MUNICIPAL DEPARTMENT

FRENCH PRACTICE IN THE MANUFACTURE OF CAST-IRON PIPES.

Continued from last week.

The pattern of socket mostly adopted by engineers on the Continent and abroad is similar to that used by the Post Office authorities in London for cable pipes, and admits of a straight pipe being set at an angle of 1 in 24 without allowing the pressure of water to come in contact with the caulking material, as the spigot even at this angle, sits tightly on the seating of socket. As it is seldom that a line of pipes is laid perfectly straight, and difficulties invariably arise in making and joints at all angles and curves, the advantage of employing the socket and spigot above referred to will be readily appreciated. The greater lengths of pipes used on the Continent also affects a saving in the jointing, owing to the reduction in the number of joints. The risk of leakage is also reduced for the same reason.

Providence seems to have specially favored France in providing her with the finest sand for foundry purposes, large quantities of which are imported into Great Britain. The fine skin seen on French pipes is attributable not only to the careful mixing of the pig-iron, but also to the quality of sand in which they are cast.

The standard lengths of cast-iron pipes in use on the Continent are, as has already been stated, longer than those adopted in this country. The following table gives a comparison between the French and English standards.

FRENCH PIPES.

1½ in. and 2 in. to lay	2 metres	50 (8 ft. 2 in.)
2½ in. to 8 in.	" 3 "	(9 ft. 10⅝ in.)
9 in. and upwards	" 4 "	(13 ft. 2 in.)

BRITISH PIPES.

2 in.	to lay	6 ft. 0 in.
2½ in. to 15 in.	"	9 ft. 0 in.
12 in. and upwards	"	12 ft. 0 in.

The saving in the cost of laying secured by the longer lengths totals up very considerably, when the reductions in jointing material, weight of sockets, weight of lead and iron, and in men's time are taken into consideration.

The weights of French pipes are about the same as English vertically cast, but owing to the quality of metal used the French founders claim to be able to work a lighter specification under similar conditions as regards pressure.

The specification adopted by the General Post Office, London, for cable pipes is largely used by French pipe-founders in supplying other European towns, South America, Japan and the East. It is also to be observed that the smaller diameters of pipes are not usually made in this country, and therefore such orders must be given to continental firms.

The coating for pipes generally used in France is Dr. Angus Smith's process, the pipe being reheated and lowered into a hot bath of solution, as in this country. The ordinary test is generally 20 atmospheres, although this is sometimes increased to 800 feet head of water in special cases.

Ever since discoveries in metallurgy permitted of the manufacture of cast-iron pipes this metal has been used for the distribution of water under pressure to the exclusion of nearly every other, and owing to the convenience and cheapness of casting pipes to any required shape and length and the natural resistance of cast-iron to oxidization, its supremacy for the purpose is practically undisputed. At the same time, the development of public water service and the increases of volumes and pressures have created new conditions which have revealed certain deficiencies in cast-iron as a material for the manufacture of water mains. For small-diameter pipes cast-iron answers perfectly well, and is adaptable to all contingencies; but as the diameter and pressure are increased difficulties arise in connection with the transporting of such heavy pipes, and there is a natural disposition to reduce the thickness as much as possible, with a consequent sacrifice of security. This is the more serious in view of the fact that with pipes of large diameters a shock, which may be quite immaterial in the case of small-diameter pipes, attains with a larger volume of water a tremendous intensity, and cast-iron, although well adapted to resist regular and progressive pressure, is totally incapable of resisting even comparatively slight pressures if they occur in the form of sudden and instantaneous shocks.

It is to remedy these difficulties, and to give to cast-iron pipes a greater resistance against such shocks, that M. Jacquemart has introduced the system of winding steel wire, under pressure, round the extremities of the pipes, and in grooves cast in the body of the pipes.

(To be continued.)

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