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CORRESPONDENCE

PHOTOGRAPHIC PRINTS FROM CELLULOSE-ACETATE TRANSPARENCIES

SIR,—The method of obtaining cellulose-acetate transparent moulds from etched surfaces has been previously described in detail (Walton, 1928; Leclercq, 1928) and is now a recognized palaeontological technique. In the case of corals or other organisms with calcium carbonate skeletons, the method does not replace the thin section, but it is a valuable substitute for it because of its speed and ease of preparation, the lack of any risk that the section will be lost in the last stages of preparation, and as a permanent record of serial sections which are progressively destroyed as they are made. One of the disadvantages of the " cellulose pull " is its lack of contrast and the difficulty of translation of its detail to a photographic print. Various techniques to overcome this have been described (Walton, 1928; Dollar, 1948), but I have not read of one which does not depend on pigment or staining to obtain the necessary contrast.

Working recently with cellulose transparencies of Carboniferous corals, I was able to produce direct enlargement prints from the " pulls " with strong contrast almost equal to that obtainable from a thin section. The process involved nothing more than an adaptable enlarger and the correct selection of paper, developer, and fixer. In view of the widespread use of cellulose pulls, it was suggested that the details of procedure might be published.

The use of grade IV gaslight paper in conjunction with an enlarger will normally be found to supply the desired contrast. The great disadvantage of gaslight paper used in this way is the length of time of the exposure, but a photoflood bulb in the enlarger will overcome this. The distance of the bulb from the condenser in the enlarger may have to be varied in order to obtain even illumination. Conveniently there are two normal sizes of photoflood bulbs—No. 1 with bayonet fitting, about the size of a 60 watt bulb and No. 2 with Edison screw fitting about the size of a 150 watt bulb. The length of time of exposure naturally will vary considerably depending

on which type of bulb is used and the peculiarities of each enlarger. Using a No. 2 photoflood and a lens aperture of f12, I find an average exposure to be in the region of ten seconds for an enlargement of 2 diameters. So far as possible ground glass plates in any position in the optical system of the enlarger should be dispensed with. They disperse the light and reduce the contrast.

Experiment has proved both Kodak and Ilford gaslight papers grade IV to be equally suitable. The Kodak paper, if anything, is a shade more contrasty. Glazing, if convenient, is well worth while. For development Kodak Special Developer D. 163 has given the best results, and if diluted 1 to 1 instead of 1 to 3 and used warm (100° F. or 38° C.) gives more contrast than many of the special contrast developers. The print " comes up " very quickly because of the temperature of the developer, but exposure can be regulated to give a two-minute development time. Fixing in double strength acid fixer clears the print still further due to the slight reducing effect of the hypo.

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BOREHOLE SECTIONS AT ROSENEATH AND ROW

SIR,—In his recent paper on " The Gareloch Re-Advance Moraine " (*Geol. Mag.*, lxxxv, 239–244), Dr. J. G. C. Anderson has discussed the interesting section of raised beach and moraine deposits seen in the cliff along the north-western side of Row Point, and has remarked on the absence of any similar evidence with regard to the internal structure of Roseneath Point. Some war-time borings, which provided sections on both sides of the loch entrance to 60–70 feet deeper than the base of the Row Point exposures, may now be placed on record.

During the construction of a military port, the Consulting Engineers to the scheme maintained the possibility, despite geological arguments to the contrary, that the Row and Roseneath spits might be based, at no great depth, on a solid rock bar ; in which case a considerable amount of blasting might be necessary to clear a channel adequate for vessels of 30 feet draught at all states of the tide. A detachment of 7 Boring Section, R.E., put down three holes, in July, 1941, to decide the matter. The holes were restricted to testing to a depth of 30 feet below low water mark, and all of them failed to reach solid rock within this limit.

The first hole was sited at high water mark on the outermost point of the Roseneath spit. After casing-off 8 feet of loose shingle the hole passed through 52 feet of thinly-bedded blue-grey clays and silts to its finishing depth of 60 feet. The second hole also was drilled from high water mark on the Roseneath spit, but to the south of the pier, and at about the same distance from it as No. 1. The section proved was practically identical with that of No. 1 : shingle, 8 feet ; blue-grey clays and silts, 53 feet. The third hole was drilled from a barge, which was grounded after manoeuvring into position at high tide, about ten yards south-east of the navigation beacon at the outer end of the Row spit. The section in this hole was : shingle, 26 feet ; soft blue-grey clays and silts 30 feet.