the meaning of 'ln', so that it was presumably familiar on the Continent twenty-five years ago; it is also used by Milne-Thomson and Comrie in their "Standard Four Figure Tables" (1931), but they thought it desirable to explain in a conspicuous position that:

Logarithms to base 10 are denoted throughout by 'log',
Logarithms to base $e$ are denoted throughout by 'ln',

thus confirming your reviewer's opinion that the notation is "somewhat strange" in Great Britain.

It is to be hoped that this use of 'ln' and 'log' in the latter tables, which are bound to be used more and more as their advantages are recognised, will soon familiarise users with this notation, which appears to possess at least two obvious advantages: it reduces the cost of printing by eliminating the subscript $_e$ or $_{10}$, and it reduces the risk of confusion or error if the hurried user does not notice the subscript.

C. R. COSENS.

13, Millington Road,
Cambridge.
Nov. 10.

## Large Telescope Mirrors constructed by Dr. J. Peate

IN the years 1895–98 the Rev. Dr. John Peate, of Greenville, Pa., ground and polished a 62 in. diameter telescope mirror for the American University of Washington, D.C. Prior to that time he had made thirteen other reflectors, in the years 1879–95, which are said to have gone to "all parts of the world, including India". The whereabouts of only two of these thirteen mirrors seem to be known, these being at Thiel College, Greenville, and Allegheny College, Meadville, Pa.

I am endeavouring to compile an accurate account of the making of the 62 in. mirror (the largest glass reflector in the world at that time) which was cast in Butler, Pa., in March 1895, and of Peate's activities as a mirror-maker generally. May I ask that if any readers of NATURE know the whereabouts of the missing mirrors, and what use has been made of them, they will be so good as to write to me?

F. W. PRESTON.

Box 846,
Butler, Pa., U.S.A.

## Points from Foregoing Letters

WHEN the lighter elements are bombarded with slow neutrons, atomic transmutation may occur with release of energy. Dr. J. Chadwick and Mr. M. Goldhaber, by the bombardment of lithium with neutrons from a radon-beryllium source slowed down by passage through paraffin wax, find that helium and triple-weight hydrogen ($H^3$) are produced, about five million electron volts of energy being released at the same time. Boron gives a similar result, and these elements are therefore indicated as sensitive detectors for slow neutrons.

From the similarity in chemical constitution of certain substances producing cancer and of the female sex hormone, œstrin, it has been inferred that the latter may be able to produce cancer, and some experimental evidence has already been brought to support this view. Prof. J. B. Collip, Dr. H. Selye and Prof. D. L. Thomson now report cancer symptoms in castrated female rats injected with oil-solutions of the sex hormone.

The transformation of radiant energy into 'matter' was deduced theoretically by Dirac, who showed that two units of radiant energy (quanta) may give rise to a pair of positive and negative electrons (having *mass*). Dr. E. J. Williams now calculates the probability of a similar pair being formed from a quantum and an electron within the atom's nucleus (this electron being equivalent to a quantum or photon, from the point of view of an observer approaching it with a velocity nearly that of light).

A discrepancy exists between the charge of the electron computed from the rate of fall of electrified droplets ($4{\cdot}77 \times 10^{-10}$ E.S.U.) and that calculated from the wave-length of X-rays determined by the ruled-grating method ($4{\cdot}80 \times 10^{-10}$ E.S.U.). This would lead to a corresponding difference in the unit used in measuring X-rays, namely, the X-unit ($= 0{\cdot}001$ A. or $10^{-11}$ cm.). This will have to be increased, according to Mr. M. Söderman, by about 0·2 per cent (or the numerical value of the X-ray wave-lengths correspondingly changed).

Messrs. A. R. Ubbelohde and A. Egerton put forward the view that the presence of organic molecules which, when disrupted, give rise to radicals (HO–, $C_2H_5O$–, etc.), increases the amount of knocking in the internal combustion engine and plays an important part in many explosive processes.

A fairly close parallelism between the electromotive force of a platinum electrode in solutions of hypochlorite and the action of the latter upon cellulose fibres dyed with a reduced vat dyestuff, is reported by Mr. H. A. Turner, Mr. G. M. Nabar and Prof. F. Scholefield. The extent of the action was determined from the change in fluidity observed when the cellulose fibre was dissolved in cuprammonium hydroxide solution.

The order of arrangement of genes (carriers of hereditary traits) along the chromosome threads may give rise to peculiar loops, when chromosomes coming from unlike parents (heterogeneous as regards structure) are paired. Mr. P. Ch. Koller submits photographs and diagrams of such abnormally paired chromosomes in the cells of the salivary gland of the fruit fly (*Drosophila*). He points out that they can help in the rapid determination of variations within a species.

A description of the development of the embryo in the seeds of *Moringa oleifera* (from which oil of ben, similar to olive oil, is extracted) is given by Mr. Vishwambhar Puri. It differs from that given by F. L. Rutgers in 1923.

Prof. C. Spearman postulates that ability is made up of a factor due to training in the particular field under consideration, and another factor due to intelligence or general ability, *G*. Mr. M. S. Bartlett states that the latter quantity is indeterminate; it differs from the experimentally estimated ability, *g*, by a factor which depends upon the specific abilities corresponding to the tests used in measuring intelligence.

ERRATUM.—The value of the E.M.F. obtainable from xanthine-uric acid, as obtained by Miss Filitti, was given in this column last week as $-0{\cdot}113$; it should have been $+0{\cdot}113$.