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# The elements of geometry, with notes.

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extensive knowledge of science, could have written,—and such we know to be the case with the author\*.

*The Elements of Geometry, with Notes.* By J. R. YOUNG.

The great excellence of Euclid is well known to consist in the completeness and perfect accuracy, as well as the general simplicity and elegance of his demonstrations, admitting no assumption, no step in the process of his reasoning that has not been previously established, and at the same time, with this requisite, usually adopting the shortest course for arriving at his conclusion. It is not, however, pretended that this admirable work, so long and so deservedly received as the text-book for instruction, is absolutely free from defects. Even the very rigour of his proofs is sometimes the source of so much intricacy and abstruseness, especially in the equally difficult and important branch of the mathematics, the doctrine of proportions, as to form a serious and discouraging obstacle to the progress of the learner. The want of success in every attempt hitherto made to lessen this difficulty, might seem to render the task hopeless. The aim of Mr. Young, however, in the work before us, has been, without impairing the completeness and satisfactory nature of his demonstrations, to contract and facilitate the labour of the student as much as possible by simplicity and conciseness, and also to add to the extent and accuracy of his geometrical knowledge. Nor do we hesitate to recommend his treatise, not certainly as superseding the use of Euclid, but as a useful auxiliary to that great work. His observations on the theory of parallel lines; his demonstration of the converse of every proposition where this is possible, and showing its failure, where it is not; the labour he has bestowed on the doctrine of proportions, as well as his corrections of many errors of preceding geometers, and supplying their defects, together with his minute attention to accuracy throughout,—may be justly considered as rendering his performance valuable, especially to the learner.

The notes are numerous, and most of them important. Among the various errors and defects of modern geometers detected and corrected in them, one instance especially is singular, and deserves to be noticed. Mr. Thomas Simpson, in his *Elements of Geometry*, has substituted in the place of the seventh proposition of Euclid's sixth book, one which Mr. Young has proved to be absolutely false. This is the more remarkable, as, though the work in which it occurs has been in the hands of geometers more than seventy years, this error has hitherto escaped detection. Even Dr. Robert Simson, the editor of Euclid, though entertaining no very friendly feeling towards his contemporary, suffered it to pass unnoticed. A similar error occurs also in Mr. Leslie's *Geometry*, Prop. xiv. B. vi. last edition.

As the celebrated propositions of Euclid, (B. i. Prop. 47.) the discovery of which is attributed to Pythagoras, admits of various demonstrations, Mr. Young has given three; the last of which in the notes is concise and simple, though that inserted in the text instead of Euclid's, is inferior to the latter, not only in elegance but in simplicity also.

\* His first Essay was a paper in the 46th vol. of the *Phil. Mag.* p. 15.

The first eight books of this work now published treat of lines situated in the same plane. The second Part, as announced by the author, will contain the geometry of planes and solids; with an Appendix, and Notes on the Symmetrical Polyedrons of Legendre.

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XXXVII. *Proceedings of Learned Societies.*

LINNÆAN SOCIETY.

Feb. 5.—**R**EAD some account of the Botany of the provinces lately ceded by the Burmese to the Honourable the East India Company; with a description of two new genera of plants: in a letter to H. T. Colebrooke, Esq., F.R.S. & L.S. &c. By Nathaniel Wallich, M.D. F.L.S. F.R.S. E. &c. Superintendent of the Botanic Garden at Calcutta. The author states that his botanical treasures are most extensive; the number of species having long ago surpassed 2000; and that he has never seen any vegetable production equal to his *Amherstia nobilis* when in full bloom. It surpasses all the Indian plants.

*Amherstia*. Diadelphia Decandria—Nat. Ord. Leguminosæ. The flowers of this splendid tree are disposed in pyramidal pendulous clusters 2 feet long, and 10 inches broad at the base. Leaves  $1\frac{1}{2}$  foot long, with 8 or 10 pair of oblong pointed pinnæ, which are from 8 to 10 inches long, and of a peculiarly delicate glaucous hue. The racemes are scarlet. The petals are furnished at the apex with a broad yellow spot, having a tubular calyx; and the genus is evidently allied to *Heterostemon* of Desfontaines.

Dr. Wallich has at length found the *Varnish*-tree of the Burmese, which he constitutes a new genus, and calls it *Melanorrhæa*; Polyandria Monogynia; Anacardiæ, Brown.—Also another singular plant, which he calls *Phytocene gigantea*, allied to Araliaceæ. The trunk is as thick as a man's thigh, and when divided affords a large quantity of a limpid, tasteless, and very wholesome water.

Feb. 19.—Read a description of a curious Fungus belonging to the Gastromycous order, found near Wrexham by J. T. Bowman, Esq. F.L.S. on decaying oak branches stript of bark. In its earliest stages it is globular: afterwards, from the expansion of the filaments, the sporules are exposed, and the sporangium becomes rugged and broken; from the ripening of the seeds the peridium bursts, and the filaments being set at liberty acquire first a horizontal and then a more erect position, resembling the branches of a palm-tree.

At the above meetings were also read some portions of a paper by J. E. Bicheno, Esq. F.R.S. Sec. L.S. entitled "Remarks on the Flora of Great Britain, as connected with Geography and Geology."

The Author in this paper, instead of attempting to connect plants with particular temperatures, as most authors who have treated the subject have done before, endeavours to show the relation which vegetables have to Geographical and Geological structure. He regards England as the most favourable place to commence such remarks, because of the intimate knowledge we have of its stratification, and also of the stations of all our plants.

In order to assist our inquiries he thinks it necessary to reject all those