

INDUSTRIAL POWER PLANT RECORDS

By LEWIS J. SFORZINI, Power Development Engineer

Eastman Kodak Co., Rochester, N. Y.

EDITOR'S NOTE.—This article will be run in two parts, and will be concluded in the Winter Issue of POWERFAX.

ANY orderly registering of events, any physical, chemical, mechanical or electrical magnitudes, any costs resulting from the operation of power plant equipment, comprise a system of power plant records. Every plant has from necessity some system, the degree of elaborateness depending on the size and type of business served by the plant, the alertness of those in immediate charge, and the business policy of the owners or managers. As with any phase of business endeavor, the object of keeping records is to increase profits, and a test that can be applied to the advisability of keeping a certain record is whether the current or prospective use to which it can be put will net a return over and above the cost entailed.

A simple power plant, serving a single-product industry generating all of its own steam and power can, and sometimes does, get along without any separate power plant records at all; it merely adds the cost of materials and labor to the general plant costs. However, this plant has no means of knowing whether the power plant portion of its cost is excessive, whether it is changing with market factors, or whether it is comparable with like power plants. Obviously, certain records are justified even here.

Steam Boiler Plants.

The largest single cost incurred in any steam power plant is for

THE matter of keeping proper records in an industrial power plant is a rather delicate subject and one frequently sidestepped by engineers. But it is very important for an engineer to be able to show with actual records what his plant is doing or to produce the evidence indicating the need for improved equipment. It means a lot for an engineer to be able to turn to his carefully kept records and answer any question which comes up with absolute accuracy.

We believe this article by Mr. Sforzini will be found a very valuable contribution to this pointed subject.

Here is Mr. L. J. Sforzini's background. Graduated from Cooper Union Institute of Technology in 1917 with the degree of Bachelor of Science in Mechanical and Electrical Engineering. Worked for Webster Manufacturing Company, Tiffin, Ohio; for Miller Rubber Company, Akron, Ohio; in the Engineering and Maintenance Department of Eastman Kodak Company, Rochester, New York, since October 1920 to date, the last six years as Power Development Engineer.

fuel, be it coal, oil, gas, wood or waste material. When one of the first three is used it comprises from 30% to 90% of the total cost of generating steam; when one of the latter is burned as a by-product, it is usual to compute its cost on the basis of the cheapest alternate fuel, allowing full credit to the process supplying it, so that the same percentage would hold. Therefore, the most valuable and easiest record to keep is of the cost incurred and the quantity of fuel burned in a given period, such as monthly and yearly. The data for these are usually taken from

submitted bills which give both these items, the quantities sometimes being remeasured. The costs should be f.o.b. buyer's plant. The cost records are usually kept in accordance with the company's accounting practice, but, in addition, there should be a file in the nature of a bound or loose-leaf notebook or other record medium, kept under the supervision of the man directly responsible for power plant operation where these costs and quantities are entered systematically. For coal it is important that the source, together with a proximate analysis and heating value, be obtained periodically, and also be filed with these. For oil fuel the same data should be filed and for natural gas the heating value per cubic foot, obtained at frequent intervals, should be included.

To use these records with full profit some further ones are necessary. The best of these is either the gross or net steam generated by the boilers, to procure which would require certain fairly expensive appliances which cannot always be justified; often alternative indexes are employed. If the steam is purely for heating, a good rough index is a record of the local weather temperatures, obtained from the nearest U. S. Weather Bureau, and kept preferably in the same file as the other records, in the form of degree days. A comparison of like months of various years with corrections for occupancy, variations in degree days, etc., will quickly show whether or not the fuel consumed is as it