OUR BOOK SHELF

The Gallery of Marianne North's Paintings of Plants and their Homes, Royal Gardens, Kew. Descriptive Catalogue compiled by W. Botting Hemsley, A.L.S. Fourth Edition. Pp. 160. (London: Printed under the Superintendence of Her Majesty's Stationery Office, and sold at Kew Gardens, 1886.)

THIS is a much enlarged and improved edition of the previous excellent catalogue of these valuable and interesting paintings. The whole collection having been rearranged and as many as 220 additional paintings added, the value of the catalogue, as may be supposed, is considerably enhanced, and the more so as many of the new paintings are the result of Miss North's more recent travels in such noteworthy countries as the Seychelles. The description of each of the pictures, with notes on the habits and uses of the plants represented, are both interesting and useful, the whole being carefully condensed within reasonable compass, but beyond this the present edition is made doubly useful by the addition of a most carefully drawn up list of plants referred to in the catalogue, arranged alphabetically under their natural orders, together with the native country of each species. The sketch of the "general features of the vegetation of the countries visited" is a most valuable addition, each country being treated of separately. These are, as Mr. Hemsley says, "short paragraphs describing the prominent features and peculiarities of the vegetation of the various countries whose floras are illustrated with some degree of fulness therein." Thus, under Chili we have first a general description of its position, character, climate, and meteorological conditions, followed by notes on the vegetation, with references to the more important genera. This part of the book, which forms the introduction, and extends to thirty-one pages, will be extremely useful to all students of geographical botany; indeed the whole book has a value besides that of a mere "guide" to the visitor to the gallery.

We cannot conclude our brief notice of this excellent catalogue without referring to another important feature in this edition, namely, the introduction of a really good map of the world, showing in red the countries visited by Miss North, and in green other floras partially illustrated in the collection.

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 insure the appearance even of communications containing interesting and novel facts.]

The Thomson Effect

IT affords me much satisfaction to find that my statement of the facts of the Thomson effect is in the main accepted by Prof. Tait. The errors to which I called attention had been copied into at least one recent electrical text-book, and were in a fair way to obtain general recognition as fundamental principles.

The only objection which Prof. Tait raises to my statement is my omission to include a correction for the variability of one of the coefficients with temperature. This is no valid objection, as the limits of space forbade me to encumber my explanation with any unnecessary detail, and my mathematical investigation was avowedly only approximate. The correction thus supplied by Prof. Tait and embodied in his equation (1) is to the effect that, in flowing through a copper conductor, the electric current, while displacing the whole temperature curve in the forward direction (as stated by me), displaces the maxima more than the minima, so as to make the descending gradients steeper and the ascending gradients less steep, the displacement of each point being proportional to its absolute temperature. In iron the same

rule holds except that "backward" must be substituted for "forward." Prof. Tait agrees with me that the ordinates are not increased or diminished, but are simply shifted. The current does not tend to diminish the difference between maxima and minima, as a real fluid would do.

The phrases "electric convection of heat" and "specific heat of electricity" have served their purpose, as provisional terms, furnishing a short and easily-remembered way of expressing certain new facts, which would have required for their full expression a long periphrasis; but to retain them any longer in our text-books is to place a needless stumbling-block in the way of teachers and students.

Let Thomson's coefficient σ (hitherto called the specific heat of electricity) be called the *Thomson coefficient*, and let the numbers tabulated by Prof. Tait under the heading "Specific Heat of Electricity" ("Heat," p. 180) be called *tangents of slope*, a name which speaks for itself when the meaning of a thermoelectric diagram is understood. The Thomson coefficient will thus (in the ordinary case) be equal to the absolute temperature multiplied by the tangent of the slope; and the amount of the Thomson effect between two given temperatures will be their difference multiplied by the Thomson coefficient for the mean temperature.

A good name is wanted for the ordinate of any point in a thermo-electric diagram. In the first edition of "Units and Physical Constants," being driven to give it some name, and not being able to think of a good one, I employed the makeshift term, "thermo-electric value." In the forthcoming edition I propose to denote it by the more appropriate name, "thermoelectric height."　　　　　J. D. EVERETT

Belfast, June 12

Black Rain

THE heaviest shower on record fell yesterday afternoon between 6 and 7 p.m. It began at 6.36, and almost six-tenths of an inch fell in the first quarter of an hour. The wind was shifting rapidly at the time from north through west to south. The water collected was very dark, but not so black as that which fell on April 26, 1884.　　　　　S. J. PERRY

Stonyhurst Observatory, June 10

Meteor

YESTERDAY (Sunday), June 13, at 10.12 p.m., looking eastward, I saw a magnificent meteor, extremely brilliant, darting from southward to northward, at an altitude of about 30°. It must have been a minute or two in view, as I had time to stop walking and watch it describe a long track. When it had passed the prime vertical it burst into a shower of sparks which, falling in a second or two, became invisible. The colour of the meteor was intense white, with a bluish tinge in rear, and only a very slight trail was visible. On exploding the light was crimson for an instant, and the sparks were red.

Should you receive any other notices of this meteor, its height, distance, and magnitude may be computed. It seemed to me of the diameter of a cricket-ball. I have never seen so large a meteor before, or any describe so long a path. The memorable meteor-shower of 1866 (?) exhibited none so large, though possibly many had longer tracks. You may hear of it from the North Sea.　　　　　R. STRACHAN

11, Offord Road, London, N., June 14

"Arithmetic for Schools"

MR. LOCK is a little loose, not to say unfair, in the drawing of his inferences; I prefer, therefore, to stand by my own words.

(1) When I said "the purely arithmetical part" (not Part) of the book, I meant what I said, viz. those sections where such *theoretical* matters as the finding of the highest common factor, the extraction of the square root, &c., are treated of. The possibility of any reader of NATURE drawing the inference which Mr. Lock succeeds in drawing, viz. that the book is expressly divided into Pure Arithmetic and Practical Arithmetic, is surely a very trivial matter.

(2) At p. 181 the following definition occurs:—"Rate of interest is the ratio of interest to the principal." This I gave as an instance of "slight inaccuracy." It may be a fundamental misconception, and not a slight inaccuracy; but if so Mr. Lock