of the Garden and School. The present volume, therefore, really begins the series of annual reports, and together with the reports we have a revision of the North American species of *Epilobium*. In the earlier part of the book details are given of the appointment of six garden pupils to scholarships in accordance with a resolution adopted by the trustees at a meeting held in November 1889. Each scholarship conferred may be held by the recipient for a period not exceeding six years, subject to certain conditions. The holders of scholarships are repaid for their services to the Garden, and at the expiration of the six years are entitled to examination by the Garden Committee. On passing such examination to the satisfaction of the Committee and Director, they receive a certificate of proficiency in the theory and practice of gardening. The only scientific paper in the volume is, as we have just mentioned, a revision of the genus *Epilobium*, the American species occurring north of Mexico being those studied. This genus differs from all the other capsule-bearing *Onagraceæ*, except the Californian *Zauschneria*, in having its seeds provided with an ample coma at the apex. While it reaches great development in New Zealand, *Epilobium* is essentially a genus of temperate and cold climates, and the most widely distributed species are those of Arctic and Alpine regions. In Alaska a few such species occur, which are otherwise confined to the adjacent part of Asia. More widely distributed Arctic-Alpine immigrants from the Old World to the New are *E. spicatum*, *E. latifolium*, *E. palustre*, *E. alpinum*, &c. *E. hirsutum*, *E. parviflorum*, and *E. adnatum*, also occur as accidental waifs. The genus passes into South America along the backbone of the continent; few members of this family extend very far across the Mexican boundary in either direction. The most interesting biological features of the genus are those connected with the means of vegetative propagation, pollination, and dissemination. The contrivances by which species survive the winter, and are vegetatively propagated, in this respect attain an extreme degree of differentiation, one in particular having acquired aërial bulblets. The large-flowered species appear to be regularly proterandrous, the duration of the dichogamy being brief in most of them, and the smaller-flowered seem to be always synacmic and self-fertile, although with the probability of frequent intercrossing by aid of insects attracted by the nectar which is secreted within the calyx tube. The genus is of no striking economic value. The North American Epilobia have been mostly described by De Candolle, Torrey and Gray, Haussknecht and Barbey; the more notable works of more limited range being Hooker's "Flora Boreali-Americana," and Brewer, Watson, and Gray's "Botany of California." Prof. Trelease in his revision enumerates 38 species, which number includes the following novelties: *E. holosericeum*, *E. delicatulum*, and *E. clavatum*. The well-known sections *Chamænerion* and *Lysimachion* are still adhered to, the latter, of course, being by far the larger. In the analytical key the main divisions depend on whether the stigma is deeply 4-lobed or 4-cleft, or entire or only notched. Subdivisions are founded on whether the seeds are smooth, or papillately roughened. The name *E. spicatum*, Lam., is used instead of *angustifolium*, the typical *angustifolium* of Linnæus being, according to Prof. Haussknecht, what is commonly known as *E. Dodonæi*, Vill. We are glad to see that Prof. Trelease differs from Prof. Haussknecht in not adopting a new name for what is left of the original *E. alpinum*. The *E. alpinum* of Linnæus included with this *E. Hornemanni* and *E. anagallidifolium*, but we think that the name may well stand for one of the segregates. The genus *Epilobium* has always proved a difficult subject; and Prof. Trelease is to be congratulated on his careful treatment, and successful arrangement, of the North American members. The 48 plates will be found of great help to students of these plants; they are not quite of uniform merit, but, taken as a whole, they give the essential details, stress being laid on the varied form of the stigma and seed. Additional illustrations are some well-reproduced photographs taken in the Garden, and a plan of the grounds (scale $\frac{1}{720}$) in five sections.

E. G. B.

OUR BOOK SHELF.

The Story of the Heavens. By Sir Robert Stawell Ball. Eighteenth Thousand. (London: Cassell and Company, 1891.)

IN the preface to this edition, Sir Robert Ball remarks that he has taken the opportunity to "revise the work in accordance with the progress of astronomy during the last four years," and, generally speaking, new facts and theories are briefly referred to. A few points, however, are hardly brought up to date. For example, the spectrum of the Andromeda nebula is said to be "a faint continuous band of light" (p. 462), although it is now definitely known that this continuity does not exist. We also find no reference to the many stars now known to have bright lines in their spectra. The author thus misses a chance of exercising his well-known descriptive ability in an account of the connection between such stars and nebulæ; the similarity of the two being so considerable that Pickering has followed Lockyer in arranging them in a single group. Dr. Huggins's old view as to the coincidence of the nebula line with nitrogen is mentioned merely to be dismissed as erroneous. Why, therefore, is no notice taken of the suggested magnesium origin of the line—for, on any published evidence, the edge of the magnesium fluting is nearer the proper position than the nitrogen double? We would also point out that, according to recent observations, the apex of the sun's way is much nearer Lyra than Hercules. Telescopic changes in comets are fully described, but the accompanying changes in their spectra are not touched upon. Motions of stars in the line of sight are considered; but not those of nebulæ, although Mr. Keeler's observations have been published for some time. In fact, it may be said that there is a tendency to eschew spectroscopic questions, and hence much of the most beautiful part of the story of the heavens is left untold.

Notes on Elementary Physiography. By Horace C. Martin. (London and Manchester: John Heywood, 1891.)

THE author has collected a lot of scraps of information from standard writers on physiographical matters, and has strung his gleanings together to form this book. And if he were an adept at compilation, and knew how to best arrange and connect facts, this plan of printing extracts *verbatim* might be commended. But when Mr. Martin selects notes which by themselves are incorrect, and inter-