USE OF WOOD PIPE IS AGAIN REVIVED

First to Be Used in Arkansas in Recent Years Is Now Being Installed at Conway.

It is remarkable how wood pipe as a conveyer of water has sprung into prominence in recent years, and has been accepted by so many waterworks systems in the United States. Wood pipe may sound to many people as absurd, considered as a rival of iron piping, but the manufacturers of wood piping base their contention as to the relative values of wood and iron on the result of over 100 years of use. Of recent years hundreds of manufacturing plants and municipal waterworks have adopted wood in place of iron also, which lends strength to the arguments advanced by the wood pipe manufacturers.

Wood pipe as a conveyer of water is of special interest to this state at present because the engineering firm of Dickinson & Watkins of this city is about to complete the waterworks system at Conway, where the first wood pipe in Arkansas has been put down. There has been considerable objection by some citizens of Conway to the use of wood pipe, but the majority seem to be well satisfied, and the engineers state that the city is not only supplied by the best piping for the purpose that may be had, but that the system has been installed at about two-thirds of what it would have cost to use cast-iron pipe to carry the water.

First Used by Polynesians.

The first use of wood as a means of carrying water was by the natives of certain Polynesian islands, who for ages have constructed bamboo stalks, by means of which water is conveyed by gravity for considerable distances. No less than six centuries ago water was supplied to some of the old castles of Germany and France through pipe lines of wood, artificially bored and crudely joined together, and the city of London in 1490 installed a municipal water system in which many miles of pipe of similar construction was used.

A century ago every city in the United States that boasted of a waterworks system used wooden pipe, which list includes the following cities: Bethlehem, Pa.; Providence, R. I.; Geneva, N. Y.; Plymouth, Mass.; Salem, Mass.; Hartford, Conn.; Portsmouth, N. H.; Worcester, Mass.; Albany, N. Y.; Peabody, Mass.; Morristown, N. J.; Lynchburg, Va.; Winchester, Va.; Newark, N. J.; Boston, New York, Wilmington, Philadelphia, Baltimore, Charleston, Mobile and New Orleans. The pipe in use in these cities at that time was of ancient design and manufacture, and the invention of cast iron pipe in 1820 by Samuel Richards of Philadelphia was hailed with delight and immediately adopted. It was found that the iron pipe could be made larger in diameter, and would resist greater pressure at the same time. The wooden pipe at that time was crudely constructed. The heavy shell was depended upon to resist the pressure, so that both the size and the strength of the pipe were confined to rather low limits, the bore seldom exceeding six inches or the pressure more than 20 pounds.

Use Again Revived.

Following the invention and manufacture of cast iron pipe, the wood pipe fell into disuse, but regained in popularity some in 1855, when A. Wyckoff invented an auger for boring logs by machinery and set up an establishment at Elmira, N. Y. Wyckoff pipe was not only bored by machinery at this time, which decreased the former cost of production, but was also turned to a uniform outside diameter and reinforced with a spiral wrapping of iron band. This band was covered with a protecting coating of pitch and sawdust, and its use permitted larger bore, thinner shell and higher pressure, so that the former restricting limitations were in a measure removed, the use of wood pipe was revived again and the industry of manufacturing grew.

Later on a style of wooden pipe known as "continuous stave pipe" had been developed on the Pacific coast and elsewhere. Its name was derived from the fact that it was erected continuously in place, the staves being spliced independently, and the pipe held together by iron belts, or clamps. The argument in favor of this pipe was economy of material, a feature which was largely offset, compared with the Wyckoff method of boring, by the difficulty and cost of construction.

Cypress Wood Best for Pipe.

Another fact of importance to the lumber industry of Arkansas is that Southern cypress has been found to be the best wood that can be had for the purpose of manufacturing this pipe. Cypress has been found to last longer under ground than any other timber. Concerning cypress, the New International Encyclopaedia says:

"The cypress tree is famous alike for the great age is reaches and for the durability of its wood. The wood is red or yellowish, compact and durable. It is not subject to attacks of insects. It is believed to be the cedar wood of Scriptures and possibly the gopher wood also. Museum specimens of wood are known to be several thousand years old, and the doors of St. Peter's at Rome lasted for more than 1,100 years, until replaced by doors of bronze."

In addition to its durability, it is a well-known fact that cypress wood has practically no odor or taste, nor does it impart odor or taste to materials with which it comes in contact.

Has Lasted a Century.

Dickinson & Watkins have on exhibition in their office in the State National Bank building a section of bored cypress pipe taken from the New Orleans waterworks system, installed about a century ago. This wood had been in the ground without any outside covering, such as is used on wood pipe now, for about 100 years, and is as sound today as when it was placed in the ground. A cypress coffin dated 1803 was recently exhumed in New Orleans, the wood of which was said to be as sound as it ever had been. Cypress shingles still remain on a house on Long Island, built in 1758, all of which bears evidence of the endurance of the wood.

How Pipe Is Made.

Wood pipe is now constructed almost altogether by machinery made for that purpose. The pipe is composed of staves two inches to four inches wide and one and one-half to three inches thick, depending upon the diameter. These staves are accurately dressed to present a smooth interior surface, the edges having the proper radial angle and provided with double tongue and groove. The staves are drawn together under heavy tension into the form of a tube, and firmly bound with a flat steel band wound spirally with extra wrapping at each end. This is effected by tening over about an inch of the band, which is driven into the wood about six inches from the end of the pipe. The spiral wrapping is then carried to the end of the pipe, back over itself and then to the other end of the pipe, where it is again wrapped back over itself for about six inches and the final end of the band securely fastened down by means of screws.

The next operation is "heading," or cutting the tenons and chambers by which the sections are joined together. The tenon is made by turning off one-half the thickness of the shell for a length of four inches, and at the opposite end of the pipe the chamber is reamed out for an equal depth, so as to form a tight driving fit.

The pipe then passes to the coating machine, where large steam-heated iron rolls revolve in a vat of hot asphaltic pitch. These rolls spread upon the section of a pipe a thick and uniform layer of melted bitumen, which hermetically seals the metallic band away from attack by chemicals in the water, soil, air, gases or fumes with which the pipe may come in contact. From the hot rolls the pipe is taken to a bed of sandust, giving greater tenacity to the coating, as well as leaving the final product cleaner to handle.

The process of laying wood pipe is very simple, as compared with laying iron pipe, as the sections are joined by being driven together tight. To round curves a cast-iron elbow is used, or a long turn is made by means of short sections of the pipe. The manufacturers turn out pipe as a rule from two to 48 inches in diameter, and in sections of from two to 12 feet long.

To show the popularity of wood pipe in recent years, one manufacturer has compiled a list of the large corporations roads are included in the list and 46 using wood pipe. Fourteen large railmunicipal waterworks, including Denver, Elmyra, Los Angeles, Oklahoma City, Seattle, Tacoma and Walla Walla. There were included also 126 large mining concerns, mostly coal and copper mines, and 50 industrial plants.

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