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ENGINEERING 'ROUND ABOUT COLUMBUS

Inspected by

HOWARD CRUSEY and MERRILL WEED

XXIII. Appearances Reflecting Pride

One of the things that we have advocated from time to time in these columns is attention to looks in the setting of an industrial plant. Grass and shrubs cost money—but they must surely pay. There is beauty in utility, to be sure, but industry should realize that there is utility in beauty and the dividends are not entirely social.

Landscaping, of a simple and appropriate kind, is the first thing we see when we visit the plant of the National Electric Coil Company on Chambers Road west of the Olentangy River near King Avenue. (Chambers Road, by the way, used to go by the much more picturesque name of Flennikin Pike.) There is a little expanse of green grass and some shrubs to soften the corners of the brick factory building. The whole effect is pleasing. So is the neon sign which announces the name of the company to the world by day and by night.

The brick factory building was put up in the year of expanding dreams, 1929, as a place to make furnaces. It is one floor, the center bay having a raised ceiling and lights along the side—similar in design and proportions to the ceiling and ventilators of an American railway car. The factory has proved its adaptability as a general purpose building, and the business of coil winding fits into it nicely.

XXIV. This Winding Age

Something more than a hundred years ago Michael Faraday produced antics in a galvanometer needle by making passes with a magnet through a coil of wire. The possibilities of that discovery were not appreciated fully for a good many years, but from that beginning has grown the electrical age in which we live, lighted and warmed and cooled and transported by the effects of the mysterious current that has been generated and directed but not defined. In handling electricity we could not get along without the coil. Our electrical industry, literally and figuratively, is encompassed with innumerable turns of wire for motors, generators, transformers and a host of lesser items.

Coils are all shapes and sizes, from the tiny rolls for the smallest motors up to the ungainly bundles that go into heavy machinery, fitting into odd slots and openings where the space allowed is the very minimum that the

wire and its insulation will permit. And coils burn out. It is the replacements, for the most part, that are made in the factory of the National, coils to fit all makes and all sizes of electrical equipment, the standards that are kept in stock and the special designs made to a customer's order.

In many manufacturing enterprises an off-hand casualness is possible, but not in winding coils. There must be exactly the right number of turns, no more, no less, and precisely the twists and loops that the design calls for. Many of the coils are wound on forms. Those wooden patterns, good for a single coil or a thousand, must be built up, examples of cabinet work of the finest kind. We are in an age of mass production and mechanization, but there is still need for craftsmanship and finish that yield the kind of satisfaction one gets from making a graceful ship model.

The form prepared we are ready for winding. With clever machines the skilled operators fill the grooves and depressions of the form with the appropriate size of wire, drawing it tight and making exactly the proper number of turns.

XXV. Freedom in Uniformity

We liked the looks of the operators, moving with an air of quiet competence among the machines. A contributing factor was the khaki work uniform that each one wore, blouses adorned with the Company trade mark, an outline map of our Country transfixed by the zigzag of a flash of lightning. Standardization, yes, and uniformity, but not the uniformity that is monotonous and spirit-breaking. The whole effect was more pleasing than nondescript clothing, cast-off suits and party dresses. The workers seemed to like it.

There were about a hundred of them all told, serious operators winding the stiffest and heaviest pieces, young men moving the coils through the production line, girls whose deft fingers seemed best fitted to sort out tiny wires and wrap on tape and insulation. One of the girls, with hair as vivid a shade as the copper wire of the coils, was pointed out to us as the model for the Company calendar.

We were reminded of the part color plays in the electrical industry. The leads on many of the smaller coils were insulated with the vivid colors prescribed by the codes for specific installations, another manifestation of

the value of standardization in contributing to the efficiency of life without adding to its monotony.

Even those who inveigh most against the tyranny of rationalization must use words that have accepted meanings, letters that have legibility, else they will not be understood by their fellow men. Within the framework and efficiency of standardization are opportunities for individual expression that would never come if every undertaking had to have its special planning. Such is the freedom of uniformity.

XXVI. The Division of Labor

It is fortunate that we can engage in different tasks, the whole endeavor fitting together as part of the production stream of the industrial system. Else we should have to be content with the pitiful product of wholly unconnected labors—as many fish as we ourselves, with luck, could catch, the meat and the skins of animals we had been able to kill, some herbs and bark and berries. The parts of the industrial picture are irregular but the whole is rich and satisfying.

In the factory office we were shown the method of keeping track of production, a chart with movable markers to indicate graphically the progress of orders through the plant, from spools and reels of copper wire and insulation to the finished articles, each smartly dressed in its individual cloth wrapper and boxed for shipment.

What is a wire? There is no doubt when the metal in question is round and flexible, but large sizes and different sections present problems. Up to half an inch width, we were told, a copper ribbon is a wire, beyond that it is a strip.

The designer has always to take into consideration the peculiar properties of the materials with which he works, conductors, the substances that are hospitable to electricity, the dielectrics that say—by their behavior—“It shall not pass.” We saw fireproof insulation being made, little pieces of mica assembled to make a thin, tough, and transparent sheet.

The copper comes from Montana, Utah, or Arizona, the mica from North Carolina or Canada, the rubber tape from Akron. Those rills are typical of the tributaries of the stream of industry.

XXVII. Of, By, and For The People

There would be little point in making electric coils for the fun of it, so one of the activities of the company, as important in its way as manufacture, is the mechanics of distribution. Letters and orders have to be written, money has to be taken in and spent, design must extend to advertisements as well as to coil patterns. So people “up front” work on their various tasks, balancing those in production.

We met Mr. Kirby, the secretary of the company, a soft-voiced gentleman whose speech was in keeping with his origin, Virginia. He had started, he said, to take

electrical engineering at V.P.I., and had transferred to the Colorado School of Mines. The mutations of men resemble those of materials.

The National Electric Coil Company is relatively new to Columbus. The concern started, we were told, in 1917 at Bluefield, West Virginia, and expanded about a year ago by moving the main factory and general offices here. Such changes are always taking place in the growth and motion of industry. They have profound effects on things social and economic; one can imagine the delight of Columbus at welcoming the new industry, the disappointment at Bluefield at its departure. Many of the employes, said Mr. Kirby, came along with their work from Bluefield to Columbus. They like it here, he added. Among the advantages of Columbus he praised the night classes at Ohio State.

New horizons and new opportunities seem to have a tonic effect on people, particularly those who have not become too firmly rooted in one place. So communities change, expanding or declining in some fashion according to the development of their resources and the character of their inhabitants. Change seems to be an essential part of our progress toward civilization.