and depth of flake scars, amount of controlled flaking and secondary work and the extent to which tranchet blows were used. Also an unusually high percentage (44 per cent) have twisted edges. Finally, Lavalloisian specimens make their first appearance in the Hoxne sequence in the top glacial bed, which helps to confirm the conclusion that the Hoxne interglacial is contemporaneous with Swanscombe but earlier than Brundon.

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June 10.

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## Light Filters of Coloured 'Perspex'

Light filters of coloured glass and gelatin are in common use for visual and photoelectric photometers. They are satisfactory, on the whole; but the glass filters are easily broken, and those of gelatin require to be mounted between glass to protect them from water. The transparent polymethyl methacrylate 'Perspex' is now obtainable in several colours and in sheets. This material is very tough and difficult to break, but is easily worked, and can be cut with a saw. The spectral characteristics of the different kinds of coloured 'Perspex' are not such as to make them directly usable as light filters in photoelectric photometers, because of considerable transmission in the red and infra-red by those which are violet, blue and green (Fig. 1); but by combining sheets of the coloured 'Perspex' with the Ilford copper red-absorbing gelatin filter 803, a set of nine serviceable light filters, covering the visible spectrum, has been prepared (Fig. 2), and these have been found to be sturdy and almost unbreakable, and well suited to laboratory use.

The gelatin filter is placed between two sheets of 'Perspex', either coloured + colourless or of different colours, and the edges bound with 'Perspex' cement, 'Cellophane' tape or gummed paper. The combinations which have been found most useful for photoelectric colorimeters are given in the accompanying table. The 'Perspex' used was cut from coloured $\frac{1}{8}$-in. sheet material; and the red-absorbing filter was Ilford sheet gelatin No. 803. Messrs. Allan Industries, Farnham Common, Bucks, prepared the filters for use.

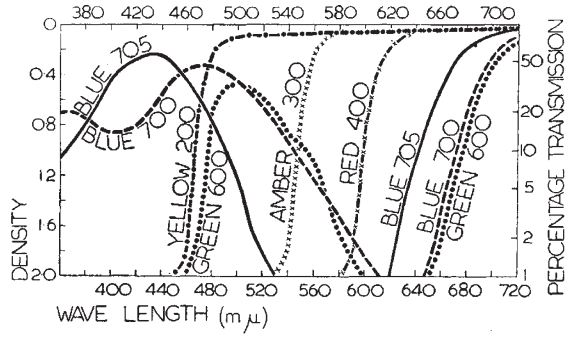


Fig. 1. Spectral transmissions of coloured 'Perspex', $\frac{1}{8}$-in. sheets.

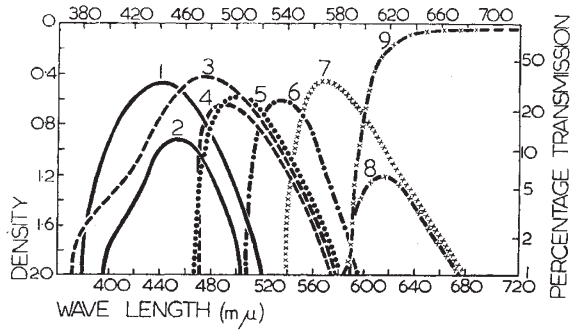


Fig. 2. Spectral characteristics of light filters made from coloured 'Perspex' and Ilford gelatine filter. (See table)

Light Filters of Coloured 'Perspex' and Ilford 803

| Final colour | Max. transmission (mμ) | Coloured 'Perspex' No. | Ilford gelatin |
|---|---|---|---|
| 1. Violet | 440 | Blue, 705 | 803 |
| 2. Blue-violet | 455 | Blue, 705 + blue, 700 | 803 |
| 3. Blue | 470 | Blue, 700 | 803 |
| 4. Blue-green | 490 | Blue, 700 + yellow, 200 | 803 |
| 5. Green | 500 | Green, 600 | 803 |
| 6. Yellow-green | 530 | Yellow, 200 | 803 + 110 |
| 7. Yellow | 570 | Amber, 300 | 803 |
| 8. Orange | 615 | Red, 400 | 803 |
| 9. Red | >630 | Red. 400 | — |

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## Solution of Polynomial Equations with the Aid of the Electrolytic Tank

A. Bloch[1] recently extended to complex coefficients Lucas's method[2] of the solution of polynomial equations with the aid of an electrolytic tank. Points of the tank represent complex numbers either directly or after a conformal transformation. In the extended method, sinusoidal currents, in complex vector notation proportional to the residues of a certain rational function with simple poles, are impressed at points corresponding to these poles. Then the points at which the electric field is circularly polarized correspond to the roots of the polynomial equation. The root-points can be found by exploring the tank systematically.

Bloch gave no indication of how his extension could be practically realized. Relevant practical tank measurements[3,4] had been carried out with all electrode currents in phase and one electrode earthed. Consequently the twin-probe assembly which, up to this time, had been used to measure electric field gradients had to be connected to a differential amplifier.