

not go outside of mechanics. The description of Hicks' ballistic balance, with a "comparison of masses," is particularly to be noted as an example of the treatment given the subject by the author.

POPULAR ESSAYS UPON THE CARE OF THE TEETH AND MOUTH. By Victor C. Bell. Published by the author. 1894. Pp. 103. Price \$1.25.

It really seems to us as if this book were one which might have considerable utility. It treats of the general sensible care of the teeth, home remedies, and an excellent chapter is given in conclusion on "quackery," which is really an appeal for good work, and as such must be recommended. The book has no index, but, perhaps on account of its shortness, it hardly needs one.

TELEGRAPHIST'S GUIDE TO THE NEW EXAMINATIONS IN TECHNICAL TELEGRAPHY. Together with an appendix dealing with dry and secondary cells, universal battery system, direct reading battery instrument, duplex (bridge method), new system of morning testing, fast speed repeaters, etc. By James Bell, A.I.E.E. Certified Teacher City and Guilds of London Institute. London: Electricity. Pp. 101. Price 60 cents.

PRACTICAL TELEGRAPHY. By F. E. Wessels. A book for self-instruction. 1895. Pp. 24. Price 50 cents.

The Locomotive, a monthly publication of the Hartford Steam Boiler Inspection and Insurance Company, has just completed its 15th volume. Its inspectors' reports of examinations of boilers, with the defects found therein, and its notes on boiler explosions, render this little work an especially valuable one to engineers, when it is remembered that the boiler inspections number as many as from ten to twelve thousand per month. In 122,893 boilers examined last year, 597 were condemned, and dangerous defects were found in 12,390. As might be looked for in such a publication, it contains much valuable information on boiler construction and preservation.

SCIENTIFIC AMERICAN BUILDING EDITION.

JUNE, 1895.—(No. 116.)

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1. A cottage at Bronxwood Park, Williamsbridge, N. Y., recently erected for Dr. Geo. P. Shirmar, at a cost of about \$2,500. Perspective elevation and floor plans. A pleasing design. A. F. Leicht, Esq., architect, New York City.
2. An elegant plate in colors showing a cottage at Bronxwood Park, Williamsbridge, N. Y., recently erected at a cost of \$3,200. Perspective view and floor plans. Mr. A. F. Leicht, architect, New York City. A neat design.
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Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

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Mineral sent for examination should be distinctly marked or labeled.

(6543) D. T. W. asks: What is the velocity of electricity, as in telegraphy? A. It depends on the delicacy of the receiving instrument and on the capacity of the line. It is fair to assume that the first faint and imperceptible disturbance goes with the speed of light (about 186,000 miles per second), but considerable time may elapse before.

(6544) Machinist, Memphis, writes: If an eccentric on an ordinary stationary engine is chucked in the lathe, got dead true on the outside, turned off $\frac{1}{8}$ or $\frac{1}{4}$ of an inch and the straps bored out to suit, will it change the throw of the valve or not? A. The size of the eccentric does not control the throw of the valve. The amount of eccentricity only is considered, whether it be a pin or a large disk.

(6545) C. A. M., Cal., writes: In laying a pipe line 40 miles long, using 2 inch and 3 inch pipe, which is the most practical method in laying the line, using 20 miles of each? Which will make the most friction, the 2 inch pipe at the pump end and the 3 inch at the outlet, or the 3 inch at the pump end and the 2 inch at the outlet? The pump will lift the oil 200 feet for the first half mile, then it will have a fall of 1,500 feet for 39½ miles. A. The 3 inch pipe should be laid at the pump end of the line. This will relieve the friction on the rising end of the siphon from the work of the pump, and allow the best condition for gravity flow on the long leg of the siphon. This will relieve the work of the pump to a small extent and yield the largest possible delivery at the discharge end.

(6546) B. H. T. asks: 1. Why does not more surface of plate give more current in cell? Text book says that the only difference size of cell makes is difference in internal resistance. A. It does give more current. Lowering the resistance implies at a constant voltage the development of more current. 2. What makes telegraph or telephone wire sing? A. The action of wind upon them, on the principle of the Aeolian harp. —Governments have done considerable in the way of affording State support to colleges and universities. As a rule, anything in the nature of a substantial support received by any individual in pure science is derived from a connection with one of these institutions. There have been some government prizes, but these are of comparatively little importance.

(6547) W. H. K. asks: Which will run the easier, a 26 inch or a 28 inch bicycle, both geared to 60 inch, weight considered the same, over ordinary roads? A. It is hard to answer this question authoritatively. We should decidedly incline to recommend the larger wheel. The larger sprocket on the rear wheel counts as an advantage, and for even gear the larger sprocket will go on the larger wheel.

(6548) D. R. W. asks: What is the best known (solid) non-conductor of sound? A. India rubber is about as good as any.

(6549) H. A. asks how to clean and make smooth the outside of an upright boiler, and what kind of paint is used to paint boilers, and make them shine? A. The boiler can be rubbed smooth with a piece of pumice stone and water, then painted with black japan varnish, or, what is more commonly used, coal tar varnish.

TO INVENTORS.

An experience of nearly fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequal facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

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