that "hygienic corsets, exactly of the kind we describe, can be obtained from Mr. Pratt (surgical mechanist of Oxford Street)." On turning to the advertisements, we, singularly enough, find Mr. Pratt also among the elect. Hutchinson's well-known spirometric experiments are then largely drawn upon, and freely quoted, by which means we reach p. 132, where we find four pages of illustrative cases, including those of the "Rev. Canon G," who "broke down in voice"; "A. B., Esq., M.P.," who "suffered from impediment in speech"; "C. W. P., Esq., Mus. Bac.," who "spoke in a child's treble"; and "Miss D. M.," who "was rapidly losing the upper and middle notes of her voice from faulty production." All these, and others, to the number of eight, even a Scotch precentor among them, were happily cured.

We next pass to the oft-told history of the laryngoscope and its teachings, to find on pp. 163-169 some really good woodcuts of the five registers of the voice, named, according to Mr. Curwen's system, the lower thick, the upper thick, the lower thin, the upper thin, and the small respectively. Farther on two of these, and the falsetto, are reproduced by photography as above stated.

The chapters on voice cultivation, on breathing, on "attack," and on resonance go rather beyond the scope of a scientific paper. As an exercise, the pupil is recommended to repeat the syllable *koo* four times rapidly, once long; following with *oo*, *oh*, *ah*. The effect, with a large class, would be highly pastoral and pleasing. Indeed, it is a comfort to know that this "will be published very shortly by Messrs. Chappell and Co., of 50, New Bond Street" (*vide* advertisement). The most original chapter of all is, however, that on "The Daily Life of the Voice-User." He or she is instructed as to residence, "ablutions," "face and neck powders" (see advertisement), dress, and especially as to a "special woven and shaped combination, reaching from neck to ankles and wrists." On turning with feverish haste once more to the advertisements, we find that this boon to human nature can be obtained of E. Ward and Co. of Ilkley, and that the cost is only 12*s.* 6*d.* On the other hand, while treating of diet, the authors, no doubt from a "combined view," say (p. 256), "We decline to give an opinion on cucumber."

The above extracts will show the general tone and style of the work. The writer of these lines wishes to speak with the greatest respect of Mr. Behnke's really valuable photographs, which he exhibited at the Royal Institution about a year ago. He cannot help regretting that that gentleman in bringing his new conception into the world should have called in the obstetrical aid of any surgeon, however "vocal." W. H. STONE

OUR BOOK SHELF

A Sequel to the First Six Books of the Elements of Euclid. By John Casey, LL.D., F.R.S. (Dublin: Hodges, 1884.)

WE have noticed (NATURE, vol. xxiv. p. 52, vol. xxvi. p. 219) two previous editions of this book, and are glad to find that our favourable opinion of it has been so convincingly indorsed by teachers and students in general. The novelty of this edition is a supplement of "Additional Propositions and Exercises" (pp. 159-174). This contains an elegant mode of obtaining the circle tangential to three given circles by the method of false positions, constructions for a quadrilateral, and a full account, for the first time in a text-book, of the Brocard, triplicate-ratio, and (what the author proposes to call) the cosine circles. Dr. Casey has collected together very many properties of these circles, and, as usual with him, has added several beautiful results of his own. He is not so thoroughly well up in the literature of the subject as he might be, but he has done excellent service in introducing the circles to the notice of English students. Again, Question 31, p. 174, to one unacquainted with geometrical results, would appear to make its *début* here, whereas it figures as a question in the "Reprint from the *Educational Times*" (vol. iii. p. 58),[1] and is discussed there in connection with an envelope which forms the subject of a paper by Steiner (see also pp. 97, &c., and vol. iv. p. 94).

Many of the trifling errors we previously pointed out have been corrected, but some are still left, as on p. 39, line 15, "*A B*" should be "*A C*"; p. 110, reference should be to the "*Reprints from* the *Educational Times*"; p. 74, line 8 up, should be "*B D*," not "*P D*"; Question 103, p. 157, is incorrectly printed; p. 172, the Brocard angle, in all the papers we have seen, is denoted by ω and not by α. We think a better place for the "Observation" on p. 172 would be after Question 3 on p. 171. The figure on p. 134 is inverted. In the "Index," Pascal's Theorem should be referred to p. 129 and not to p. 139. We only need say we hope that this edition may meet with as much acceptance as its predecessors: it deserves greater acceptance.

The Ores of Leadville, and their Mode of Occurrence, &c. By Louis D. Ricketts. 4to. (Princeton, New Jersey, 1883.)

THE author, in accordance with the requirements of the Ward Fellowship in Economic Geology in Princeton University, spent upwards of four months at Leadville in the study of the ores and their mode of occurrence, and more particularly in the Morning and Evening Star Mines. The result of his investigations are presented in a very useful memoir dealing with the minuter phenomena of the two mines investigated, which are admirably placed for this purpose, as, although small, they have yielded an enormous quantity of carbonate of lead associated with silver ore in the form of chloride and bromide, the whole deposit being probably a pseudomorph or substitution-product of a blue limestone of Carboniferous age, by infiltration of metallic minerals from an overlying sheet of gray porphyry. This class of substitution is not unknown in other parts of the world, the famous calamine deposit of Vielle Montagne being one of the most familiar examples, but nowhere else is it illustrated on the great scale observed around Leadville, which now produces nearly one-half of the total quantity of lead raised in the United States. The ore itself varies very considerably in character, consisting of mixtures in every conceivable proportion of hard granular and soft carbonate of lead, often exceedingly pure, with quartzose brown iron ore and silver chloride and chlorobromide, the latter sometimes in lumps of a few ounces or even a pound weight; more generally, however, it is diffused through the mass, which is enriched to from 50 to 100 ounces in the ton of ore. A point of great interest, we believe first noticed by the author, is the occurrence of beds of basic ferric sulphate underlying the lead carbonate, and also containing some silver as chloride and lead as sulphate. This the author considers to be due to the oxidation *in situ* of a belt of iron pyrites more or less mixed with galena, the change being so complete that no trace of pyrites is ever seen in it. In a second section the author gives much interesting detail as to the working of the mines and their produce, the whole forming a monograph of considerable value. H. B.

[1] It was proposed in the *Educational Times* for February 1865.

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