change in the mechanical tube length caused by different interpupillary distances is automatically compensated by an optical system. The SA tube is therefore especially well suited for the combination with a phototube HU, also possible at any time. The eyepiece with graticule necessary for focusing and checking the image field photographed is inserted in the right-hand fixed eyepiece tube. The left-hand eyepiece tube can in addition be adjusted for the correction of differential visual defects in both eyes.



Pig, liver; 10 μ m
Glisson's trias; Susa fixation, Azan staining.
NPL FLUOTAR 10/0.45; microscope magnification 160x.
Preparation: Prof. Dr. Th. Peters,
Zentrum f. Anatomie u. Cytobiologie, Gießen.



Phototube HU

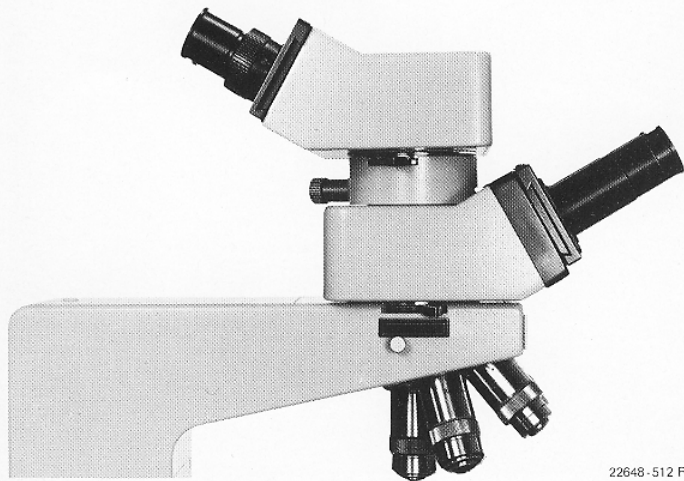
This tube is used for the tri-ocular arrangement with vertical camera position for photomicrography, cinemicrography, and micro television. The phototube HU has 3 beam splitting positions, with either 100 %, 20 %, or no light available for observation.

With the HU tube, any DIALUX 20 fitted with the SA tube can be adapted for photomicrography at any time.

Discussion and demonstration tube

This binocular special tube is particularly well suited for the discussion of pathological findings, microscopic diagnostics, and the training of technical staff. It permits the simultaneous observation of the microscopic image by two persons. For this purpose it is combined with a binocular tube which may already be part of an existing DIALUX 20 outfit (see illustration).

A knurled knob on the vertical exit of the discussion tube serves for the setting of a tube lens for the compensation of different visual acuities and the individual focusing facility of both observers.



22648 - 512 R

The revolving nosepiece

The revolving nosepiece accepts 5 objectives. It runs on ball bearings and has internal clickstops. Once set, the centre of the image remains in position when another objective is turned in.

Revolving nosepieces are interchanged with others equipped with different objectives (for instance phase contrast or interference contrast objectives) on a horizontal dovetail fitting below the observation tube. This does not require lowering the object stage, and object portions lined up with the previous method are found again rapidly and without effort.

Objectives and eyepieces

The image – forming and illuminating optical system – have been newly developed for the LEITZ DIALUX 20 and adjusted for the 160 mm tube length. The NPL FLUOTAR objectives permit the observation of fields of view* of up to 20 mm diameter and fully flattened, i.e. in critical focus throughout.

* Field of view = intermediate image presented by the eyepiece

NPL FLUOTAR objectives For brightfield, darkground and fluorescence (black engraving)

Tube length 160 mm
Image distance 150 mm
Adjustment length 45 mm



| Designation | Free working distance in mm | Cover-glass correction | Colour code for magnification/immersion | Code No. |
|-------------------------------|-----------------------------|------------------------|---|----------|
| PL 1.6/0.05 | 7.00 | O | grey | 519 528 |
| NPL FLUOTAR 6.3/0.20 | 2.30 | DO | orange | 519 493 |
| NPL FLUOTAR 10/0.30 | 0.75 | DO | yellow | 519 496 |
| NPL FLUOTAR 16/0.45 | 0.58 | D | light green | 519 500 |
| NPL FLUOTAR 25/0.55 | 0.36 | D | dark green | 519 501 |
| NPL FLUOTAR 40/0.70 | 0.24 | D | light blue | 519 502 |
| NPL FLUOTAR 63/0.90 KORR | 0.11 | D | dark blue | 519 539 |
| NPL FLUOTAR 63/0.90 | 0.11 | O | dark blue | 519 503 |
| NPL FLUOTAR 100/1.32 Oil | 0.15 | D | white/black | 519 504 |
| NPL FLUOTAR 100/1.32-0.60 Oil | 0.15 | D | white/black | 519 595 |