anchored to the sea bottom by a wire. If the ocean were calm, and there were no currents, this buoy would remain in a fixed vertical position above its cement anchor at a constant distance from the ocean floor. If the buoy contained a self-recording barograph of special design operated by the pressure of the water above the buoy, the periodic rise and fall of the tide would be recorded.

Other factors might, and probably would, be present which would cause a variation in the height of the water above the buoy. Ocean currents, by causing the buoy to swing out from the vertical, would depress it, and there would of course be a rapid periodic change due to waves. It seems probable, however, that if the curve drawn on the revolving drum of the barograph was subjected to analysis by passing it through such a machine as Prof. Michelson's harmonic analyser, the tide curve would come out uncontaminated by the variations contributed in other ways.

The scheme could be tried at very small cost. The first experiments should be made in comparatively shallow water (say three or four hundred feet), and the depth gradually increased. For deep sea work the position of the submerged buoy would have to be marked by a smaller surface buoy. The action of the wind on this would introduce another disturbing factor, which would disappear, however, in the analysis of the curve.

R. W. Wood.

Johns Hopkins University, Baltimore.

Electricity in Curved Space-time.

It is often thought that the theory of curved space-time (general relativity theory) accounts for gravitation but *does not account for the electromagnetic phenomena*. This is not so.

In the general four-dimensional space, the Riemann tensor which characterises the curvature at each point can be shown to be the sum of two parts. We may characterise these two parts geometrically, using Hamilton's device of telling what a thing is by telling what it does. What a Riemann tensor does is to assign to every two-dimensional direction, or orientation, a certain number—its curvature; the first of the two parts mentioned above is characterised by the property that it assigns to two (absolutely) perpendicular orientations *equal* curvatures, while the second part assigns to such orientations *opposite* curvatures. We may mention that of the twenty constants which are needed to give the complete Riemann tensor, the first part involves 11 and the second 9.

In the case of the physical space-time, the first part accounts for gravitational phenomena and the second for electromagnetism; we do not know much about the first part outside the fact that it satisfies the so-called cosmological equations (in fact, to say that a Riemann tensor satisfies the cosmological equations is equivalent to the statement that it only consists of the first part). Our information with respect to the second part is much more complete: if f_{ij} is the electromagnetic tensor and r_{ij} the tensor associated with its reciprocal or dual, the second part can be written as $\frac{1}{2}(f_{ij}f_{k\rho} - r_{ij}r_{k\rho})$; conversely, if the second part is given in a region of space-time, this determines the electromagnetic tensor in this region. This result follows easily from an earlier work of the writer (Proc. Nat. Acad. of Sciences, April and July 1924; Trans. Amer. Math. Soc., January 1925).

G. Y. Rainich.

The Johns Hopkins University,
Baltimore, Md., U.S.A.,
February 20.

Artificial Incubation.

In the account of Mr. Llewelyn B. Atkinson's article on "The Scientific Principles of Artificial Incubation" (Nature, February 21, p. 282), the author is quoted as saying that practically every type of incubator has the air too dry. If this is so, the number of eggs hatched should be dependent to some extent on the humidity of the outside air. That this is the case is we think borne out by the following. We took the percentages of fertile eggs hatched out at Fishponds Poultry Farm, Netley Abbey, and correlated the figures with the relative humidity deduced from the dry and wet bulb readings at Calshot, four and a half miles distant. The hatchings considered were from December 17, 1923, to March 12, 1924; there were hatchings on 26 days; the largest number of eggs hatched out on any one day was 95, the smallest two 37 and 60; the highest percentage of fertile eggs hatched on any one day was 93·2, the lowest 63·5. The readings at Calshot are those taken four times in the twenty-four hours, and we have taken them from the Daily Weather Report. The following values were found for the correlation coefficient between the percentages of hatchings and the mean relative humidity for various periods:

	Day of Hatching.	7 Previous Days.	14 Previous Days.	21 Previous Days.
Correlation coefficient .	0·31	0·55	0·69	0·68
Standard error .	0·18	0·14	0·10	0·11

It seems, therefore, that the hatchings were dependent to some extent on the mean relative humidity of the outside air during the greater part of the period of incubation.

C. J. P. Cave.
T. Vernon Jones.

Stoner Hill, Petersfield,
March 12.

Solutrean Art.

Prof. Sollas, in his letter to Nature, March 21, p. 420, refers to M. Peyrony's interesting discovery of a carving in high relief in a Solutrean level in the Dordogne. In this connexion it is worth noting that, some months before M. Peyrony's discovery, Dr. Henri Martin had found fragments of limestone bearing engravings of animals in an Upper Solutrean site (still unpublished) in the Charente.

These two finds, so nearly simultaneous, are very important, as Prof. Sollas points out, but it is only fair to recall the fact, apparently overlooked both by M. Peyrony and Dr. Martin, that the credit of being the first to find a work of art in an undoubted Solutrean milieu belongs, not to either of them, but to the Abbés A. and J. Bouyssonie and L. Bardon, who in 1908 found in the Upper Solutrean level of the rock-shelter Pré-Aubert near Brive a slab of sandstone engraved with the rough but unmistakable figure of a horse (*Revue anthropologique*, 1920, p. 188.)

At a moment when discoveries of Solutrean art are exciting great interest both in Great Britain and in France, it is merely just that full credit should be given to the three indefatigable scientists whose work, so little advertised, has been of such fundamental importance to prehistoric archæology.

D. A. E. Garrod.

85 Banbury Rd.,
Oxford.