

effect here as it does on the Haidinger fringes in the Fabry-Perot interferometer. This is somewhat surprising. With Fabry-Perot rings the plates have to be exactly parallel, so that the wave-fronts from successive reflections remain parallel; in this instance the successive wave-fronts are rotated by an amount equal to twice the wedge angle. The latter, however, is so small that even thirty or more such deviations are in aggregate less than the smallest angle resolvable by the eye.

With silver films of about $40 \mu\mu$ thickness, and a spacing of about 1 mm. between the plates (so that any lack of homogeneity of the source should not enter) a bright fringe, using a monochromatic red source, seems to occupy less than a twentieth of the distance between consecutive fringes, the fraction increasing to about an eighth in the violet.

These fringes can be used to test the parallelism of a plate (*e.g.* Lummer-Gehrcke) or of the Fabry-Perot mirrors themselves, to a far higher degree of accuracy than is possible with the usual Fizeau fringes. Considering the latter example, as the adjustment for parallelism proceeds, the bands spread out. If it can be arranged that one bright band should cover the whole field of view, it means that with a monochromatic red source, a lack of parallelism or a local defect amounting to about $\pm \lambda/40$ in path difference will cause the field at point to change from red to black. This is very much more sensitive than with the Fizeau fringes, which require $\pm \lambda/2$ path difference to change from bright to dark.

One precaution must, however, be taken; when the plates are parallel, the effective separation must be such that it is a bright band that covers the field, and not the semi-dark background in between the bands, for if the separation is such that we are half-way between two fringes, an error of very nearly $\pm \lambda/2$ could not even be detected. By rotating the mirrors (as a whole) a small amount so that their normal is no longer coincident with the axis of the collimator, the requisite condition is readily obtained.

The same fringes can be used, for example, in place of Newton's rings whenever a small displacement or a small change of refractive index is to be measured, the gain in accuracy being between five and ten times.

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Some Experiments on Water-Divining.

THE following affords a brief account of some experiments on water-divining carried out near Fyvie Castle, Aberdeenshire, on April 28, 1928, and indicates some inferences which may be drawn therefrom. The dowser was Mr. G. L. Cruickshank, of the Fyvie Castle Estates.

Tests were first made in places where running water was known to be. The dowser made use of a short forked twig, and when he stood over the water course the twig was forced up. If a piece of thick glass were placed under his feet the sensation ceased and the twig dropped. The same effect was got when the twig was held by two pairs of steel pliers, or if the ends held by the hands were first covered with rubber tubing. Likewise, no sensation was perceived if only one end was held by pliers or covered with rubber tubing, the other being held in the usual way by the bare hand.

Another set of observations was carried out with the dowser blindfolded. He was made to cross a line which he had previously marked out as being a water course. Nobody approached within several yards

of him. When he passed over the line previously indicated, the exact position of which he had no idea, the twig moved upwards. As he passed beyond the line, the twig immediately fell.

In these experiments the external manifestation is a forcing upwards of the twig. This raising of the twig must be due to some muscular action on the part of the dowser. This would indicate that he is the mover, though in his own mind he is apt to consider that he is working against some external force. If then his muscles force up the twig, the nerve centres controlling these muscles must have been influenced in some way by an outside stimulus. May it be, therefore, that some kind of influence is radiated from water running under pressure, and that a 'receiving set' tuned to respond to such a stimulus is possessed by certain individuals? A definite arrangement of the body seems to be necessary for proper reception of such a stimulus, and certain substances appear to be able to prevent the arrival of the stimulus. As different individuals may respond in different ways to such stimuli, care must be exercised in drawing general conclusions from observations made on any particular individual.

It seems reasonable to conclude, however, (1) that the faculty of water-divining is possessed by some individuals; (2) that the individual responds to some, at present unknown, external stimuli; and (3) that certain substances can prevent the arrival of those stimuli, in which case the individual cannot respond.

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The Palaeolithic Implements of Sligo, Ireland.

1. FROM an examination recently made by me of the Sligo shelter-site, I consider that the coast at, and for some distance east of, the beacon on Coney Island (that part illustrated by Messrs. Boswell and Jones in NATURE of June 2) is undergoing erosion under present conditions, but that at Rosses Point it is possible, though only just possible, that the remains of a rock-shelter could have survived since Palaeolithic times, the odds against survival being of the order of at least 100 to 1.

2. The burden of the proof of age of specimens found at Rosses Point must depend, therefore, on internal evidence, and that evidence must be conclusive.

3. The specimens found by Mr. Burchell at Rosses Point and *in situ* in Boulder Clay in the neighbourhood are, as a suite, unlike the flakes produced by any natural forces with which I am familiar, but, on the other hand, carry such impress of design as compels me to regard them as of human origin.

4. The forms of those from Rosses Point are not those of quarryman's refuse, and the site is a most unlikely one for a quarry. On the contrary, they appear to belong to a crude Stone Age industry.

5. Their preservation, unrolled and with comparatively unblunted edges, despite the fact that the site has been within reach of wave-action since glacial times, would appear to be sufficiently explicable from the fact that they were recovered from beneath massive blocks of limestone.

6. The occurrence of similar flakes in glacial deposits in the neighbourhood *in situ* confirms, in my opinion, the provisional inference (par. 4) as to the age of the Rosses Point specimens. It would appear that the 100 to 1 chance has succeeded.

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