dition of these important architectural remains. We are glad to be able to say that recent advices from Athens state that the work of preservation, if not of restoration, will not be delayed. As it takes a long time for white Pentelic marble to weather to the present shade of the remains, it is to be hoped that the restorations will be light.

ALGEBRA FOR BEGINNERS. By H. S. Hall and S. R. Knight. Revised and adapted to American schools by Frank L. Sevenoak, A.M., M.D. New York and London: Macmillan & Company. 1895. Pp. 188. 16mo. Price 60 cents.

This excellent work will be found to meet the wants of all who do not require a knowledge of algebra beyond quadratic equations—that portion of the subject usually covered in the examination for admission to the classical course of American colleges.

MATRICULATION DIRECTORY. No. XVIII. June, 1895. London: University Correspondence College. 1894. Pp. 132. 16mo. Price 1s.

This pamphlet belongs to the University Tutorial Series and gives the general method of work by which specially prepared courses of lessons are given for the examinations of the University of London in Arts, Science, Laws, and Music. These courses "embrace all that is requisite for success, yet entirely relieve candidates from superfluous work, the special syllabus of each examination being always kept in view." We have several times called attention to this pernicious system of limiting education to those subjects required for degrees and certificates. The correspondence system of education might be introduced in the United States with advantage to a much larger extent than it has already been. The present Matriculation Directory is of course of little value to the American student, the text-books and methods of instruction being different.

DESIGNING AND PAINTING VITRIFIABLE COLORS ON GLASS MADE ACCESSIBLE TO ALL. By H. P. Saucre. Translated and adapted by Favor Ruhl & Company, New York City. Pp. 53. 16mo, illustrated. Price 60 cents.

This valuable little book is authorized by Lacroix, of Paris, the well known manufacturer vitrifiable colors, and with the aid of the clear descriptions any one who can paint at all should be able to turn out excellent work. The newest methods of work are described.

THE CATHEDRALS OF ENGLAND AND WALES. "The Builder" Series. London: Published by "The Builder," 46 Catherine Street, London, W. C. 1894. Elephant folio. 62 plates and plans on plate and India paper. Detail cuts and descriptive letterpress. Library edition limited to 250 copies. Price, unbound in portfolio, £3 13s. 6d. Bound in whole buckram, £4 4s. American price, $29.40 and $33.60 respectively.

The cathedrals of England are the richest architectural heritage of the English people, and any work devoted to them is sure of attention. We already have many works devoted to them, treating them from the popular and historical side and occasionally from the side of the professional architect as well. They all, no doubt, fulfill a useful purpose, but the present work appears to have been designed on different lines, as at the same time it appeals to the practical architect, the amateur, and to the section of the general public who care for cathedral history and buildings. The views are all entirely new ones, and in many cases the stereotyped "view" which has come down from the time of Winkle's "Cathedral Churches" has been abandoned. Unlike most series of illustrations of this kind, the method of execution is various. The drawings are reproduced according to the modern methods of photo-mechanical work. To architects, the plans will form the most valuable part of the book, as they are drawn on a large scale; in some cases they occupy two pages of the portly volume. The plans are, of course, drawn to scale, and the dates of various portions of the edifices are distinguished by shading, etc. The plans are exceptionally clear, with the possible exception of the Canterbury plan, and give a splendid idea of the arrangement of the cathedral and conventual buildings. It is pleasing to note that many of the smaller cathedrals, which are usually omitted in works of this class, have been adequately treated, as St. David's, Bangor, and St. Asaph. The detail drawings are new, and will prove interesting to both the professional and the amateur. The letterpress is republished from "The Builder." On the whole, the work reflects great credit on those who have had in hand its production and publication, and the meritorious volume is deserving of a large sale.

AN ELEMENTARY TEXT BOOK OF MECHANICS. (The University Tutorial Series.) By William Briggs, M.A., and G. H. Bryan, M.A. London: University Correspondence College Press. 1895. 16mo. Pp. 336, 167 illustrations. Price $1.40.

In preparing the present book it has been the aim of the authors to afford beginners a thorough grounding in those parts of dynamics and statics which can be treated without assuming a previous knowledge of trigonometry. The definitions are excellent and examples are fully worked out. The problems are numerous and the answers are given in the appendix. On the whole, it appears to be an admirable text book.

THE PRINCIPLES OF PHYSICS. By Alfred P. Gage, Ph.D. Boston: Ginn & Company. 1895. 12mo. Pp. 493, illustrations. Price $1.55.

The author published a text book on physics some thirteen years ago entitled "Elements of Physics." The present volume is, however, an entirely new work. The author's views regarding the smallness of text books and the mutilation of the science of physics could be read with advantage by many English educators who are bound down to the syllabus limitation of studies. In arrangement the book does not differ materially from the general run of books on the subject. The method of presentation is clear and logical and a large number of footnotes add to the interest of the work. The exercises, questions, problems and experiments are excellent. The illustrations are a striking feature of the book and it is satisfactory to note that at last a modern telescope (the Lick) and the transformer have got into a text book.

THE MANUFACTURE OF EXPLOSIVES. A Theoretical and Practical Treatise on the History, the Physical and Chemical Properties and the Manufacture of Explosives. By Oscar Guttmann. London: Whittaker & Company, 2 White Hart Street, Paternoster Square. 1895. 2 vols. Pp. 782, xlix, 147 illustrations. Price $9.

A really good book on explosives has been needed for a long time, and the present work seems to have been written by a person thoroughly conversant with his subject. The introduction of the dynamites for civil and of guncotton and picrates for military engineering operations, and the general adoption of small bore magazine rifles and smokeless powders has completely revolutionized the subject of explosives, and rendered many of the old books useless. The present work is not a bare catalogue of modern explosives, but is a technical work, dealing with their manufacture on a commercial scale by the latest and most approved methods. An admirable feature of the book is that under nearly every engraving will be found the scale on which it is drawn, so that a correct idea may be obtained of the dimensions of various parts of the machine. This does not apply only to plans, but to the shaded drawings. The same idea could be carried out to advantage in most technical books. The work treats of powders of all kinds, guncotton, nitroglycerine, fulminates, dynamite, sprengel explosives, etc. The bibliography of explosives is very full, and is one of the most important features of the book, and even includes works published in 1895. On the whole, the work is an admirable addition to technical literature.

POSITION DIAGRAM OF CYLINDER WITH MEYER CUT-OFF AT ONE-EIGHTH, ONE-FOURTH, THREE-EIGHTHS AND ONE-HALF STROKE OF PISTON. New York: Spon & Chamberlain, 12 Cortlandt Street. 1895. Price 25 cents.

The valves may be adjusted by pulling the slips on the underside of the card. Such diagrams are of great assistance in comprehending a difficult subject.

☞ Any of the above books may be purchased through this office. Send for new book catalogue just published. MUNN & Co., 361 Broadway, New York.

SCIENTIFIC AMERICAN BUILDING EDITION.

AUGUST, 1895.—(No. 118.)

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(6606) T. J. S. writes: Please give me a receipt for enamel for bicycles. A. Enamel black for cycles: Asphalt, 40 ounces; boiled linseed oil, ½ gallon; litharge, 6 ounces; powdered zinc sulphate, 4 ounces; red lead, 6 ounces; litharge, 6 ounces. Melt the asphalt, add the others; boil 2 hours, stir in 8 ounces fused dark amber gum and 1 pint hot linseed oil; boil 2 hours more. When mass has thickened remove from the fire and thin 1 gallon turpentine.

(6607) H. F. says: 1. Will you kindly inform me how I can crystallize flowers? A. Crystallized grasses and sprays are made as follows: The bunches are first arranged in a suitable manner, tied and secured; a solution of four ounces alum to 1 quart boiling water is made, and when this has cooled to about 90° or blood heat, the bunch of grass and leaves is suspended in it, in a deep jar, from a rod placed across the mouth of it; as the liquid cools, crystals of alum are deposited upon every spray, the finer and smaller, the weaker the solution is made. This deposit of crystals occurs in the cooling liquid, because hot water dissolves more alum than cold water, and as the water cools, the excess of alum forms crystals which attach themselves to any fibrous matter in contact with it more readily than to anything else. These crystals enlarge by accretion constantly, as long as there is an excess of alum in the solution. When the supply is exhausted, the solution is warmed and more alum is dissolved in it: it is returned to the jar and the bunch of grasses is replaced. When sufficiently covered with crystals it is taken out and dried and is finished. 2. How to prepare the solution for illuminating the face of a clock so the time can be seen at night? A. Use luminous paint, which you can buy ready prepared.

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