NEW BOOKS AND PUBLICATIONS.

DIE ELEKTRISCHE KRAFTUBERTRAGUNG (THE TRANSMISSION OF POWER BY ELECTRICITY). Edward Japing. Wien, Pest, Leipzig: A. Hartleben, 1883. 236 pages.

Various means have been devised for transmitting power, and the last is by the use of electricity. Mr. Eduard Japing has published a very interesting work, which is now before us, on the above subject. He first describes the natural and artificial powers adapted for operating the electric generators, the various kinds of machines for generating electricity, electromotors, their advantages and defects, the magneto-electric and dynamo-electric machines, and the relative costs of producing the current by means of machines, batteries, etc. The following chapters treat of the theory of converting the current into work, the theoretical calculation in relation to transmitting power great distances, the thickness of the transmitting wire, the effect of counter-currents, the effect of the number of revolutions of the armature, etc. The transmitting wires and cables, the insulation of the same, the division of the current, and the accumulators or storage batteries, especially those exhibited at Munich, are the subjects of the following chapters. The last chapters are devoted to the losses sustained by transmitting power, examples of practical use of the electric transmission of power, and the relative cost of such transmission. This work constitutes the second volume of Hartleben's Electro-Technical Library.

THE WATCHMAKER'S HAND BOOK. By Claudius Saunier. Translated and enlarged by Julien Tripplin and Edward Rigg, M.A. Illustrated by wood cuts and copper plates. Published by Julius Tripplin, and by A. Fischer, London.

This handy sized volume contains much that may be useful to other workers in the metals besides those engaged in watch making. The treatment of cast steel, brass, copper, and bronze, the contrivance of appliances for their working, the choice, use, and care of tools, and many handy shop hints, make the usefulness of the manual extend beyond the particular branch of mechanical art for which it is especially designed. For the watch maker and the watch repairer, the directions are so minute and exact and the illustrations so frequent that the book must be valuable for reference to workmen and useful as an instructor to apprentices and beginners.

Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from $1 to $5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at the office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) O. W. R. asks: What would be the weight of a body on the surface of the sun as compared with its weight on the surface of the earth? Scientists seem to vary largely in their estimates. Proctor says a letter weighing half an ounce on the earth would weigh about four tons on the sun, which is about in proportion to the mass of the sun as compared with the earth, taking into consideration the fact that the specific gravity of our luminary is only one-half that of the earth. Other writers place the weight of a body at the sun as only about 27 times as great as on the earth. Which is right? A. The sun's mass is about 354936 times that of the earth, and its radius is about 111·8 times that of the earth. Hence the difference of the masses divided by the square of the difference in their radii equals the difference in gravity at their surfaces, for the difference in gravity is inversely as the square of the radius. Thus $\frac{354{\cdot}936}{111{\cdot}8^2}=27{\cdot}9$; or a body at the sun's surfaces would weigh 27·9 times more than at the earth's surface, under the same conditions. But a body that is solid at the surface of the earth would be vaporized by the intense heat at the sun's surface, and its condition in regard to gravitating influence might be materially changed. We think that it would be somewhat less than the above figures. We think the quotation from Proctor an error, as he does not hold that view in his latest work.

(2) E. P.—The following is recommended as a good mucilage for labels: Marcerate 5 parts of good glue in 18 to 20 parts of water for a day, and to the liquid add 9 parts of rock candy and 3 parts of gum arabic. The mixture can be brushed upon paper while lukewarm; it keeps well, does not stick together, and when moistened adheres firmly to bottles. For the labels of soda or seltzer water bottles it is well to prepare a paste of good rye flour and glue, to which linseed oil, varnish, and turpentine have been added in the proportion of half an ounce of each to the pound. Labels prepared in the latter way do not fall off in damp cellars.

(3) J. M. B. writes: There is a difference of opinion here as to the power of two engines. One marine engine, 6 inches in its diameter, 6 inches stroke; one marine engine 6½ inches in its diameter, 8 inches stroke, 100 pounds steam. 28 inch two blade propeller. Which has the most power, and what is the difference, same number of revolutions? A. 6 inches by 8 inches stroke has 20 per cent more power than 6½ inches by 6 inches stroke.

(4) M. S. R. writes: Having an old Gregorian telescope, the brass tube of which is a little over 5 inches in diameter, that in its present state is of no use whatever, I would be glad if you could inform me in your Notes and Queries: 1. What should be the focal length of the plano-convex objective 5 inches diameter, in order to make a cheap achromatic telescope on the dialytic principle of about 5 feet focal length when finished? 2. What should be the focal length of the flint achromatizer? 3. Whether a single plano-concave will answer, or if a compound one, consisting of a plano-concave of flint and a plano-convex of crown glass, will be required? 4. Can the correction be made with an achromatizer of 2 inches in diameter; and lastly what should be the distance of the corrector from the objective? A. For your dialytic telescope, use a plano-convex lens 4¾ inches diameter, 28 in. focus for the object glass, of crown glass. A plano-concave lens 2¼ inches diameter, 21 inches focus, dense flint glass. Place the flint lens at about 13 inches from the object glass, plane side toward the eye, and in a manner to allow of a small adjustment for final correction. The focus of the combination will be about 5 feet.

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