

In every respect the most interesting and valuable part of the work are the concluding chapters of vol. ii., in which all the fresh geographical materials are conveniently summed up, the land revenue system of Persia dealt with probably for the first time in a really satisfactory manner, and the present condition of the country made the subject of some opportune remarks. It is pleasant to learn that this venerable monarchy, so far from being "played out," is even beginning to show signs of renewed vitality. The famine-stricken districts are gradually recovering, the peculiar underground system of irrigation is being largely extended, brigandage has been almost everywhere suppressed, the governors are beginning to show some regard for the interests of the people, while many will perhaps be surprised to hear that the people themselves are, on the whole, more comfortable, better clad, and better fed than the Indian rayats. There is, of course, "much to be done in the way of governing and reducing things to order;" but notwithstanding much maladministration and many local grievances, "the progress made by Persia within the last ten years is unmistakable."

The work is supplied with a series of excellent sectional maps of the regions traversed by the explorer. But there is neither index nor a table of contents beyond the briefest chapter-headings. The stages, however, along the routes are in all cases carefully recorded, with their distances and time occupied in covering the ground.

A. H. KEANE

*Notes on Chemical Calculations, with Examples, for use in the Leys School.* By A. Vinter, M.A. (Batley: J. S. Newsome, 1882.)

THE selection of calculations contained in this little book, while exhibiting nothing new, is satisfactory; the notes, in so far as they are explanatory of the calculations, are clear, and to the point, but when they deal with such subjects as atoms, molecular weights, and equivalency, they become sadly confused; on these points they must, we are afraid, be very misleading to the boys who make use of this book in the Leys school.

*A Pocket Guide to British Ferns.* By Marian S. Ridley. (London: Bogue, 1881.)

MISS RIDLEY'S book merits its title; for it is of a most convenient size for the pocket. Whether a new book on British ferns was needed may fairly be doubted; but this little volume will be useful to many beginners. The characters of each fern are given in tabular form, each occupying a page; and the principal points of distinction are clearly brought out.

#### 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.]

#### A Meteorological Spectroscope

As a considerable amount of interest seems to have been awakened lately in meteorological spectroscopy, it may be of service to observers to call their attention to a form of pocket spectroscope specially adapted for this purpose which Mr. Adam Hilger, of 192, Tottenham Court Road, prepared for me some months ago. The compound triple prism of flint glass is mounted as nearly as possible at the minimum angle of deviation for "C." We thus obtain a much better view of the red end of the spectrum than with the ordinary pocket-spectroscope. Mr. Hilger has also managed to secure an increased dispersion, which, with very perfect definition, enables me to see the lines in the so-called "rain-band" at "D" with great ease.

Besides the ordinary achromatic object-glass between the

adjustable slit and the prisms, the spectroscope is fitted with a telescope, *i.e.* a sliding tube carrying a lens, or second object-glass, in front of the slit—proposed by Mr. Lockyer—to bring the light from external objects to a focus on it. By this means one is able to differentiate, or localise, the spectra of different parts of the sky. I feel sure that the use of the telescope would prevent people falling into some of the mistakes one sees in publications about rain-band spectroscopy.

September 14

J. F. D. DONNELLY

#### The New Comet

ON Sunday morning, the 17th inst., at 10.45 a.m., I found a bright comet near the sun. The nucleus was bright, stellar in appearance; the tail was about 4' long, and brightest at the outside edges, giving a double appearance. The direction of the comet was to the centre of the sun. The comet preceded the sun's centre at 10.59 by 6m. 50s., at 12h. 0m. by 5m. 44s. The distance from the sun's limb on the parallel was at 11h. 10m, 18' 8" (of arc), and at 12h. 6m., 13' 4".

I hoped to get more and better measures, but the sky overcast, and with the exception of a short time on Monday morning, when I looked but did not see, the comet has remained so.

I used a helioscope of six inches' aperture.

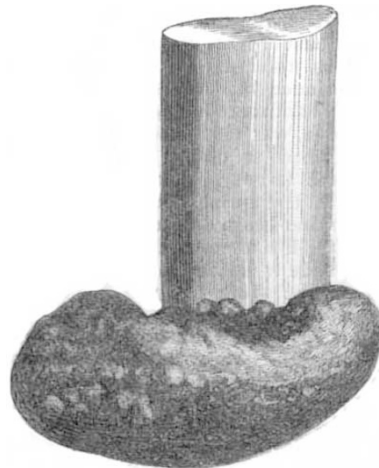
Ealing, September 19

A. A. COMMON

#### Contact Makers of Delicate Action

I HAVE allowed an error to creep into the sectional elevation of the contact-maker described in your last issue. The bent wire merely dips into the capsule at D, and is separate from the wire, which passes up the tube. This latter wire merely forms part of the circuit, being connected with the terminal as shown in the plan. It should be noted that the plug K is only inserted when the contact-maker is being moved about. Except when this is the case, the mercury passes freely through the opening at M, and nothing but the friction of mercury resists the motion of the wire.

Some remarks made in the discussion on the paper have led me to carefully examine the end of the platinum wire dipping into the mercury at D. It is shown (highly magnified) in the annexed figure. This end being softened, and no doubt



End of Platinum Wire.

brought to a welding state by the heat, of which the spark is the visible evidence, has, in rapidly beating upon the mercury, been apparently hammered into this shape. The nodules upon it are probably those referred to in books on chemistry as due to the expulsion of occluded hydrogen. The result shown in the figure, produced with a strong current (15 Groves cells) and a small wire, could in practice be easily prevented.

H. S. HELE SHAW

University College, Bristol, September 15

#### Bobbers

IN his well-known account of the habits of the Pearly Nautilus, Rumphius (D'Amboinsche Rariteitkamer, door G. E. Rum-