mation can be expected in the discharge-measurement of mighty rivers in flood. This collection of river discharge-measurements being made in such a way as to test each other is almost unique, most published results being isolated results incapable of test.

ALLAN CUNNINGHAM

OUR BOOK SHELF

The Botanical Atlas; a Guide to the Practical Study of Plants. By D. McAlpine, F.C.S. (Edinburgh: W. and A. K. Johnston, 1882.)

THE above is the title of a publication appearing in monthly parts, each containing, in the words of the prospectus, "four beautifully coloured plates and descriptive letterpress." Part I. deals with common representatives of the natural orders *Caryophyllaceæ*, *Cruciferae*, *Fumariaceæ*, *Geraniaceæ*, and *Labiatae*.

We are perplexed as to the intentions of the author of this work, which is advertised as designed "for the use of medical schools and Universities." If the "Botanical Atlas" is intended to supply candidates for certain elementary examinations with the facts absolutely necessary for a "pass" certificate, it seems fair to expect accuracy in the drawings of common objects.

The author, however, appears to think otherwise; not only are there gross inaccuracies in the execution of the conspicuous figures, but the types are ill-chosen and imperfectly referred to.

In illustration of this may be noted Fig. 2, on Pl. xiv., professing to represent a vertical section of the common wallflower; the reference "long stamen," points to the anther of a short one, and the words "short stamen," are referred to a green band, which might be imagined as intended for filament, petal, or sepal, and seems to do duty for all three.

In the figures standing for other vertical sections of flowers—e.g. Fig. 3, Pl. xvi., and Figs. 2 and 3, Pl. xxiii.—no one can avoid noticing the mysterious vagueness in the lower portions of the drawings; the same remark applies to the sections on Pl. xv. Is the author undetermined as to the relations of the parts composing the andræcium and gynæcium, or does he expect students, for whom elaborately-coloured drawings of sepals and petals have been prepared, to discover the forms and relations of the smaller essential organs without aid—or, rather, in spite of the misleading caricatures here placed like pitfalls in his path?

Similar faults are apparent in the diagrammatic plans of the flowers, and one wonders at the ingenuity displayed in going so far out of the way to prepare imperfect and inaccurate drawings of common objects.

Among other equally ingenious misrepresentations may be named Figs. 9 and 10, Pl. xv.—the marvellous streaks in a somewhat oval frame (Fig. 11, Pl. xvi.) supposed to represent a longitudinal section of the seed of *Geranium*, the incomprehensible *stigma* in Fig. 8, Pl. xxiii., with reference to which we cannot agree with the author when he says: "The figures will show the arrangement of the parts better than any description."

Passing over such errors as *Nostoe*, *Hydrodietyon*—possibly printer's mistakes—and the questionable mixtures of Latin and English names, we may notice one or two specimens of description appended to these gaily-tinted plates. We are told, without further remark: "The form and arrangement of the different parts (Fumitory) are evidently suggestive of some purpose." Also, the description of the wallflower commences: "Wallflower is a universal favourite, no less from its beautiful colour than from its sweet smell," and then passes on to a highly condensed and imperfect synopsis. We are told that the "Campion" "also smells in the evening in order to guide and attract insects," and that in Herb

Robert "the stem forks a deal, and is very brittle at the joints."

Such drawings and writing speak for themselves. We can only express the hope that if the other parts are published, more attention will be paid to accurate delineation and exhaustive description, and less to merely gaudy colouring. So far, the "Botanical Atlas" must be considered as but a very inefficient and faulty "guide to the practical study of plants." W.

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 Storms of 1882, April

THE Astronomer Royal having received from Mr. Charles Carpmæl, superintendent of the Meteorological Office at Toronto, Canada, copies of the Toronto records of the double magnetic storm of April last, has had them compared generally with the Greenwich records. Some results of this comparison I am desired by him to communicate to you for insertion, if you think proper, in the columns of NATURE.

The records comprise traces of the changes of magnetic declination, horizontal force, and vertical force. The commencement of disturbance on April 16 was sudden, in all elements, as was also the renewal of disturbance on April 19. Measuring out the times, both for Greenwich and Toronto, the following results are found:—

Element.	Toronto time of commencement of disturbance.	Corresponding Greenwich time.	Greenwich time of commencement of disturbance.
	h. m.	h. m.	h. m.
Declination ...	April 16, 6 17 ...	16, 11 35 ...	April 16, 11 31
Hor. Force ...	" 6 15 ...	" 11 33 ...	" 11 31
Ver. Force ...	" 6 16 ...	" 11 34 ...	" 11 35

Means ... April 16, 11 34 ... April 16, 11 32

Declination ...	April 19, 10 15 ...	19, 15 33 ...	April 19, 15 34
Hor. Force ...	" 10 16 ...	" 15 34 ...	" 15 34
Ver. Force ...	" 10 16 ...	" 15 34 ...	" 15 37

Means ... April 19, 15 34 ... April 19, 15 35

The times are mean solar. In the first case the mean of the Greenwich times is but 2m. earlier than that of the reduced Toronto times; in the second case 1m. later, indicating no real difference. This confirms, what has been before observed, that in times of storm the commencement of disturbance at different places appears to be simultaneous.

As regards the variations registered during the progress of the storm there does not seem to be any very close correspondence between the records of the two places excepting in one particular, the occurrence of a very remarkable decrease of horizontal force, soon after the first outbreak on April 16, which continued for some hours, and is a striking feature in both records.

WILLIAM ELLIS

Royal Observatory, Greenwich, June 16

Earthquakes in China

PLUSIEURS secousses de tremblement de terre ressenties en Chine pendant l'année 1881 ont été rapportées dans les journaux de Shanghai, de Hongkong et de l'étranger. Voici sur deux d'entr'eux quelques circonstances toutes particulières qui sont venues à ma connaissance et dont on n'a pas parlé.

Le 20 Juillet, un peu après 9h du soir, une secousse assez forte ébranla la ville de Tchong-kin, capitale de la Province de Szechuen, longitude 104° E. de Paris; immédiatement après, écrit un Missionnaire, la ville fut couverte d'une brume tellement dense qu'on ne voyait pas à 10 pieds devant soi; de plus une odeur de soufre très sensible se répandit partout. On prit tout d'abord cette brume et cette odeur pour un indice d'incendie;