dustry. Vol. III contains the table of contents of the two preceding volumes, so that the literature on such subjects as carborundum and monazite can readily be traced. A splendid index contains about 12,000 separate titles.

AN ELEMENTARY TEXT BOOK ON STEAM ENGINES AND BOILERS FOR THE USE OF STUDENTS IN SCHOOLS AND COLLEGES. By J. H. Kinealy. New York: Spon & Chamberlain. 1895. Pp. 236, 8vo, 103 illustrations. Price $2.

The author is Professor of Mechanical Engineering in Washington University, St. Louis, Mo. He states that the book was written more especially for students in the universities and colleges. The student is first given an idea of thermo-dynamics, then of the action of steam in the cylinder of the engine, of the motion of the steam valve, of the differences between the various types of engines and boilers, of the generation of heat by combustion, and of the conversion of water into steam. In the derivation of some of the formulæ in thermo-dynamics the calculus is used, but the use of all mathematics higher than algebra and geometry has been avoided as much as possible. The subject is presented in a clear and concise manner.

MONOGRAPH ON FLUID EXTRACTS, SOLID EXTRACTS, AND OLEORESINS. By Joseph Harrop, Ph.G. Columbus, Ohio: Harrop & Company. 1895. Pp. 230. 16mo. interleaved. Price $2.

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CINEMATICA DELLA BIELLA PIANO. Studio differenziale di cinematica del piano con applicazioni alla costruzione razionale delle guide del movimento circolare e rettilineo. Per L'Ing. Lorenzo Allievi. Naples: Francesco Giannini & Figli. 1895. 8vo. 2 vols. Pp. 151. 29 plates.

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(6613) S. D. writes: On perusing your paper of March 9, 1895, page 150, I read a paragraph headed: "Wire Fence Telephones in Australia," and thought you would be interested to learn that about seven months ago I utilized the top wire of the existing fences for telephonic use and it works to satisfaction. The line is about two miles in length, the wire being with staples as usual, no insulation is needed. At the splices we scrape off the rust and make a continuous connection.

(6614) J. L. says: What is meant by the aromatic group in chemistry? A. A class of hydrocarbons, chiefly characterized by containing a group of six carbon atoms in which, out of the twenty-four units of atomicity, eighteen are supposed to be saturated by union of carbon with carbon, leaving only six open to external saturation.

(6615) J. M. B. asks: How can the globes on incandescent lamps be colored red, blue, green, and opal? I want a coloring that will not wash off, and that will not flake off by the heat. A. 1. Prepare the glass by thoroughly washing in soap and water and drying. Then dip in bath, made by beating up the whites of two eggs in ½ pounds or pint of water and filtering, and hang up to dry. Dissolve the aniline color in photographer's common collodion. 2. Red or blue aniline will form clear solutions, while the green solution will require filtering. 3. Yellow aniline forms a handsome color, but the surface of the glass presents a frosted appearance after the application. 4. Violet and purple colors may be obtained by combining red and blue in different quantities. When the solution is ready, dip the prepared glass bulbs therein, hang up to dry, and finally pass a current through the bulb for half an hour, that the heat thus generated may harden the coating of the collodion, or place in a current of air. 5. The preparation can easily be removed with alcohol or sulphuric ether, but is not affected by water. Experience has shown that the best results are obtained by not using too much aniline. Make the color light rather than deep, and apply two or three coats.

(6616) W. S. says: A cannon ball is fired from a cannon in a horizontal position, another cannon ball is dropped from the mouth of same cannon at the moment of firing. Which will strike the earth first? A. The effect of gravity on a falling body is the same whether moving with high velocity horizontally or dropping vertically, but as a cannon ball fired horizontally at the cannon points in a tangent to the earth's surface, the dropping ball will reach the earth first by a very small fraction of time.

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