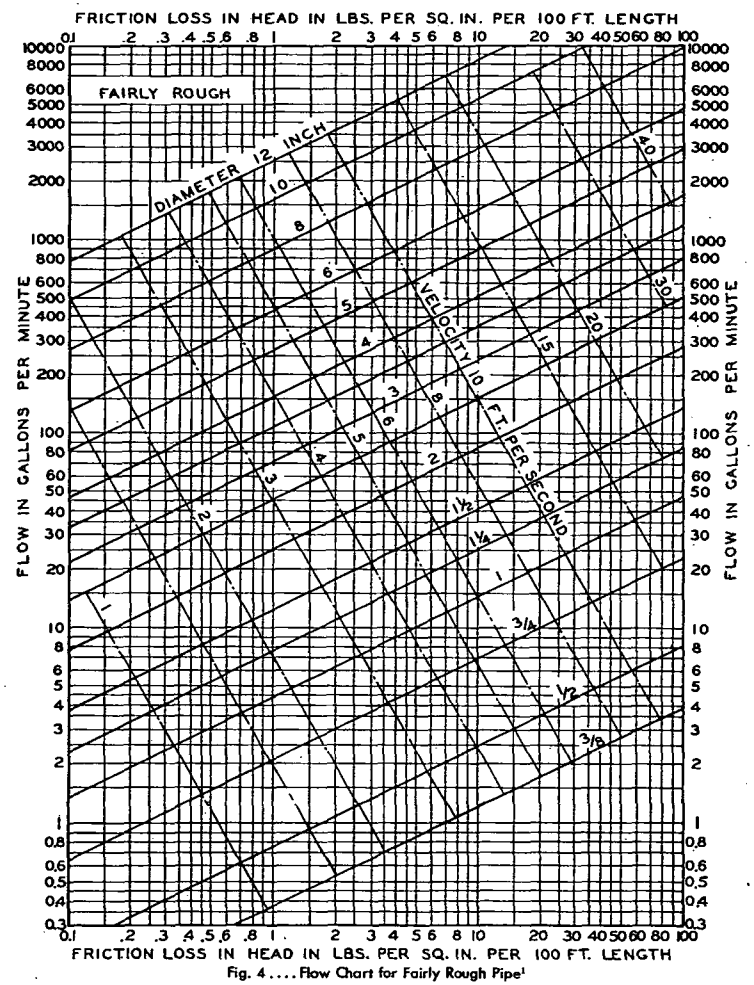

Fig. 4 .... Flow Chart for Fairly Rough Pipe[1]

been found, for example, that a 1-in., 90-deg elbow introduces a loss equivalent to 2.2 ft of straight 1-in. pipe. Therefore, for each 1-in., 90-deg elbow, 2.2 ft of 1-in. pipe are added to the total length of 1-in. pipe.

Estimated pressure losses for pipe fittings and valves in terms of equivalent pipe length are shown in Table 4.

Table 5 lists the equivalent lengths for various special types of apparatus and fittings. The loss in water meters varies considerably with the design even in meters of the same nominal size. The values given in Table 5 are ample for the well-known meters now on the market.

The water demand for hose bibbs or other large demand

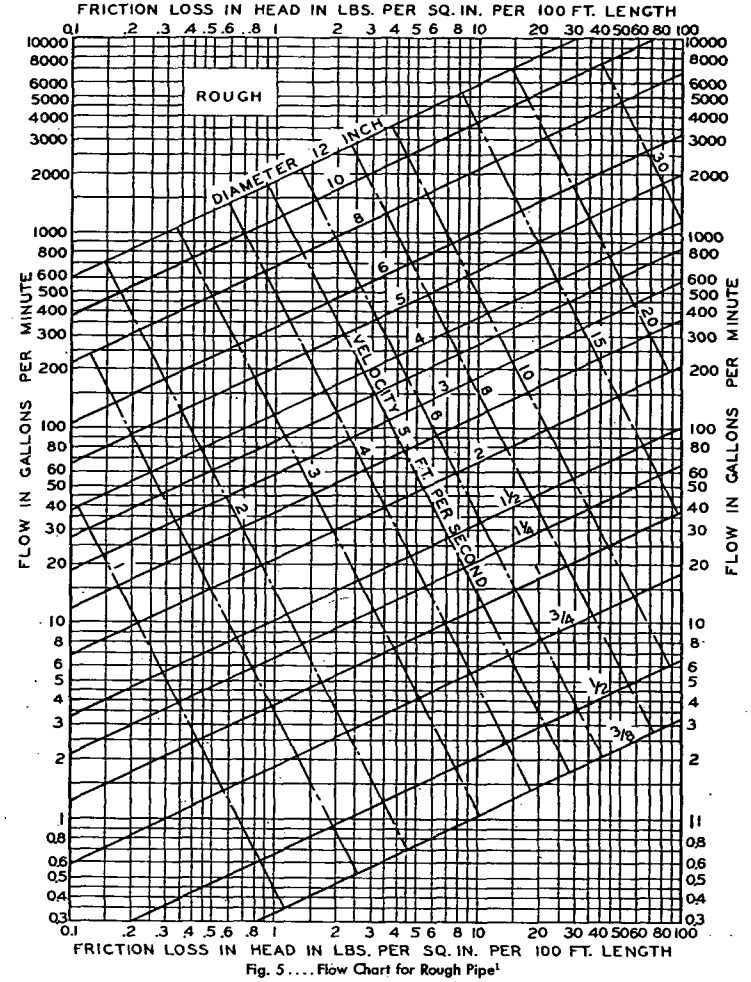

Fig. 5 .... Flow Chart for Rough Pipe[1]

fixtures taken off the building main is frequently the cause of inadequate water supply to the upper floor of a building. This condition may be prevented by sizing the distribution system so that the pressure drops from the street main to all fixtures are the same. It is good practice to maintain the building main of ample size (not less than 1 in. where possible) until all branches to hose bibbs have been connected. Where the street main pressure is excessive and a pressure reducing valve is used to prevent water hammer or excessive pressure at the fixtures, it is frequently desirable to connect hose bibbs ahead of the reducing valve.

The principles involved in sizing either up-feed or down-