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Life line. [1953?]

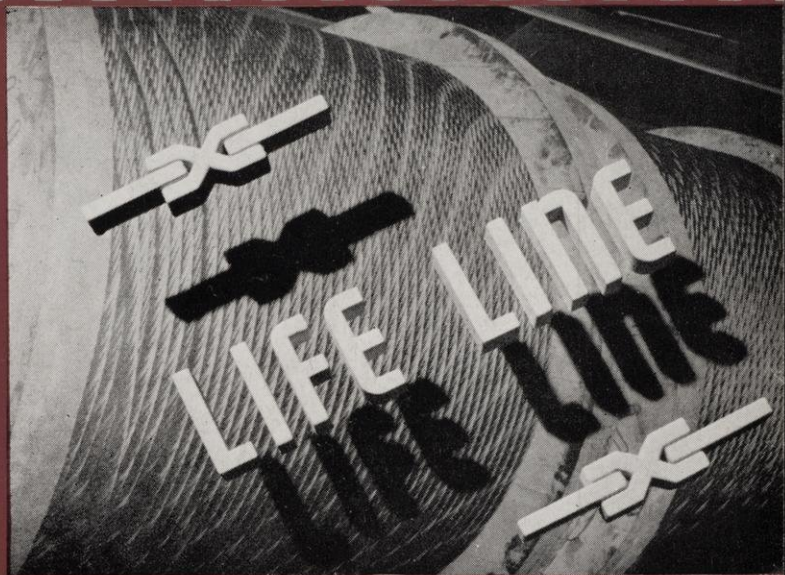
[Kenosha, Wisconsin]: Macwhyte, [1953?]

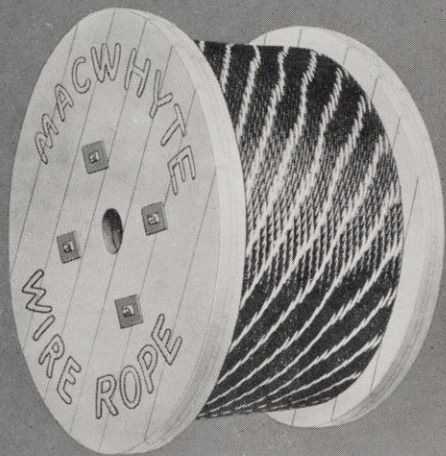
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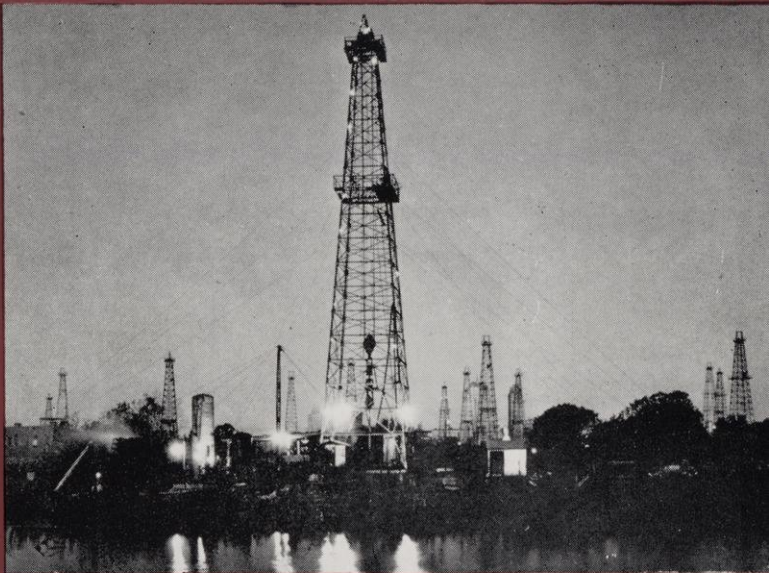




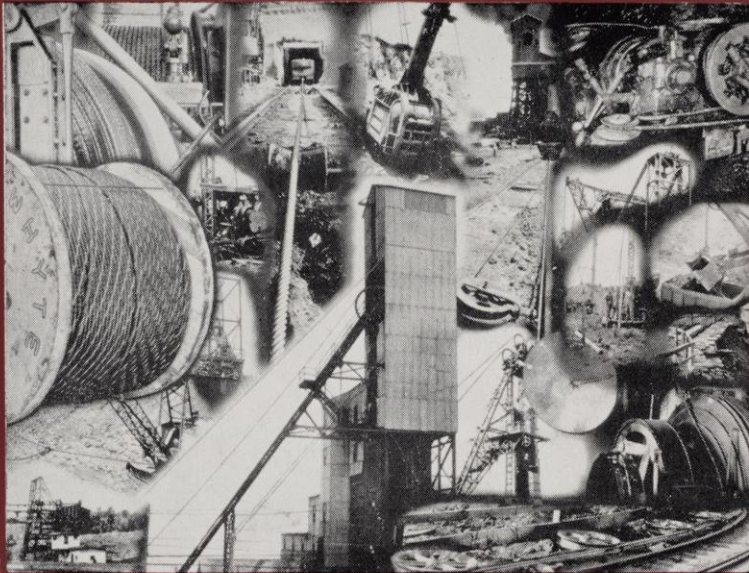
**. . . a fast moving picture-story
of the manufacture of MACWHYTE
Wire Rope. . . . An important life-
line in many industries.**



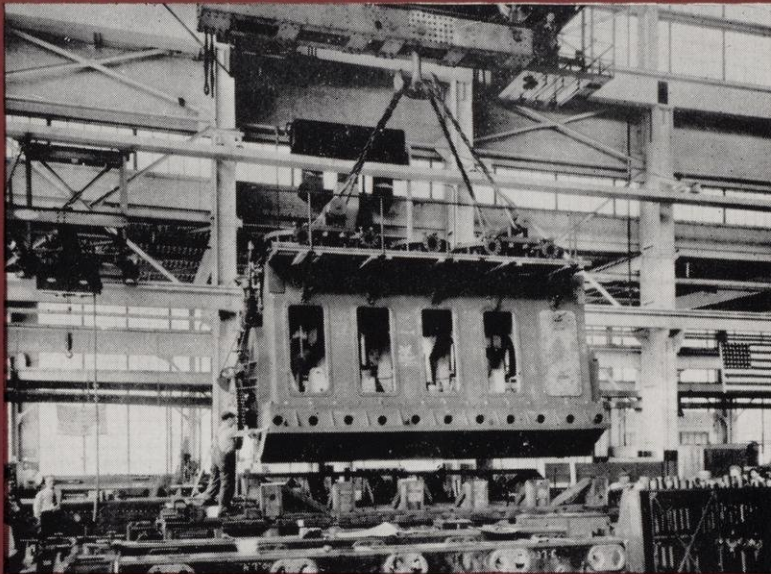
This life-line snakes logs out of the tall timber like so many match sticks to build our homes and hundreds of products.



In the oil fields wire rope operates equipment that goes down 15,000 feet or more into the bowels of the earth in its quest for oil, to burn in our cars, heat our homes, and supply power.



Coal and metal are mined underground and in open pits with machinery equipped and operated by wire rope.



This life-line operates cranes, hoists, and handles materials in steel mills and many industries.



Road Building, Quarries, General Construction, Ships, Aircraft, and Yacht Rigging all require various types of wire rope for operation of equipment.



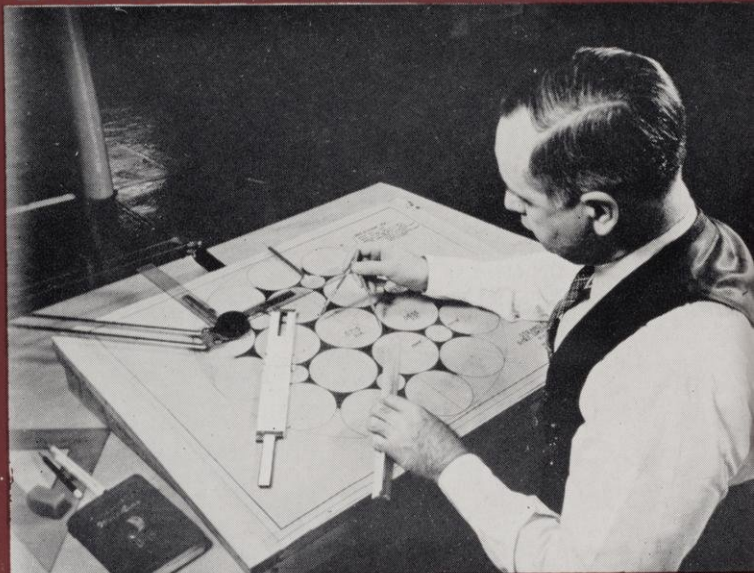
Industry everywhere depends on this life-line. To meet the requirements of all these industries there are a thousand and one types, sizes, and grades of wire rope.



The setting for this story is at MacwhYTE Company, in Kenosha, Wisconsin, just 50 miles north of Chicago on the shores of Lake Michigan.



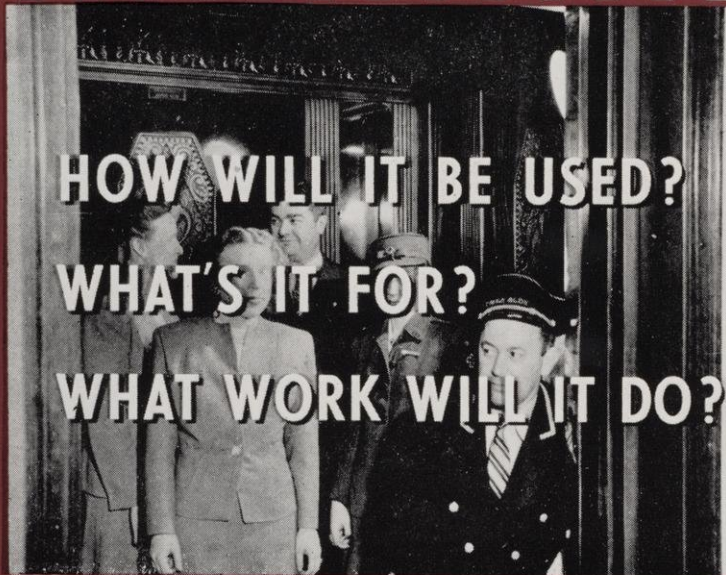
More than a quarter million square feet of floor space is devoted to exclusive manufacture of rope wire, wire rope, and slings. Entire Macwhyte Company property covers 21 acres.



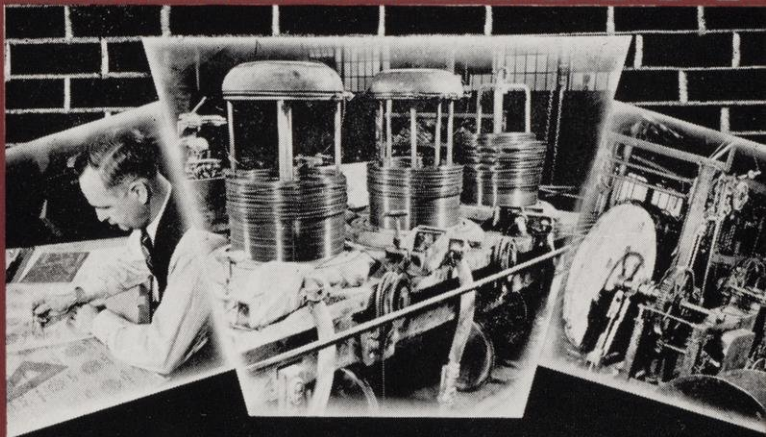
Before wire rope can be made, engineers must carefully design the rope for the work it is to do.



Metallurgists must determine, analyze, and check the materials to be selected.



And ever before them are questions "How will it be used?" "What's it for?" "What work will it do?"

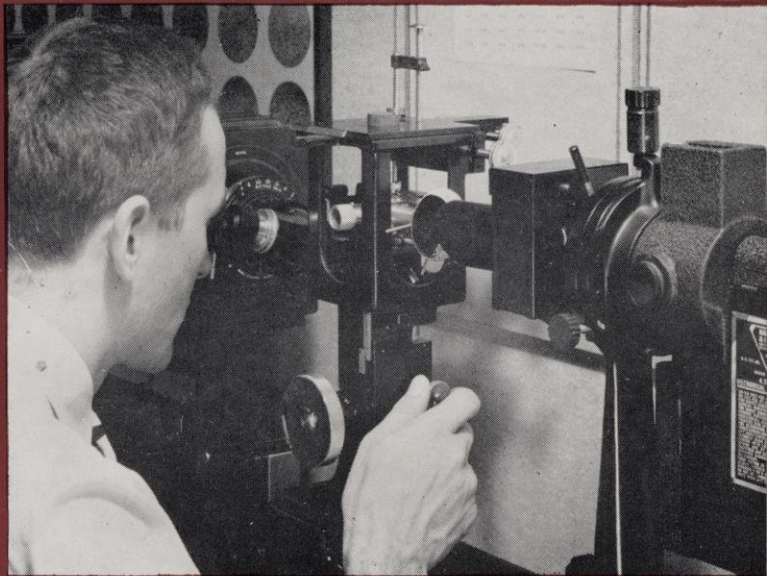


WIRE ENGINEERING ROPE

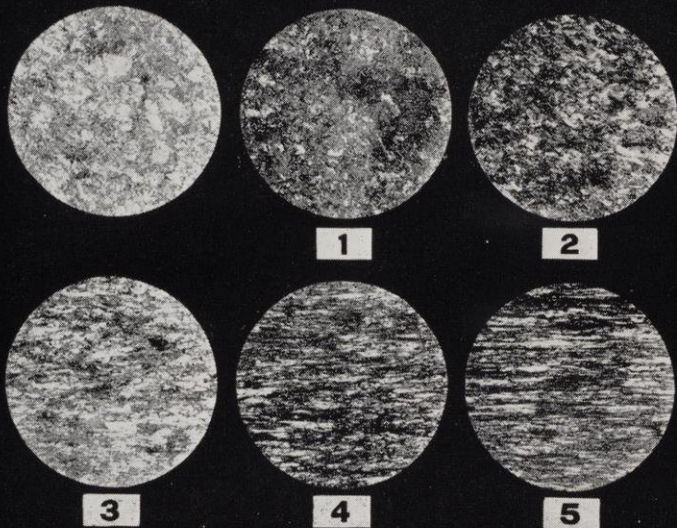
First comes the engineering of the wire rope to do the job—next comes the manufacture of the wire—then comes the laying up or making of the wire rope.



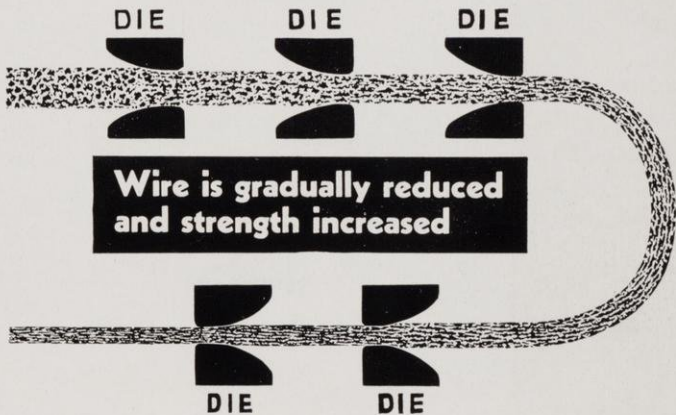
Raw materials for making the wire are bundles of wire rods of varying diameters of a material made to strict specification.



A sample is taken from each bundle and laboratory inspected and analyzed for grain structure and chemical content.



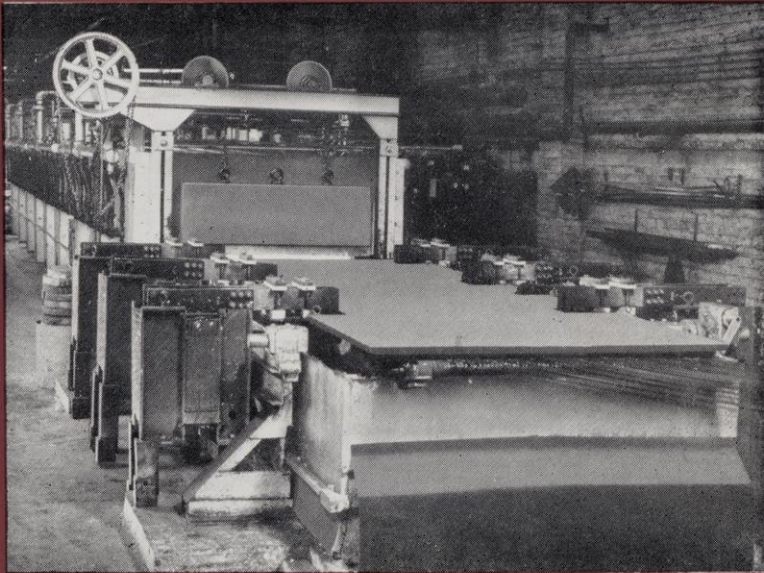
Here is a photomicrograph showing the grain structure of a Patented wire rod before drawing. The 5 successive photomicrographs are longitudinal sections illustrating the general changes in the grain structure of the rod as it passes through wire drawing dies in the process of being made into wire.



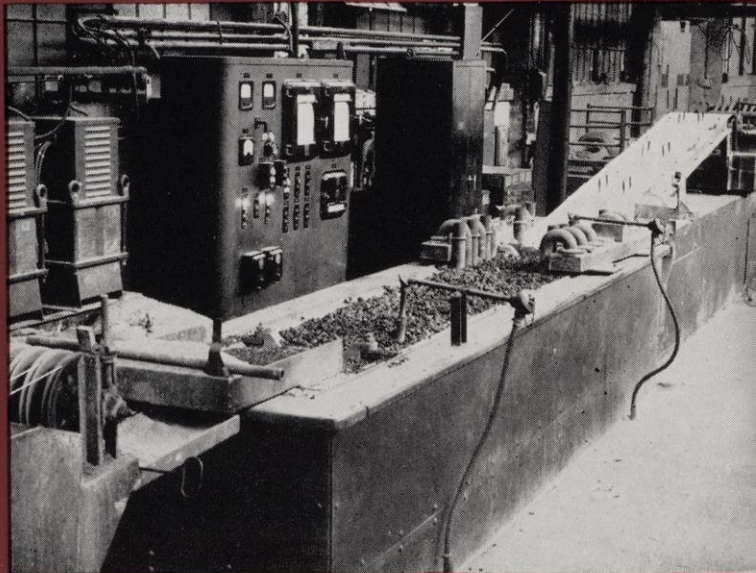
Notice in the diagram that the grains are drawn out — elongated and interlocked as the wire passes through the dies. The interlocking of these fibers gives the wire great strength, ductility, and resistance to fatigue.



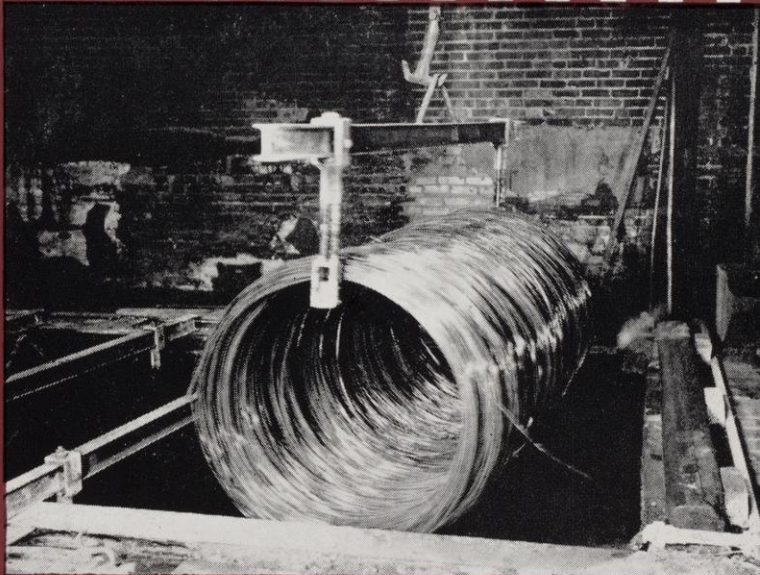
To relieve stresses and impart the correct grain structure in the rods for subsequent cold drawing, they are passed through patenting furnaces which are controlled by instruments (shown above) so as to maintain proper temperatures.



Here the rods are shown emerging from a gas fired patenting furnace. They may be cooled in air or they may be cooled in a molten salt or metal bath depending upon the physical and structural characteristics desired.



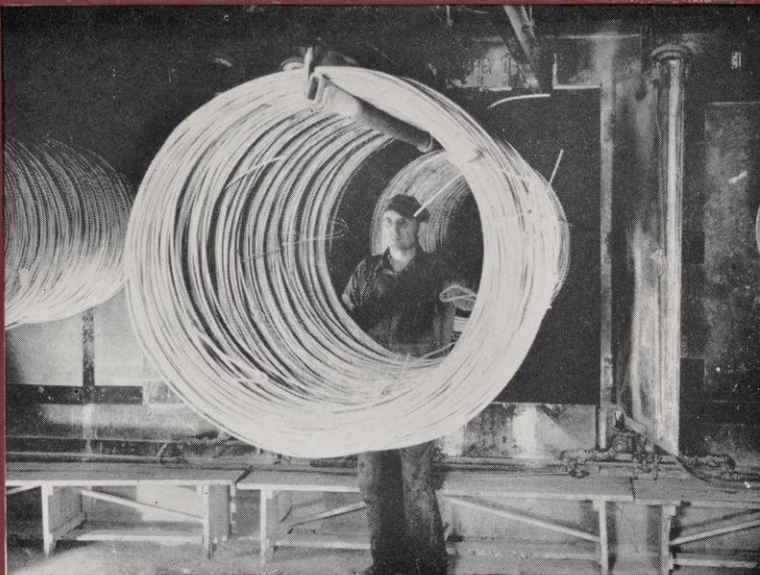
The rods are patented in two types of furnaces — the gas fired patenting furnace or the electric patenting furnace (above).



Coming from the furnace the rods are thoroughly cleaned.



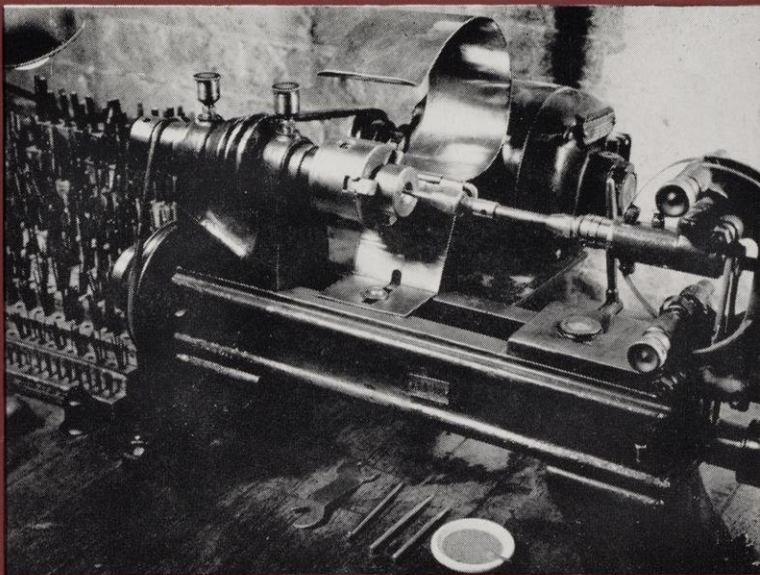
Then they are given a high pressure water rinse and coated to facilitate drawing.



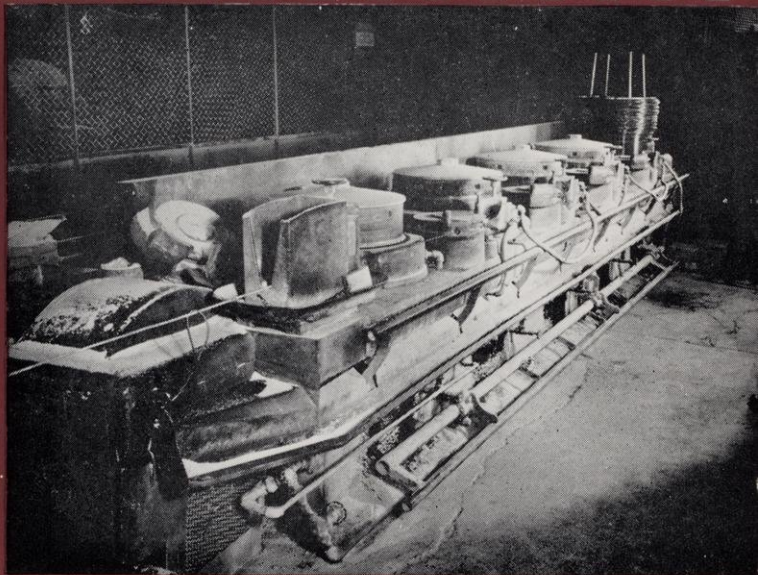
Then after being dried in ovens, the rods are now ready to be cold drawn into wire.



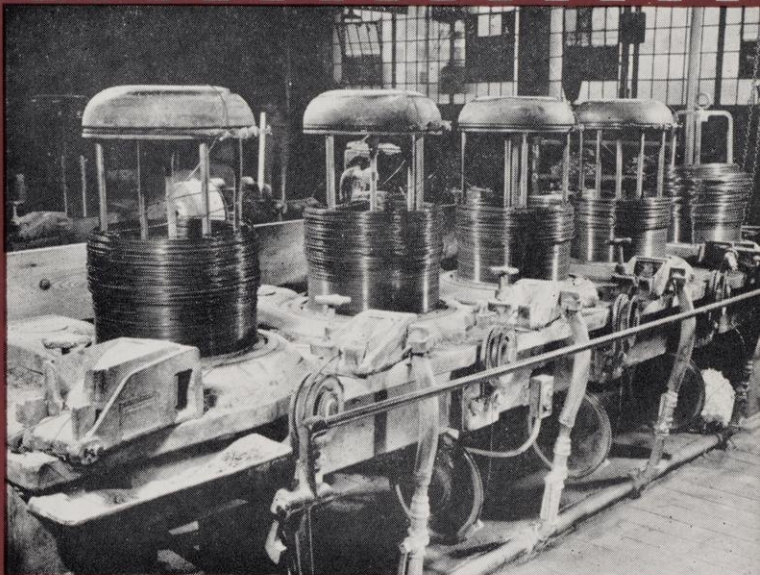
A wire mill must have hundreds of wire drawing dies.



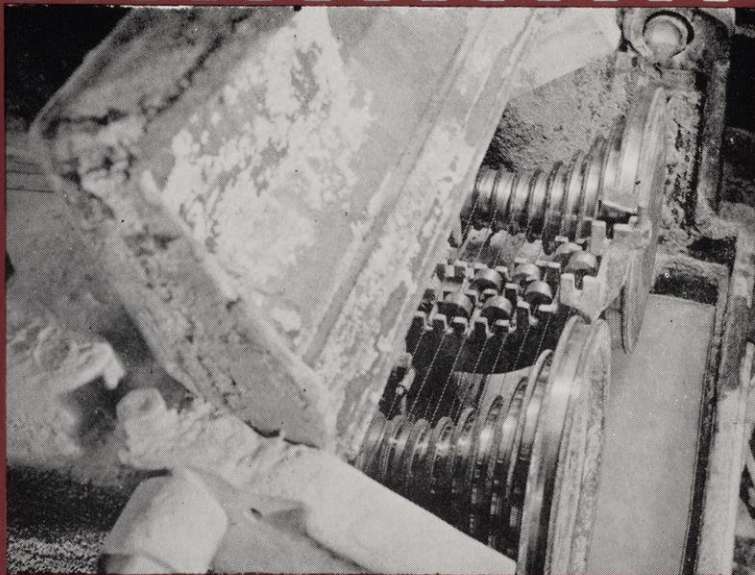
Each wire drawing die is carefully made and polished to correct size and true circular shape.



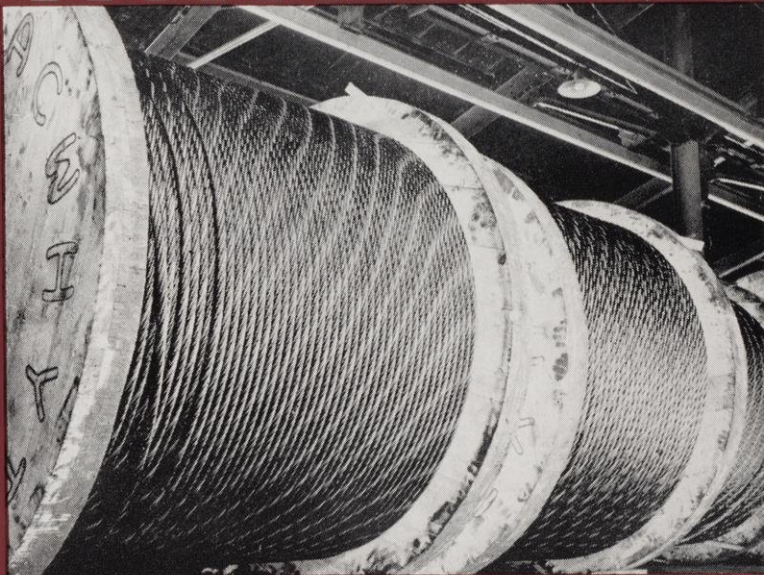
The proper dies are placed in the drawing bench and the rod starts on its way to becoming wire. The rod is reduced in size and increased in length as it passes



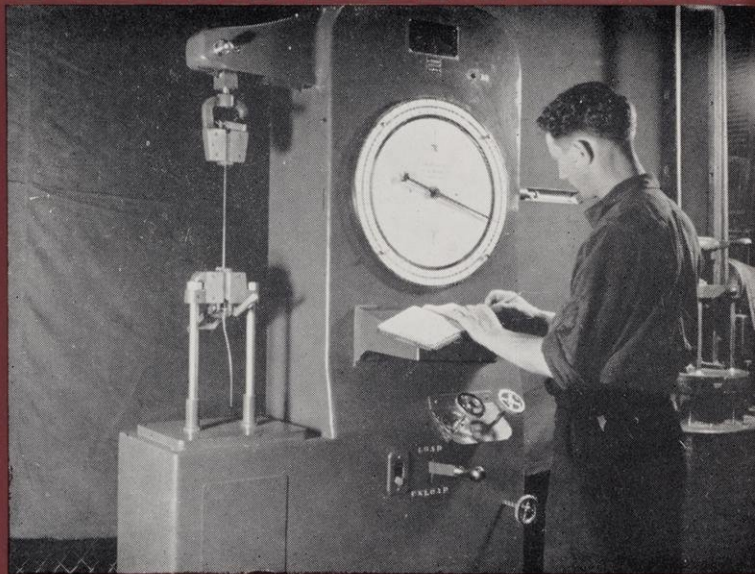
through each die in being drawn into wire. No metal is scraped off or taken away in the process. It is actually a case of cold flowing of the metal as the wire is drawn...



. . . but always the wire is drawn in one continuous length. The wet drawing process is used for the drawing of wire to very small diameters.



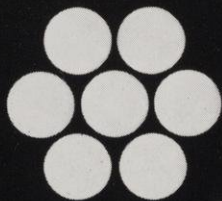
The wire used in good wire rope is round and smooth
of continuous length and



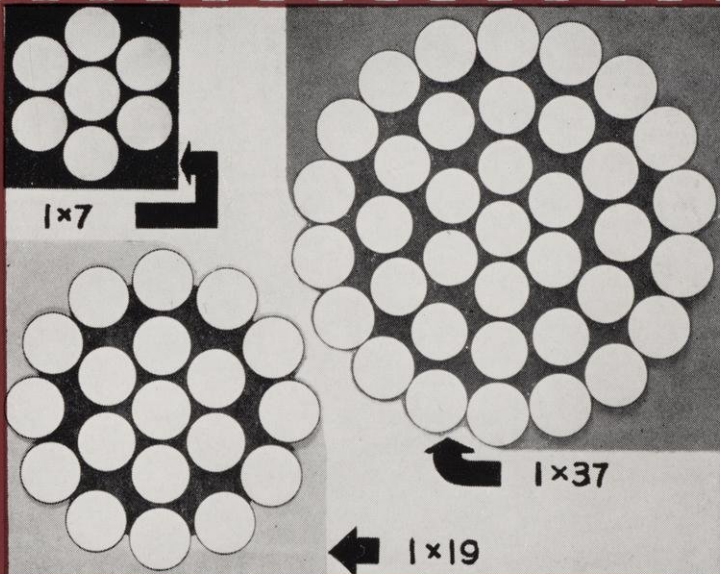
. . . both ends of each coil are tested for various physical properties.



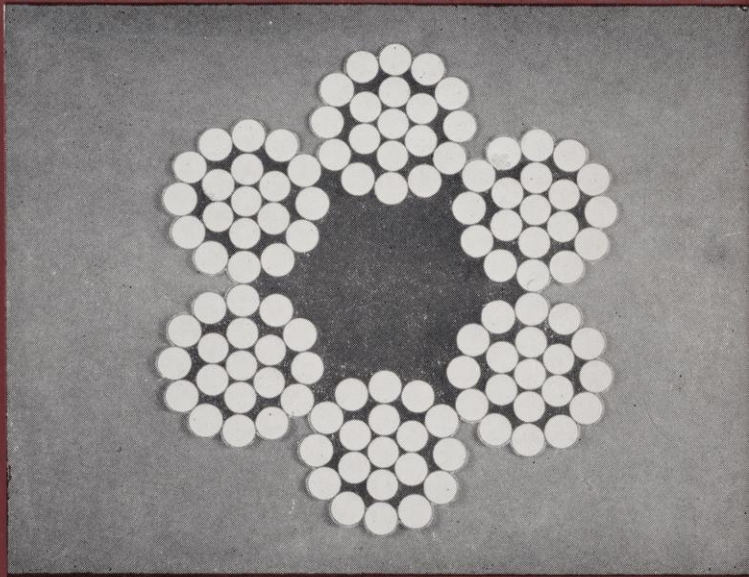
All coils approved are then properly tagged.



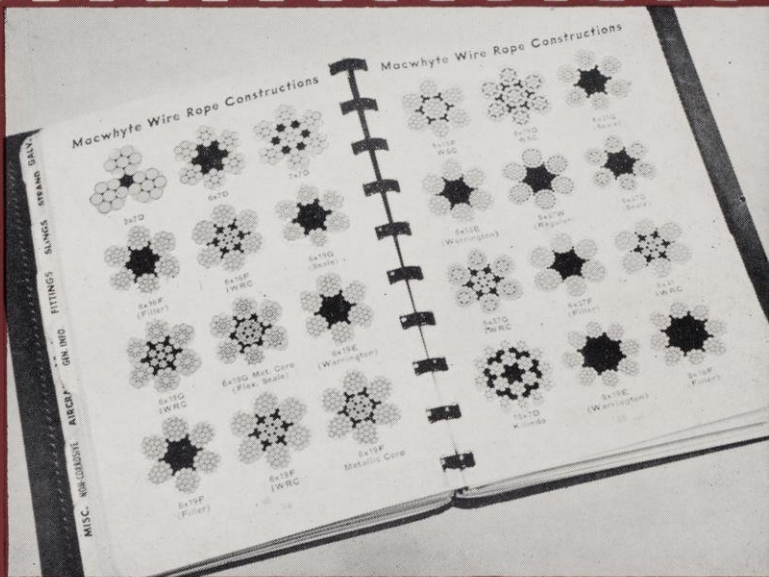
Planning the construction of a wire rope starts with the basic fact that one round wire will permit six others of the same size to fit exactly around it.



Notice how adding layers of wires to the basic 7 wires builds up a strand. As additional layers are added, the number of wires in each layer is increased by 6.



Wire rope is made up of several strands — a 6 x 19 rope — that is 6 strands of 19 wires each, is considered standard flexible.



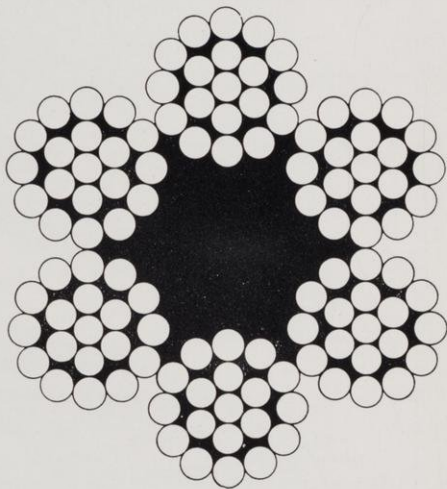
But to meet many service conditions, engineers have an unlimited variety of constructions depending first and always on what it's to be used for.



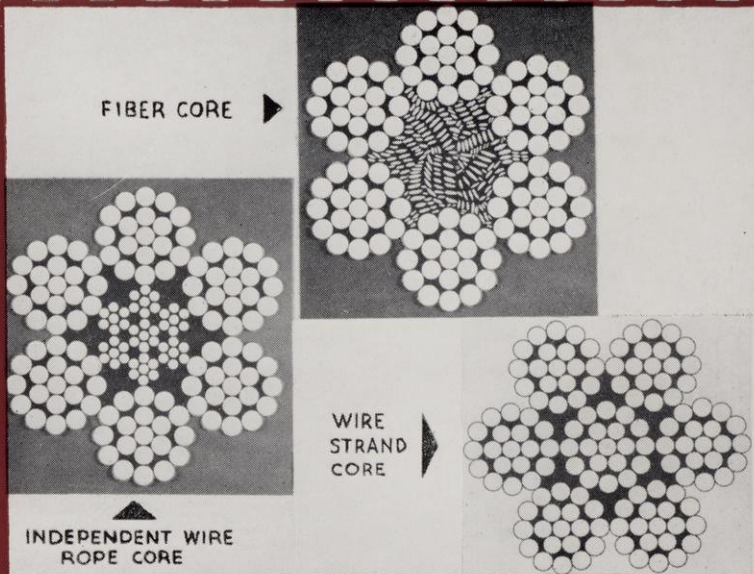
In a Right Regular Lay rope the wires in the strand are laid to the left and the strands are laid to the right.



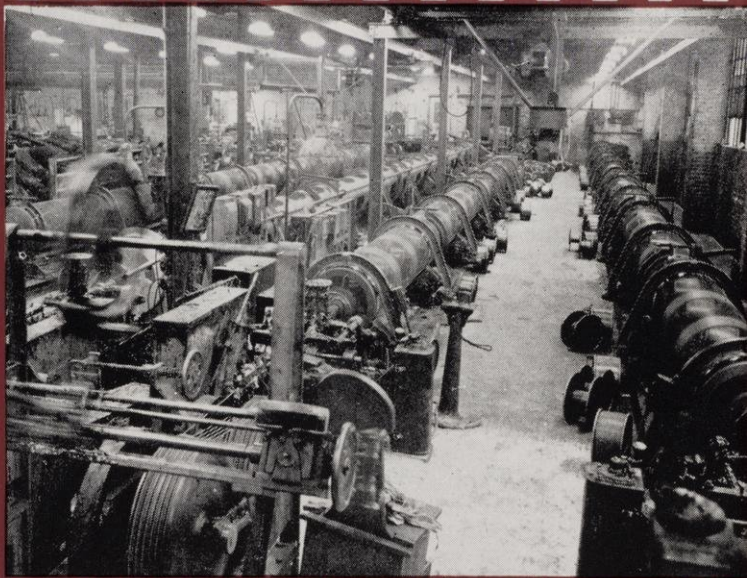
When the wires are laid to the right and the strands are also laid to the right, it becomes a Right Lang Lay rope. When these lays are reversed you have a Left Lang Lay rope.



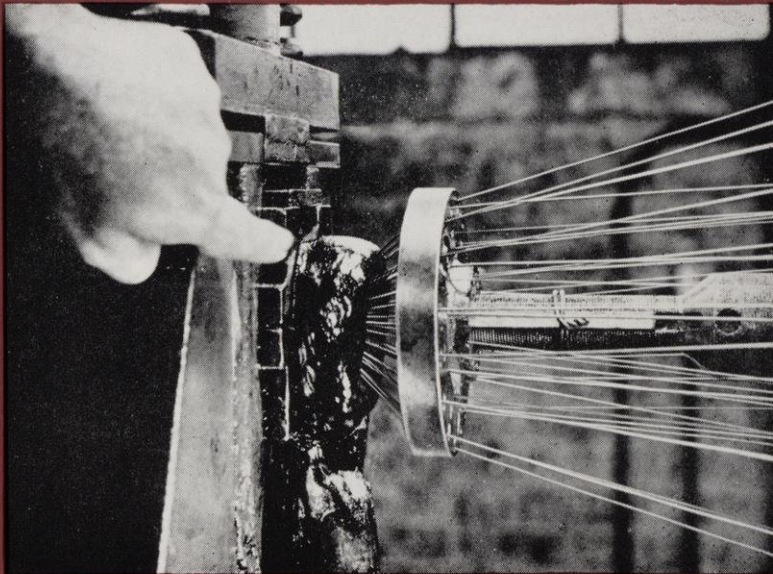
Suppose an order called for a rope having 6 strands of 19 wires each. First, 6 separate 19 wire strands are made. Next, these six strands are layed around a core. Cores may be of various types.



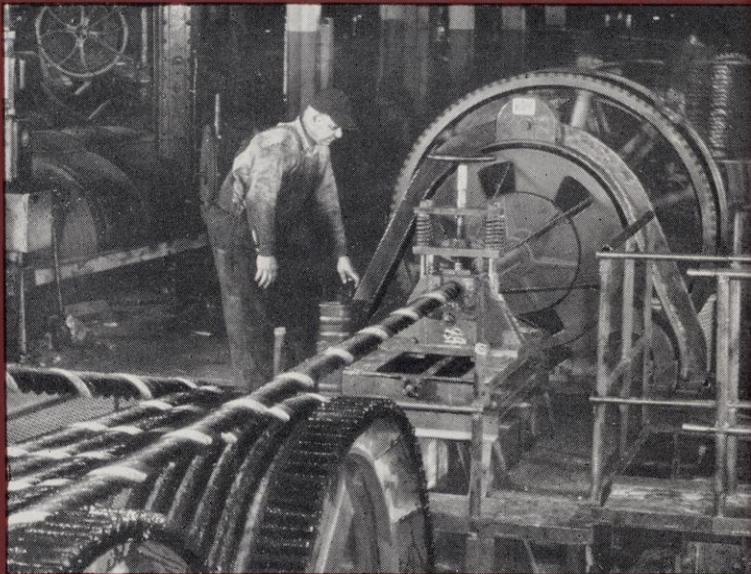
Depending upon the use for which the rope is intended, these six strands are laid around a fiber core, independent wire rope core, or wire strand core.



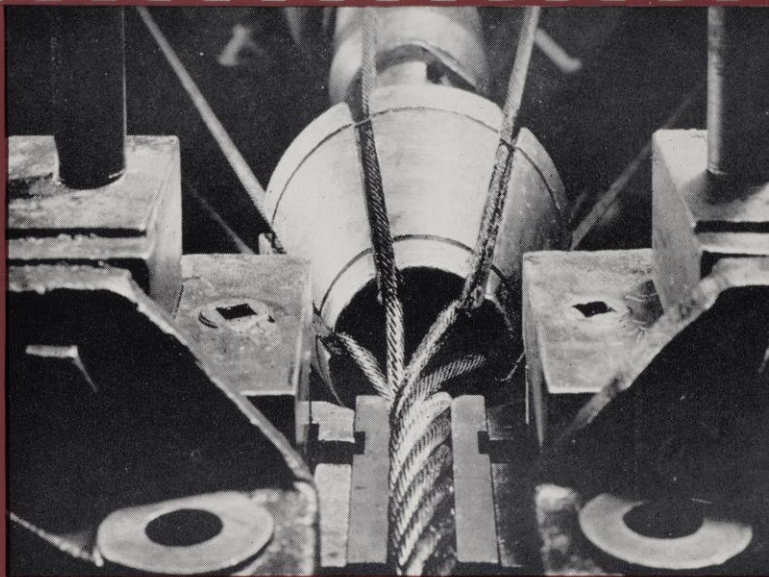
To fabricate the strand, wires are wound on bobbins which are placed in a stranding machine. The strander revolves and the wires are laid into a strand.



At the stranding die, each separate wire goes thru a special lubricating compound. Each wire is completely coated and spaces between the wires are filled with lubricant.



Like the stranding machine, a closing machine also has bobbins on which the strands are wound. The strands are pulled through the machine, passing through a die, around a core, forming the completed rope.



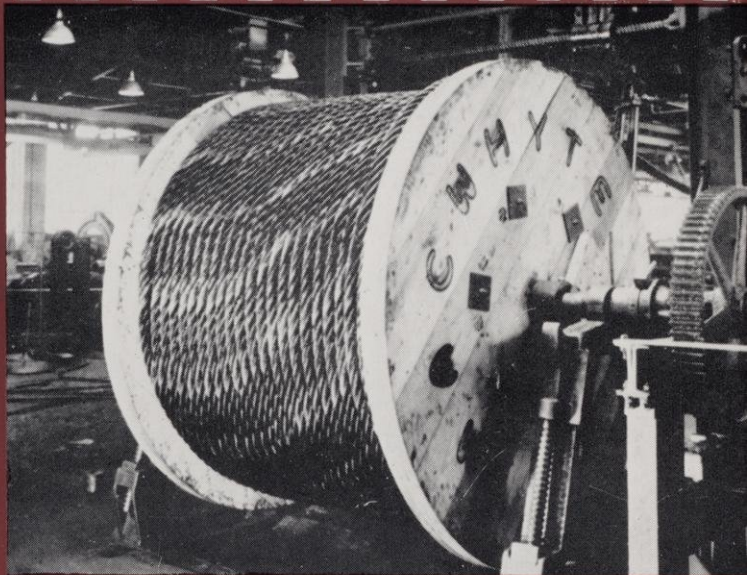
Here the top of the closing die is removed showing strands and the forming of the rope through the closing die.



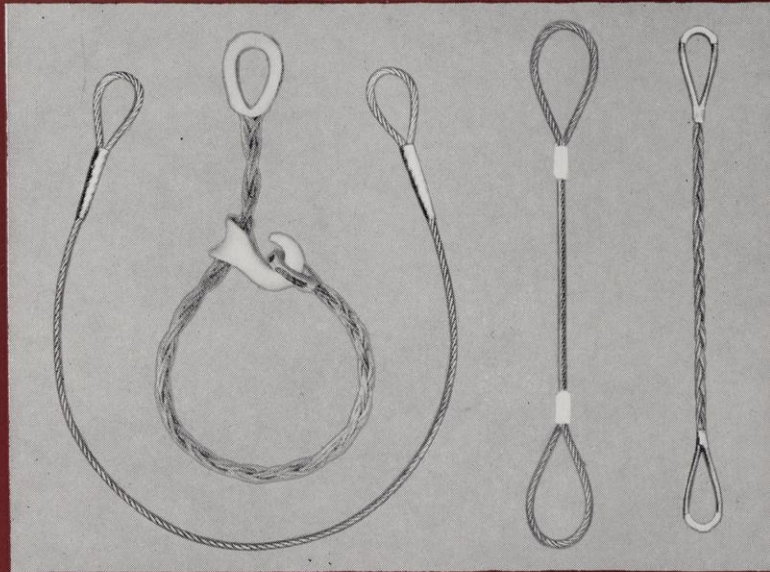
Macwhyte Company manufactures both *PRE*formed and Non-*PRE*formed wire rope, of which *PRE*formed rope is considered far superior for most installations because it handles easier and lasts longer.



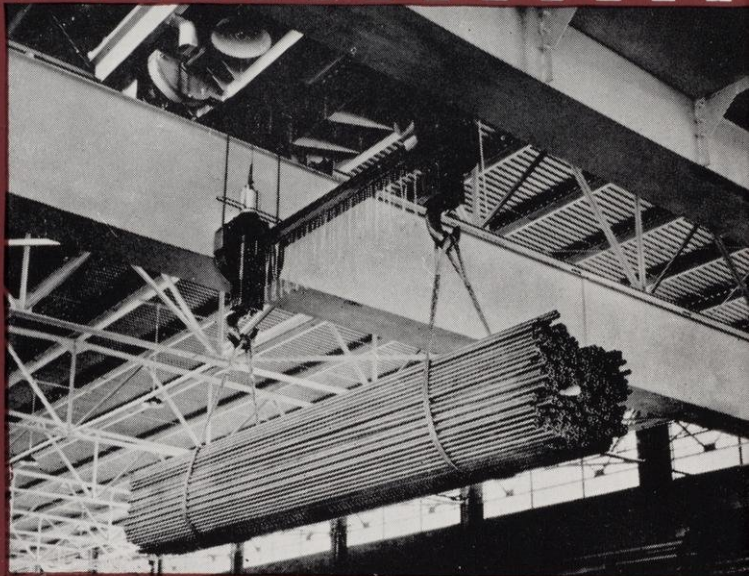
*PRE*formed rope is given an additional process which forms the wires and strands into a spiral, so that they lie naturally in place with minimum internal stress.



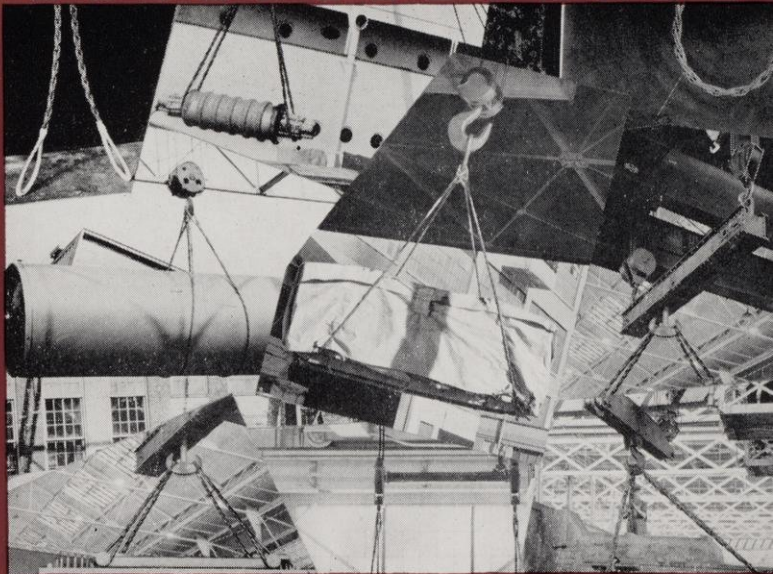
And here is the finished product as it comes off the closer — a 6 x 19 Monarch Whyte Strand *PRE*formed, internally lubricated, wire rope, ready to go to work.



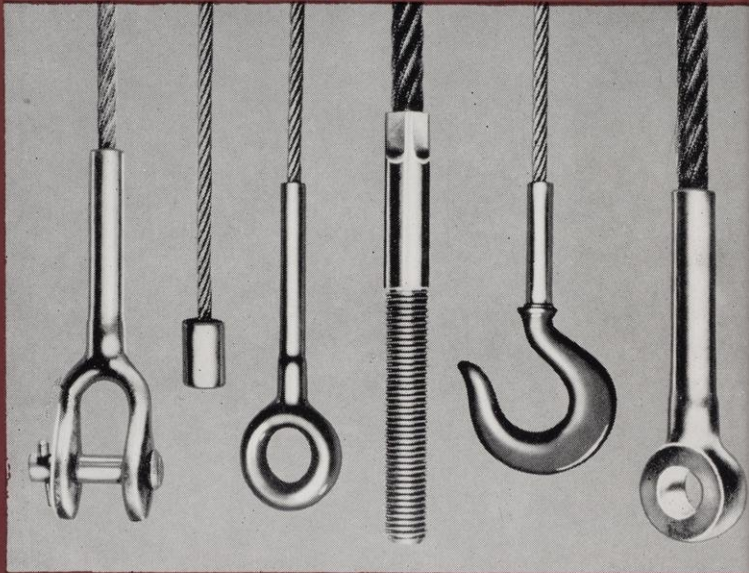
Macwhyte wire rope slings are made in many sizes and types designed to do specific material handling jobs.



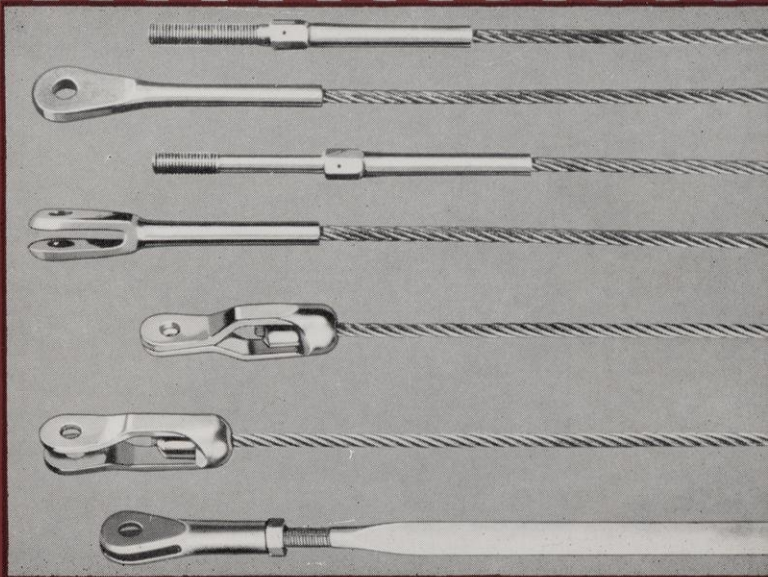
MacwhYTE Braided slings, made from wire rope, the life-line of industry, safely speed the aerial movement of loads everywhere.



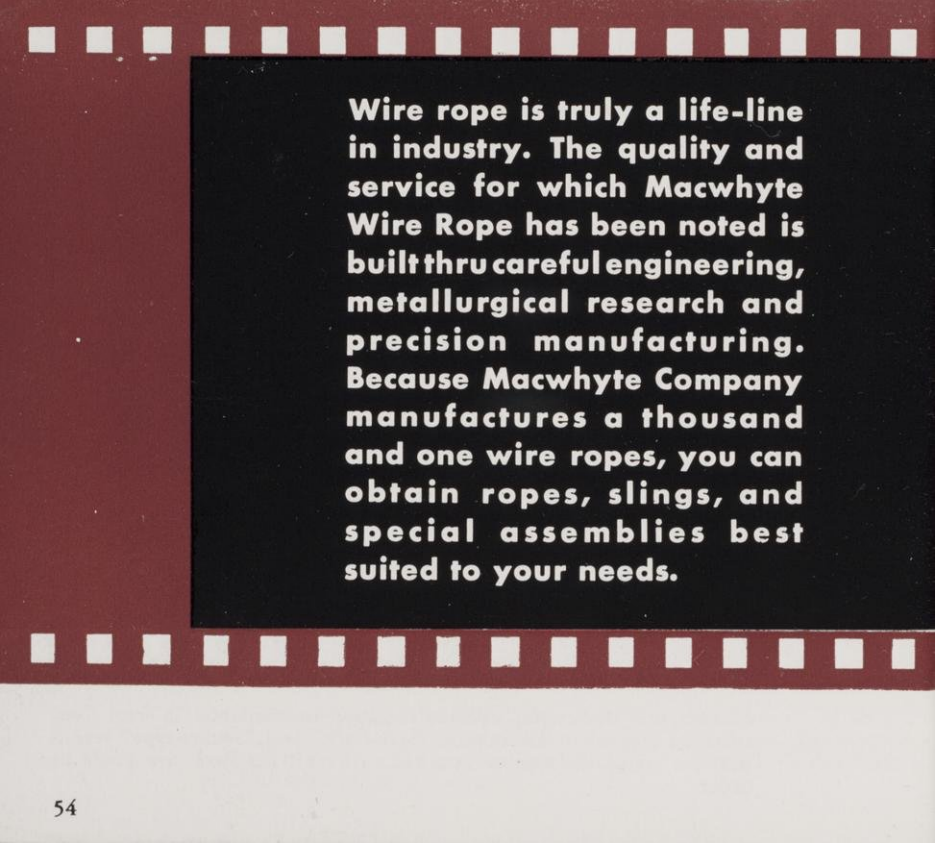
Slings are designed and made in strengths from 1 to 300 tons in a variety of types to meet individual needs.



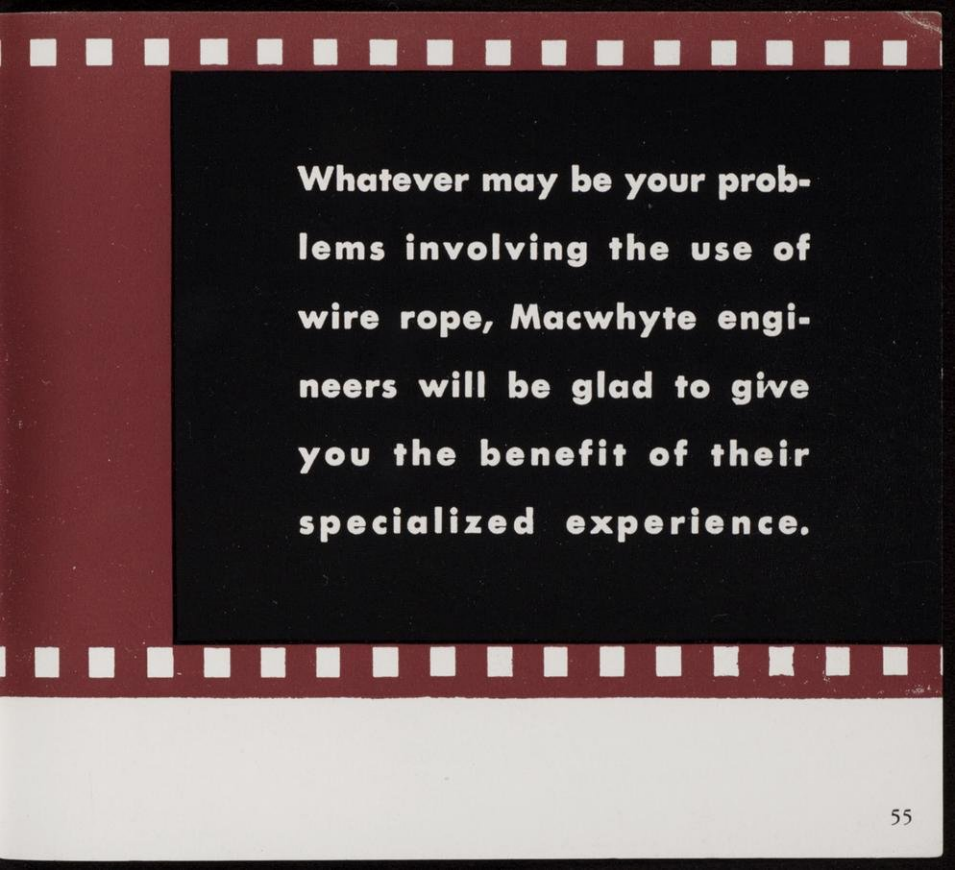
Cable assemblies are made by Macwhyte in a wide range of sizes and types of "Safe-Lock" Terminals. Macwhyte "Safe-Lock" Terminals are attached to the wire rope by a swaging process which develops the full strength of the rope.



Macwhyte "Hi-Fatigue" Aircraft Cable is available in reel lots, specified lengths or assemblies. "Safe-Lock" and "Socket-type" terminals are supplied loose or attached. Aircraft-Tie Rods are made to order.



Wire rope is truly a life-line in industry. The quality and service for which Macwhyte Wire Rope has been noted is built thru careful engineering, metallurgical research and precision manufacturing. Because Macwhyte Company manufactures a thousand and one wire ropes, you can obtain ropes, slings, and special assemblies best suited to your needs.



Whatever may be your problems involving the use of wire rope, Macwhyte engineers will be glad to give you the benefit of their specialized experience.

MACWHYTE COMPANY

ESTABLISHED 1896

KENOSHA, WISCONSIN

Manufacturers of MACWHYTE PRE-FORMED AND NON-PRE-FORMED WIRE ROPE . . . Internally Lubricated Wire Rope . . . Monarch Whyte Strand . . . Special Traction Elevator Rope . . . Stainless Steel Wire Rope . . . Monel Metal Wire Rope . . . Galvanized Wire Rope . . . Atlas Round-Braided Slings . . . Drew Flat-Braided Slings . . . Monarch Single-Part Slings . . . Hi-Fatigue Aircraft Cable, Assemblies, Tie Rods, and Safe-Lock Wire Rope Assemblies. MILL DEPOTS: New York, Pittsburgh, Chicago, St. Paul, Ft. Worth, Portland, Seattle, San Francisco, Los Angeles. Distributors throughout the U. S. A.