In his experiments Dixon determined, at pressures ranging from 10 to 120 cm., the lag on ignition of a jet of pentane vapour heated to a predetermined temperature and issuing into an atmosphere at the same temperature. The shorter the lag, the less is
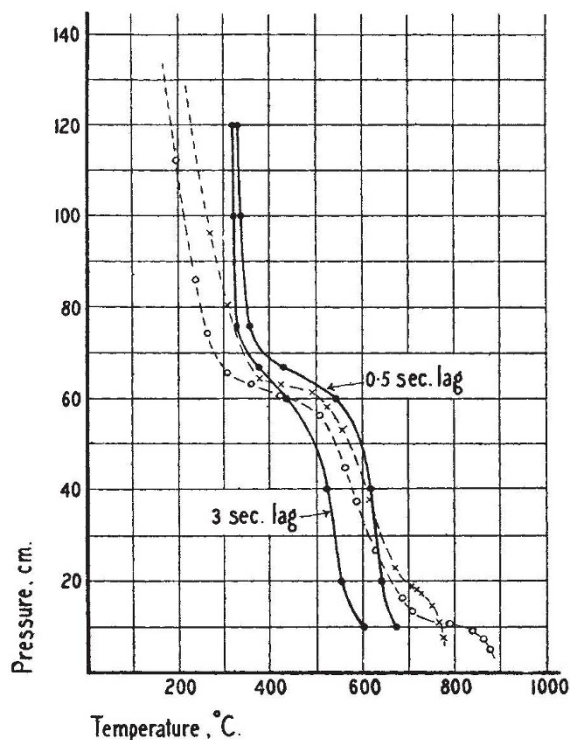

FIG. 1.

the experiment liable to complications from surface effects. It is, therefore, significant that Dixon's results, as shown by the full-line curves in the accompanying illustration (Fig. 1), are of the same general character as those of Neumann and Estrovich, as shown by the broken curves.

H. F. COWARD.

Safety in Mines Research Board,
    Research Laboratories,
        Portobello Street,
            Sheffield, 1.
                Feb. 3.

[1] NATURE, 133, 105, Jan. 20, 1934.

The Velocity of Light

IN 1927 there was published in these columns[1] a table of all the determinations of the velocity of light which I compiled from the original memoirs, together with a discussion, and I pointed out that except a pair of practically simultaneous values obtained in 1882 the final values (printed in heavy type) indicate a secular decrease of velocity. The last (and lowest) value given is 299,796 ± 4 km./sec. for 1926.

Since then, two determinations have been made: the first by Karolus and Mittelstaedt (1928) using a Kerr cell, to the terminals of which an alternating potential was applied, for interrupting periodically the luminous beam, instead of a toothed wheel[2].

A frequency can be obtained in this way, of the order of a million per second, which can be accurately calculated, thus permitting a very short base to be used (41·386 metre) without any loss of accuracy. The value found (mean of 755 measurements) was 299,778 ± 20 km./sec. The second recent determination is mentioned in NATURE of February 3, p. 169: it gives for the velocity of light in 1933 the value 299,774 ± 1 or 2 km./sec.

The determinations of this so-called constant made during the last ten years (the most accurate of the whole series) are therefore:

1924	..	..	299,802 ± 30 km./sec.
1926	..	..	299,796 ± 4 km./sec.
1928	..	..	299,778 ± 20 km./sec.
1933	..	..	299,774 ± 1 or 2 km./sec.

No physicist, looking at the above table, can but admit that the alleged constancy of the velocity of light is absolutely unsupported by observations. As a matter of fact, the above data, treated by Cauchy's method[3], give the linear law:

$$V \text{ km./sec.} = 299,900 - 4T \text{ (1900) years.}$$

When I first pointed out this fact (in 1924) it was objected that the data available were inconclusive, because the probable errors of the observations were greater than the alleged rate of change. Sir Arthur Eddington has dealt the death blow to the theory of errors[4] and "this theory is the last surviving stronghold of those who would reject plain fact and common sense in favour of remote deductions from unverifiable guesses, having no merit other than mathematical tractability"[5]. Even "die-hards", however, may fruitfully meditate over the 2nd and the 4th values in the above table.

M. E. J. GHEURY DE BRAY.

40 Westmount Road,
    Eltham, S.E.9.

[1] NATURE, 120, 603, Oct. 22, 1927.
[2] Phys. Z., 698–702; 165–167; 1929.
[3] Engineer, Sept. 13, 1912.
[4] Proc. Phys. Soc., 271–282; 1933.
[5] Dr. N. R. Campbell, loc. cit., 283.

Graphical Determination of Contemporaries

I REGRET that Mr. Dufton[1] is unable to find in my letter[2] on the above subject any clue as to what I am "trying to do"; others from whom I have heard seem to have had no such difficulty.

The reproduction of Thomas Young's diagram[3] is interesting, but a diagram given by Prof. Raymond Pearl in a paper[4] which he has kindly sent me gives all the information much more clearly and in such a form as to make it of real use to writers and teachers.

There is no ground for the implication made by means of the quotation introduced apparently with this object only, since it is impossible by search to find matter which is quite unrelated to the title of the work in which it is included.

WILLIAM LUCAS.

9 Shanklin Road,
Crouch End, N.8.
    March 2.

[1] NATURE, 133, 381, March 10, 1934.
[2] NATURE, 133, 141, Jan. 27, 1934.
[3] Young, T., "A Course of Lectures on Natural Philosophy and the Mechanical Arts", London, 1807.
[4] "Tobias Venner and his Via Recta", Human Biology, 4, 568; 1932.