

tions published by the German Government in the year 1893, an abridged translation of which forms an appendix to Mr. Hankin's book, they are sufficient for the purpose, and are better adapted to Indian Cantonments.

Chemical Experiments, General and Analytical. By R. P. Williams. Pp. 110. (Boston, U.S.A., and London: Ginn and Co., 1895.)

THIS is a practical, and, in some respects, an admirable, manual for chemical laboratories. The experiments described in the first half of the book instruct in metric measurements, glass manipulation, physical changes, chemical changes, and the preparation, properties and tests for the non-metallic elements and of the most important gaseous compounds. This part of the volume furnishes a good introductory course of practical chemistry. In the second part, the general and analytical reactions for metals are tabulated, the method adopted being to take each metal of a group separately and give the analytical reactions for it, and afterwards to treat the group in the same way. As a whole, the book should prove of service to students of analytical chemistry. Two features possessed by it offend the eye: one is the reformed chemical orthography, such as sulfuric for sulphuric, oxids for oxides, iodin for iodine, and so on; the other is the use of nearly sixty abbreviations, as, for instance, in the following sentences.

"Put into a t.t. or e.d. a thin piece of Cu, say 1^{cm}. add 10 or 20 drops HNO₃" (p. 19).

"Put into a gen. (rec. or t.t.) 5^g FeS, 10^{cc} H₂O, and 5^{cc} HCl (or H₂SO₄)" (p. 42).

"Arrange the app. with inverted recs. as for the hydrogen exp." (p. 35).

Something may perhaps be said for the free use of abbreviations of this character by trained chemists, but their introduction in a book for young students is apt to lead to slovenly habits.

Traité de mécanique générale. Par H. Resal. Deuxième édition, entièrement refondue. Tome premier et deuxième. Pp. 166 and 300. (Paris: Gauthier-Villars, 1895.)

IN editing the first two volumes of the seven volumes which form M. Resal's "Traité de mécanique," the author has seized the opportunity of completing certain subjects in the seventh volume, to which he directs attention in his preface. The scope of this treatise is so very great, covering all the ground of modern Theoretical and Applied Mechanics, that the author is debarred from entering into much detail. Thus, for instance, such a large subject as Hydrodynamics, including Hydraulics and Sound, is polished off in about sixty pages.

The work is obviously intended to serve as a text-book in Government technical schools, in which the amount of various knowledge required from a student is so great that he does not allow himself to become interested in details.

G.

Modern Stone-Cutting and Masonry. By John S. Siebert, C.E., and F. C. Biggin, B.S. Pp. v + 47. (New York: John Wiley and Sons. London: Chapman and Hall, Limited, 1896.)

THE arts of stone-cutting and masonry, and their applications in engineering and architectural practice in the United States, are briefly treated in this book, with special reference to the making of working drawings. The information given is of a thoroughly practical nature, and the fourteen plates, containing drawings of various forms of buttresses and arches, furnish useful examples of actual masonry work. The book will be found serviceable and instructive to students of the section of engineering and architecture described in it.

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LETTERS TO THE EDITOR.

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Two Brilliant Meteors.

ON April 8 and 12, fine meteors were observed at various places in England.

The first of these appeared at about 8h. 21m. (April 8), and descriptions of its apparent path have reached me from Croydon, Kenley and Sutton in Surrey, also from Bridgwater, Reading and Crowthorne.

At Croydon the meteor was described by Mr. Salmon as a beautiful one, passing from Arcturus to near α Cassiopeia. Duration, ten seconds. The nucleus divided into two fragments. At Kenley Mr. Evershed noticed the meteor travelling from Arcturus to β Cassiopeia. It finally broke into fragments after a duration of five or six seconds. At first it was not brighter than a second magnitude star, but increased rapidly, so that at the end of its flight it was many times brighter than Venus. Mr. Bawtree, of Sutton, describes the path as from near β Draconis to β Cassiopeia, and estimated the duration as six to ten seconds. Mr. Corder, at Bridgwater, saw the meteor through trees, and at a low altitude, so that it did not appear to him brighter than Vega. Towards the end the nucleus divided into three. Its path was from $225^\circ + 15^\circ$ to $260^\circ + 40^\circ$, and duration six seconds. Mr. Saunder, at Crowthorne, Berks, says the meteor was several times as bright as Jupiter, and that before its disappearance the head was in several distinct pieces. Its path was from δ Bootis to near β Cephei. Mr. Davis, at Reading, describes the meteor as being equal to Venus, and passing in twelve seconds from near Arcturus to the point $340^\circ + 57^\circ$. It broke up into fragments at the end.

The second meteor appeared on April 12 at 8h. 6m., and I have accounts of it from Greenwich, Wellingborough, Bridgwater, Stokesay, Nottingham, West Malvern, Southport, Slough, Dunstable, Lochwinnoch, Renfrewshire, and several other places. At Greenwich, Mr. Dyson estimated the meteor as four times as bright as Jupiter, and describes the end part of its flight as being about 15° below the pole from W. to E. Mr. Tatman, of Wellingborough, says the meteor passed from N.E. to S.E., and occupied 12 seconds in its transit, ultimately disappearing behind a dark cloud. At Bridgwater the meteor moved from about 30° altitude in N. to 15° in N.E., and appeared to be about the size of the moon in one of her quarters. Mr. C. E. Clough, at Southport, says the meteor fell vertically about 15° to the right of Arcturus. In brightness it was estimated to equal two full moons. When first seen it was about 60° high, and it disappeared at an altitude of about 10° or 15° . At Nottingham, Mr. J. T. Wood says the meteor crossed the zenith, and was last seen near δ Virginis. It was ten times as bright as Jupiter. At Oxford, Mr. Robinson gives the time as 8h. 6m., and describes its course as from $7\frac{1}{2}^\circ + 60^\circ$ to $257\frac{1}{2}^\circ + 37^\circ$. Its duration was six seconds, and the meteor equalled and probably excelled Jupiter in brilliancy. At Lochwinnoch, Renfrewshire, Mr. P. Dewar noticed the meteor at 8h. $4\frac{1}{2}$ m., and says its motion appeared slow, lasting for four or five seconds. Its direction was from S.E. to E., and it disappeared near the horizon. At Coalbrookdale, Shropshire, the object was seen to come from the west, travel to N.E. and be lost towards E. The observations at Stokesay and West Malvern appear in NATURE of April 23, p. 581. I have a few other descriptions, and they are in satisfactory agreement.

The real paths of the two meteors appear to have been as follows:—

	April 8, 8h. 21m.	April 12, 8h. 6m.
Height at appearance	65 miles	118 miles
Position over	Straits of Dover	Formby, Lancashire
Height at disappearance	38 miles	34 miles
Position over	S. border Leicester-shire	Doddington, Camb.
Length of observed path	161 miles	177 miles
Velocity per second	20 miles	19 miles
Earth point	Irish Sea	Woodbridge, Suffolk.
Radiant point	$204^\circ - 9^\circ$	$50^\circ + 42^\circ$
Inclination of meteor's descent	9°	31°