

of varieties established, agricultural botany may prove of much value to the farmer, gardener, and seedsman. Until then it belongs in the category of hopeful experiments.

MINOR BOOK NOTICES.

A treatise on the adjustment of observations, with applications to geodetic work and other measures of precision. By T. W. WRIGHT, B.A., late assistant engineer U.S. lake-survey. New York, Van Nostrand, 1884. 437 p. 8°.

THE student of the method of least squares often fails to grasp the true meaning and significance of the method, from the want of illustration and well-chosen applications. The chief merit of Mr. Wright's book is in the collection of examples which have been drawn from the records of actual work in which the author has been engaged. Besides the application of the methods of least squares to the results of triangulation and of levelling, a chapter is devoted to these methods in relation to line-measures in general, and to the calibration of thermometers.

There are some observers who are tempted to believe in the infallibility of certain criteria proposed by different writers for the determination of the weight of observations. There are others who reject the mathematical criteria, and prefer graphical methods as guides to a correct judgment. Mr. Wright is one of those who prefer to look at observations from the practical observer's point of view. His treatise will therefore be of interest to the mathematician who desires to frame criteria which will represent more closely the results of experience, and will prove of great utility to the practical man.

Recent progress in dynamo-electric machines, being a supplement to dynamo-electric machinery. By Prof. SYLVANUS P. THOMPSON. New York, Van Nostrand, 1884. (Van Nostrand sc. ser., No. 75.) 113 p., illustr. 24°.

THE writers who rapidly assimilate the advances in electrical engineering, and present their knowledge to the public in an intelligible way, are doing very useful work. The treatises of Professor Thompson are increasing upon the electrician's book-shelf. The time has not arrived for a standard treatise on electrical engineering, on account of the rapid changes and development of the subject. Until we can have such a standard treatise, we must rely upon brochures like this latest production of Professor Thompson.

The reader will find in it an account of Mr. Hopkinson's modification of the Edison dynamo, and also a description of the latest modifications of the Gülcher machine, and also of the Thomson-Ferranti machine.

Wonders and curiosities of the railway; or, Stories of the locomotive in every land. By WILLIAM SLOANE KENNEDY. Chicago, Griggs, 1884. 16+254 p. 12°.

ONE is a little startled, on opening this book, to find mentioned the "huge, ample-shadowed foundry; the peculiar fragrance of burnt earth and iron; . . . the boy controlling the huge steam-hammer; . . . and, finally, the great crane that lifts up the monster in chains, and carries it to the doorway, and sets it down in all the resplendence of its polish and paint, ready to begin its thirty years of toil," with nothing predicated of them; but is relieved immediately by the statement that 'this is the building of the locomotive.' This introductory chapter, in which 'our old Homeric poet Whitman' receives praise, and which may have been written by him, should not, however, deter the reader from going deeper into the book. From chapter ii. on, the writer tells the anecdotes he has collected in regard to the railway, and has succeeded in bringing together a most entertaining collection. The account given of the Quincy railway must change the impression that many have of that so-called 'first American railroad.' The chapter on the 'locomotive in slippers' is devoted to the history of the railway in the east, and at times is especially amusing. The author also touches upon the 'vertical railway' (the elevator), upon the various mountain railways, and upon the recent attempts to use electricity as a transmitter of power.

NOTES AND NEWS.

A CONFERENCE to formulate plans for the systematic observation and discussion of earthquakes was recently held in the rooms of the U.S. geological survey in Washington, at which there were present Messrs. Powell, Dutton, and Gilbert, of the survey, Abbé and Marvin of the signal-service, Paul of the naval observatory, Rockwood of Princeton, and Davis of Harvard college. It was decided that three classes of observations should be attempted; the first class consisting of those made by self-registering seismometers of approved pattern, upon which Messrs. Paul, Rockwood, and Marvin are to report at an early date. The second-class observations will be chiefly to determine the time of shock, probably by means of a