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Report on a Method of Preparing Transparencies of Fish Otoliths

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On occasion of the convening of an ICNAF-working party on age reading techniques a series of transparancies of cod otolith photographs have been prepared and demonstrated at the meeting of the working group in Bergen in November 1962. The great value of this type of photographs for the training of otolith readers as well as for the discussion of certain otolith structures was recognized by all participants of this meeting, since it enables a large number of people to examine the same otolith and to discuss the same structure with certainty.

At Mr. R.J.H. Beverton's request I submit the following note on the method used in preparing these transparancies to the 1963 meeting of the ICNAF-Research and Statistics Committee:

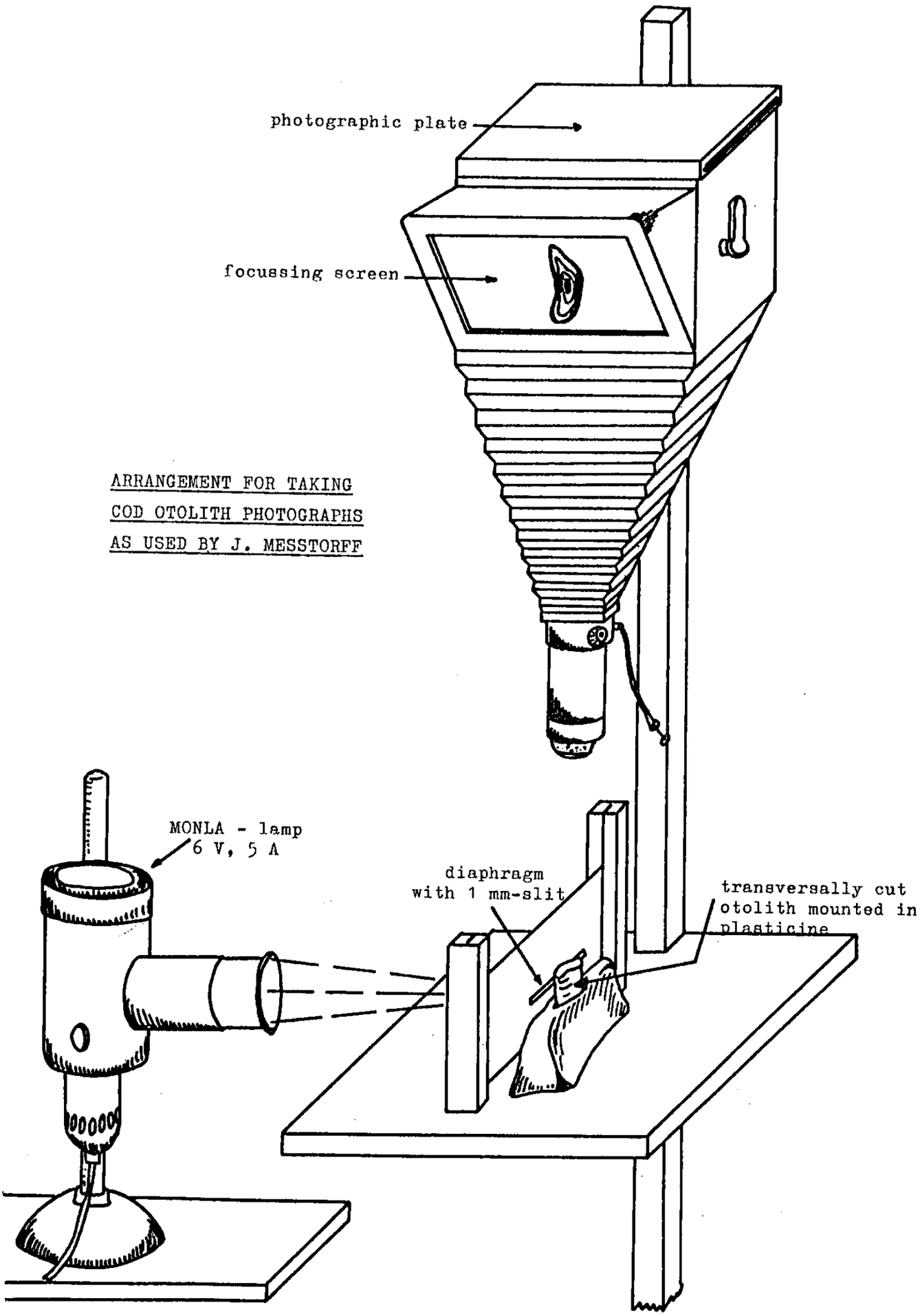
For the usefulness of an otolith transparancy it is important that it show rather the same picture by projection as viewing the same otolith under the usual conditions by transmitted light and by means of a binocular microscope. Therefore the arrangements for taking photographs, as illustrated in the figure, should be nearly the same as for routine age determination.

The otolith to be photographed is mounted in plasticine as usual. For illumination the same MONLA-lamp (Leitz, Wetzlar) is used. To avoid any difficulties by reflected light, which obviously causes more trouble in photography than in microscopic viewing only, and also in order to arrive sharper contrasts between the growth zones, the extreme, transversally cut surface of the otolith is shaded from the laterally directed light beam by a movable horizontal slit-diaphragm situated rather close to the otolith. Then, after focussing, the enlarged and illuminated picture of the otolith surface appears on the focussing screen without any disturbing light effects.

Because of the relatively low light intensity of the photo-object and of the screen picture respectively the room should be darkened during focussing and exposure. For the same reason the diaphragm of the camera must be wide open for focussing whereas for exposure a smaller aperture is recommendable (abt. 12 on the scale). The time of exposure was about 10 to 15 seconds. That, however, must not be generalised but has to be tested, because the light-source as well as the camera system and the photo-material used, may be different.

For the technique explained, photographic plates (9 x 12 cm, two exposures each) were used. From these negatives 1:1 transparancies were made on 24 x 36 mm film. Of course this technique could be improved by avoiding plates, if a 36 mm-camera fitted with a suitable enlarging system is available. Using reversal film, transparancies then could be produced directly.

The otolith transparancies quoted here, were black and white. As coloured contrasts are only poor in these special objects it is questionable, if it is worth while to use coloured film. That, however, still has to be tested by comparing transparancies of both types.



ARRANGEMENT FOR TAKING
COD OTOLITH PHOTOGRAPHS
AS USED BY J. MESSTORFF