

LEITZ-TELE-PROMAR®

For natural-science teaching



A micro- and macro-projection unit for the school of today and tomorrow



28313-590 R

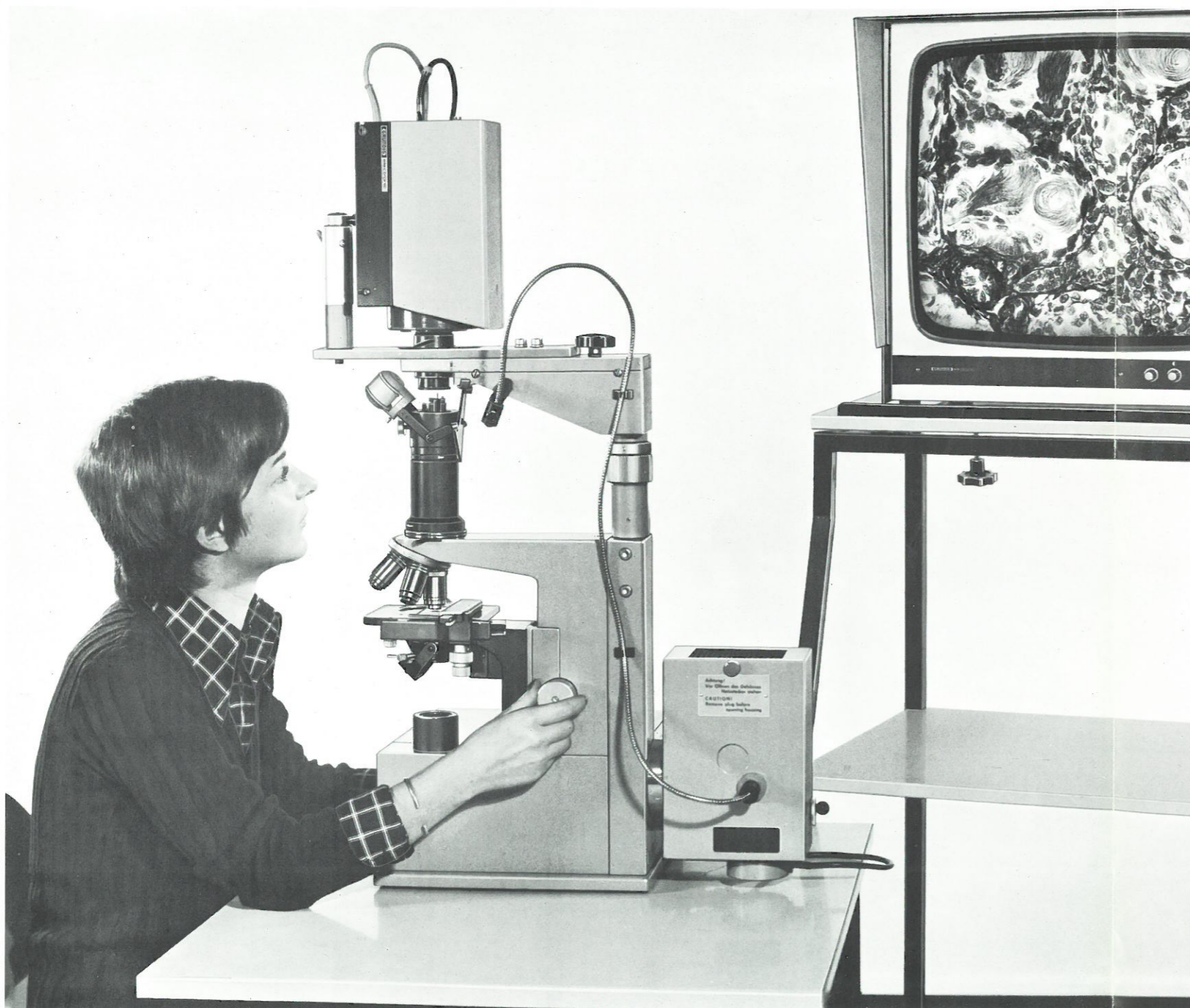
520-46/Engl.

LEITZ-TELE-PROMAR



Effortless coverage of the macro-range

LEITZ TELE-PROMAR set up for television



When the television camera is swivelled to the left, it will be above the small working area of the instrument, and serves, with its own optical system, as a projection episcopes in the macro-range. A universally movable glass fibre lamp provides additional effect lighting.

The difficult problem of demonstration, equally well and simultaneously visible to all the pupils, in the macro-range, for instance of living insects, or the examination of a flower has ceased to be a problem.

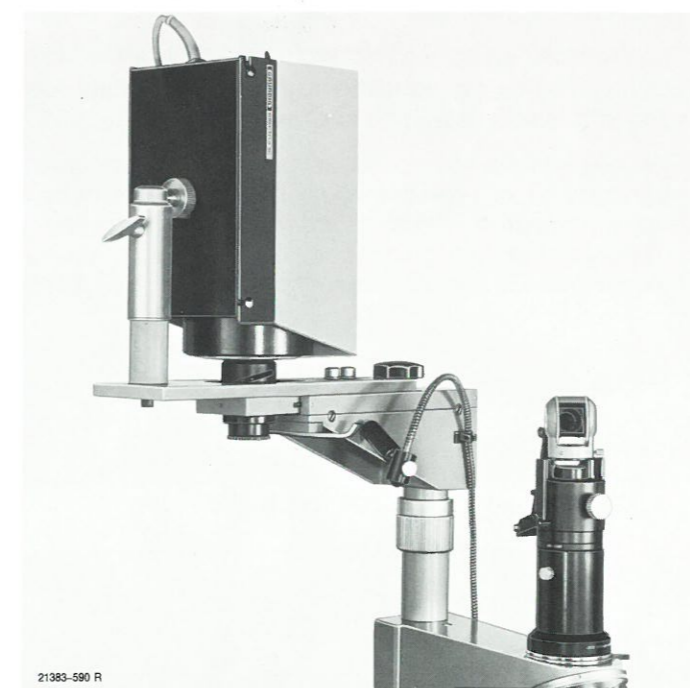
With the aid of an attachable light box a 5 x 5cm slide can be quickly projected; this is particularly appreciated when only an occasional slide is to be inserted.

Macro-projection at large formats

When the camera is swivelled to the right, it will look down on a large working area. Thus, with the swivelling arm extended, it can be used for the reproduction of large objects such as books, biological subjects, drawings, but also working transparencies, on a white background. Texts can be written on the large working area, legible for all viewers.

The changeover from the micro-range to the macro-range or macro-projection is carried out within seconds.

Television camera with holder and swivelling arm in lateral position as episcopes in the macro-range.



21383-590 R

Special instrument table for the TELE-PROMAR



21381-590 R

For the school of today and tomorrow

Today

the natural-science teacher is faced with the problem of satisfying as comprehensively as possible the increased demands of visualization of the subject he teaches. This task must frequently be mastered by overworked staff on overcrowded and poorly equipped premises. Here only instruments can help whose performance range is wide enough to produce bright and contrasty images at every level of magnification in all classrooms. In addition, they must be easy to operate to facilitate the teacher's task.

Tomorrow

many schools will be equipped with video centres, when only instruments as reliable in operation, robust, and versatile in their applications as the TELE-PROMAR® will be able to meet these demands. But this easily portable instrument has the required performance reserves even for use without the transmission facilities of a video centre.

Performance limits of micro-projection in schools considerably extended

The basis of this instrument is a compact and powerful micro-projection device with 250W halogen lamp as light source. In its extended version it is combined with a swivelling television camera for connection to a monitor or conventional television set. The optical equipment for projection comprises the plano objectives

PI 2.5/0.08
NPI 6.3/0.20
NPI 16/0.40
NPI 25/0.50
NPI 40/0.65
NPI Oel 100/1.30

and the
PERIPLAN® 4x projection eyepiece.

The reproduction ratios of the objectives are as 1:4 and 1:10. This offers an absolutely ideal possibility of the important presentation of the concept of magnification. In classical micro-projection with the LEITZ-TELE-PROMAR generally objective magnifications of 40x are not exceeded in schools, because brightness and brilliance of the large coloured image are, apart from easy operation, at their best up to this limit. Furthermore, the instrument allows the projection even of sensitive objects, since heat in the object plane is reduced to a minimum.

In the version as television microscope the performance limit of classical micro-projection described above is extended by the possibility of swivelling a television camera above the microscope with a single operation. This permits the application to biology teaching of all the modern optical methods requiring extremely powerful projector lamps.

This includes mainly very high magnifications with oil immersion objectives, polarized light, darkground, and phase contrast.

*) The suggestions for this design were made by Dr. Horst Kaudewitz, Lecturer in Biology Teaching in the University of Munich, after prolonged practical trials in schools, of a prototype designed by him.

The application of such methods of representation has become indispensable above all at advanced teaching. They are used wherever the direct detailed reproduction of cytological facts is essential. These facts are now increasingly taught – last but not least in connection with questions of genetics and the understanding of the environment – even in middle grades.

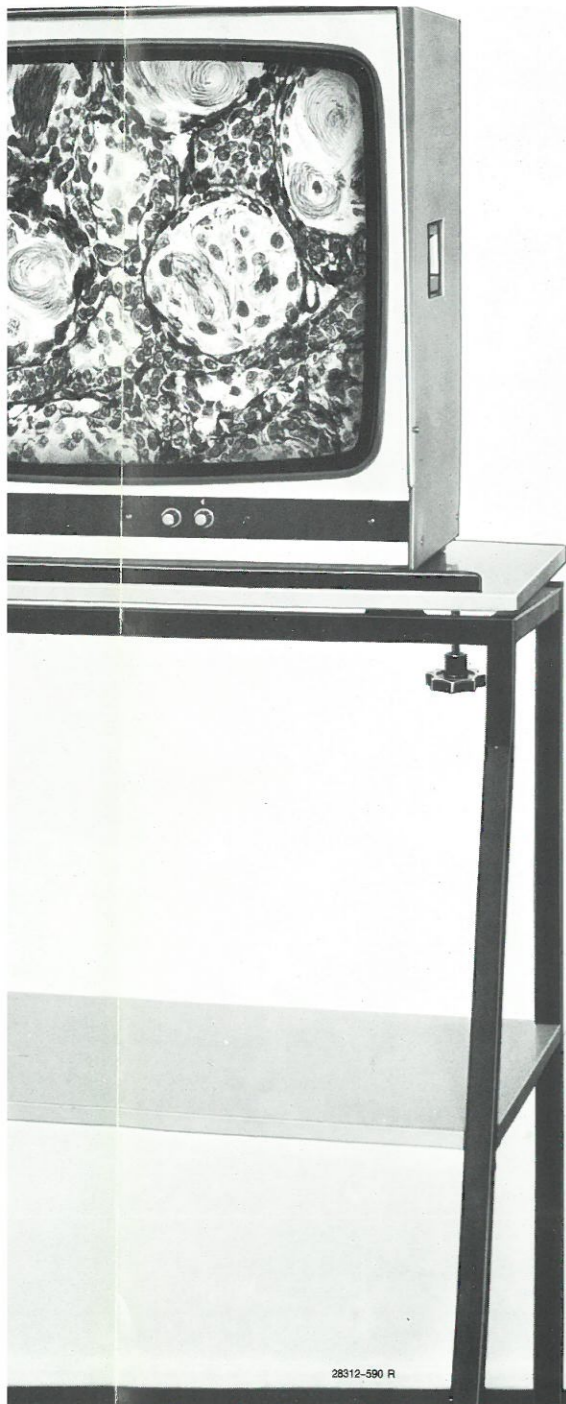
When the television camera is swivelled above the eyepiece, the spring-loaded projection prism is tilted away, and the television picture appears on the screen. Since even with only 5% of the available light bright, pin-sharp, contrasty images are obtained with oil immersion objectives, difficulties arising out of poor lighting conditions have indeed become a matter of the past.

Bacteria, chromosomes, cell inclusions, cilia, fine details of tissue, and blood cells to mention only a few examples no longer raise any problems in their demonstration. Damaging heat development is eliminated.

Experience has shown that even with only one television set sufficient optical information can be transmitted to an average-sized class. Several sets can be operated from a single camera for larger rooms or buildings with video centres (VHF and UHF pick up).

The standard equipment of the TELE-PROMAR provides black-and-white reproduction in the television field. Conversion to colour television is possible.

The black-and-white reproduction offers an additional neat method of representation: by the use of complementary-coloured filters it allows the suppression or emphasis of certain colour components, which results in the selective stress of desired portions of the picture.



The title illustration shows the TELE-PROMAR set up for projection. The television camera has been swivelled out and demonstrates on the screen the associated diagrammatic representation of the textbooks.

Macro-projection of demonstration experiments

The great mobility of the camera on the swivelling arm with ball-and-socket head also permits the projection of demonstration experiments and measuring instruments of a size that makes them difficult to see by the whole class to all the viewers. The sturdy construction of the TELE-PROMAR ensures a rigid stand for the camera.

When the instrument is placed on a simple trolley, an additional stand is not required.

Production of audio-visual aids by the user

For the production of the video tapes recording micro-projection, macro-projection, or demonstration experiments, the instrument can be connected with a video recorder via camera and television receiver.

The light sensitivity of the camera allows appreciable saving of spotlight and illumination costs. It must also be mentioned that, naturally, the monitoring of a classroom can also be carried out with a TELE-PROMAR in conjunction with a video recorder.



Television camera on swivelling arm with ball-and-socket head

Outfit

Microscope, single-knob operation; microscope stand with optical system for illumination and light shield mounted on a baseplate; quintuple revolving nosepiece, with PI 2.5/0.08, NPI 6.3/0.20, NPI 16/0.40, NPI 25/0.50, and NPI 40/0.65 objectives; 4x projection eyepiece; straight monocular tube 0; projection prism; Mechanical Stage No. 16; Condenser No. 601; lamp housing with 250W arc halogen lamp;
Support for macro-objects (television transmission);
Macro-illumination with light conductor;
Carrying column with carrying plate for television camera

Outfit as described	520 403
Necessary accessories	
Holder for Siemens IFK 011/K 012 and IFK m 201 television camera	520 412
Holder for Grundig FA41/Fa 425 television camera	520 411
Holder for television cameras of other makes on request	
Power unit for the 250W arc halogen lamp for connection to 220v/50Hz	500 200
Ditto, but with provision for connection to 110-120-220-230-240 v 50/60Hz	500 199

® = Registered Trademark

Design subject to alterations without notice.

ERNST LEITZ GMBH D-6330 WETZLAR

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