every case the experiment consisted in a comparison of the manuring effect of three parts of phosphoric acid in an insoluble form, with a mixture containing one part of soluble and one part of insoluble phosphoric acid. The result was somewhat in favour of the latter mixture. It will be seen at once that the experiment afforded no fair comparison of the two forms of phosphate. Besides the fatal error of mixing the soluble and insoluble phosphates together, and comparing them in unequal quantities, the amount applied to the land was far too large. Let them drill with one set of turnips 2 or 3 cwts. of superphosphate in which the whole of the phosphoric acid is soluble, and apply to another plot the same amount of phosphoric acid in the so-called insoluble form, and the result of the comparison will be very different to that at present shown.

In speaking of the effect of nitrogenous manures the report correctly states that they produce but little effect on the turnip crop. The fact is that turnips have a greater power than most farm crops of assimilating the nitrogen of the soil, and being thus able to feed themselves stand in little need of artificial help. Where, however, the soil is in an exhausted condition, nitrogenous manures will always produce a marked effect.

The analyses of the turnips grown by the experimental manures supply a variety of "new and unexpected information." Much of this is true in substance, but is already well known to agricultural chemists. We abstain from criticising, for we are sure the next report will show a far better acquaintance with the chemistry of the subject, and that the industry and zeal now displayed will finally issue in real additions to our knowledge of agricultural science.

Euclid. Books I. and II. Edited by W. H. H. Hudson, M.A. *Algebra.* By the Same. (London: The Society for Promoting Christian Knowledge).

THE Euclid is founded on Simson's second edition (1762). In addition to the text there are a few definitions and some judicious explanatory notes. The Algebra (or Primer as the author styles it) is divided into three parts, Part I. Notation, Addition, and Subtraction; Part II. Multiplication, Division, and Simple Equations; Part III. Measures and Multiples, Fractions, and Quadratic Equations. The proof here given of $-a \times -b = ab$, due to Euler, appears to be quite sound. Mr. Hudson states his belief that this proof was misunderstood by Mr. Mill in his criticism ("Logic," vol. ii., ninth edition, p. 408). This little work is an excellent one, and contains a vast amount of good matter in a small compass. Mr. Hudson has performed his task in no perfunctory manner. Both books are brought out with a view to teaching the subjects of which they treat as required by the new code. They are very neatly printed and got up.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.*]

The Magnetic Storm of May 14, 1878

IN regard to the communication on the magnetic storm of May 14, 1878, which appeared in NATURE, vol. xviii. p. 617, it may be interesting to add some particulars furnished by examination of the magnetic photographs of the Royal Observatory.

For some days preceding May 14 the trace of the declination magnet had been very quiet, exhibiting only the ordinary diurnal change; but on May 13, at 18h. 5m., Greenwich mean time, the character of the curve abruptly and distinctly changed, small and frequent oscillations commencing then to be shown. At about 6h. on May 14 the north end of the needle began to move gradually in an easterly direction, and at about 9h. had reached a position twenty-five minutes of arc east of its usual position, the small oscillations still going on. No great change then occurred until 11h. 45m., when the north end of the needle began to move sharply westward. At midnight it had moved twenty minutes westward, occupying then its usual position nearly; almost immediately, however, it turned again eastward, and at 12h. 40m. had moved twenty minutes in that direction; after this time, with the exception of two smaller bends, no other unusual motion occurred, and the magnet gradually resumed its ordinary position. The small oscillations first spoken of ceased at about the time of the commencement of the first rapid motion, at 11h. 45m.

The commencement of the disturbance is not so distinctly perceptible in the trace of the horizontal force magnet, but continued small oscillations occur through the evening of May 14. At 11h. 45m. the northerly force had (gradually since 6h.) decreased nearly 0·01 part of the whole horizontal force; it then increased rapidly, and at midnight had about reached its usual magnitude; by 12h. 40m. it had again considerably diminished (but less than before), and after this time the magnet gradually resumed its usual position. The small oscillations ceased about midnight.

The vertical force magnet trace shows a few very small oscillations during the evening; after 7h. the force decreased gradually till midnight; at the latter time a sharper decrease occurred; at 12h. 30m. the force had altogether diminished by about 0·003 parts of the whole vertical force; after this time the magnet, rather rapidly at first, but afterwards more gradually, returned to its ordinary position.

The first start in the trace of the declination magnet, at 18h. 5m., is most distinct; the character of the trace definitely changes at that time. If the commencement of disturbance is as sharply indicated in the China, Melbourne, and Stonyhurst registers, we shall have here a well-established instance of simultaneous, or nearly simultaneous, action, at widely-separated parts of the earth's surface. The disturbance practically ceased at Greenwich, May 14, 16h. It was comparatively large as occurring in an otherwise quiet year. In years of activity these motions of the magnets, in amount, are, on many days, much exceeded.

WILLIAM ELLIS

Royal Observatory, Greenwich, October 12

P.S.—Earth currents were active at Greenwich during the whole period of the magnetic disturbance.

Cyclones and the Winter Gales of Europe

MR. S. A. HILL, in NATURE, vol. xviii. p. 617, compares together the number of hours of high wind in the British Isles with the number of West Indian cyclones observed in each year from 1869 to 1874. It may be interesting to add the result given by the Royal Observatory register. The hourly values of velocity in the years mentioned have not yet been tabulated, but adopting for comparison the number of days on which the daily velocity exceeded 500 miles, we have counted up the number of such days in each year, which numbers, for more ready comparison with those given in NATURE, we have multiplied by a constant. The comparison with the values previously printed in NATURE then stands as follows:—

	1869	1870	1871	1872	1873	1874
Cyclones (W. Indies)	0	7	3	0	1	?
Hours of high wind (British Isles) ...	714	570	537	679	571	658
Days of high wind, Royal Observatory, × 25	975	525	175	725	750	575

WILLIAM ELLIS

Royal Observatory, Greenwich, October 12

Height and Shape of Mount Hekla

I NOTICE that there is a mistake in regard to the height of Hekla in the map which accompanies my account of the eruption of February 27, 1878, for which I fear I am alone responsible. It is there stated to be 4,950 feet. The real height is 4,961 *Danish* feet = 5,108 English feet. The height has been frequently misstated. Sometimes it is asserted to be