

since a water system was established in the town. The water company is obliged to pay for maintaining lines in the streets, yet the company received not one cent of revenue from these lots.

Problem the Water Companies Face

This, in brief, is the problem many water companies are to-day facing. The question is how to meet it. There seems to be only one way, and that is to raise the rates. Water companies are a necessity. The public must have water, and the companies cannot be expected to furnish it at a loss. Therefore, there seems to be no question as to the necessity and wisdom of raising the rates to meet the increased cost. There is no other possible way to meet such cost unless it is to cut the dividends, and it is very rare to find a water company earning enough to pay any dividends which could be cut and give any adequate return to stockholders. In such companies as are able to meet the increased costs and pay their dividends there would, of course, be no excuse for increased rates. In towns where the system is a gravity one, or where the town is so compact as to have made the original cost of construction small and where in past years the company has been able to create a surplus it may be possible for them to meet increased costs and still pay a reasonable return on their investment during lean years.

Practically all water systems were built in good faith, and people who invested money in them to construct them felt that such investment was a conservative one, probably knowing that the return would never be large but would at least always be sure. We cannot, therefore, expect such investors to sit by and allow the old rates to stand in companies where doing so would mean under present increased costs that dividends on the invested capital would not be paid.

Probably the greatest question is how and where to get the increased rates. I have mentioned before that there is a question now as to what proportion of rates the towns should bear as compared to that paid by domestic users. The old idea was that the town should get all it possibly could for the lowest rental. In the west it has been held by public utility commissions that the cost of building and maintaining a system of water works giving fire protection to a town or city is about $66\frac{2}{3}$ per cent. more than the cost of a system supplying water for domestic uses only, and therefore the proportion of the burden of supporting a public utility in such a way as to render efficient service to the town or city should be greater for the town or city rather than for the domestic users.

In a recent decision given by the Maine Public Utility Commission it was stated that 25 per cent. of the total revenue necessary to operate a company and pay a fair return on the investment was not too large for the town to pay.

Towns Should Bear Larger Portion

It is a much fairer adjustment of rates for towns and municipalities to bear the larger portion of the revenue required by water companies, but it becomes a matter of educating townspeople to this idea.

In a recent decision in Pennsylvania the commission decided that a water company should be entitled to earn in addition to the expense of operation and annual depreciation a seven per cent. return on the value of its plant.

In another decision the same commission decided that a water company in a town where they ordered certain improvements should receive an 8 per cent. return on the valuation fixed by the commission. This valuation, by

the way, was fixed by the commission as only fifteen thousand dollars less than the book value of the company.

The California Commissioner also considers a net return of 8 per cent. on the valuation as a fair return. Taking an example a little nearer home—the Maine Utilities Commissioners have in a decision rendered in 1917 stated that they consider 6 per cent. net income on the fair valuation of the properties of a water company a fair return on the investment.

COMPRESSED AIR TERMS

THE following definition of certain compressed air terms have been adopted by the Compressed Air Society, with headquarters at 30 Church St., New York City:—

The displacement of an air compressor is the volume displaced by the net area of the compressor piston.

The capacity should be expressed in cubic feet per minute and is the actual amount of air compressed and delivered, expressed in free air at intake temperature and at the pressure of dry air at the suction.

Volumetric efficiency is the ratio of the capacity to the displacement of the compressor, all as defined above.

Compression efficiency is the ratio of the work required to compress isothermally all the air delivered by an air compressor to the work actually done within the compressor cylinder, as shown by indicator cards, and may be expressed as the product of the volumetric efficiency (the incompression), all divided by the indicated mean effective pressure within the air cylinder or cylinders.

Mechanical efficiency is the ratio of the air indicated horsepower to the steam indicated horsepower in the case of a power-driven machine.

Overall efficiency is the product of the compression efficiency and the mechanical efficiency.

During the week ended October 18, six Cobalt companies shipped an aggregate of 14 cars, containing approximately 1,084,710 pounds of ore. This is the first time in a good many weeks that shipments have exceeded one million pounds in a single week. The indications are that these heavy shipments will be continued throughout the fall. The Nipissing this week sent out six cars containing over half a million pounds. A summary follows: Nipissing, six cars, 508,935 pounds; Buffalo, three cars, 241,900 pounds; McKinley-Daragh, two cars, 147,524 pounds; Mining Corporation, one car, 65,136 pounds; Hudson Bay, one car, 63,195 pounds; O'Brien, one car, 58,020 pounds. During the corresponding period the Kerr Lake Mine shipped 84 bars, containing 112,581.51 fine ounces of silver bullion.

The operation of the Miller Lake O'Brien Mine, at Gowganda, is going forward unremittingly. Production for the current year will probably be about \$1,000,000, possibly more. Its operators being a closed corporation, the details of production, reserves, or cost of operation are not always available, at least not more than the approximate figures. Unofficial figures place ore reserves as containing around 6,000,000 ounces of silver. Such an estimate, if correct, would constitute the second largest ore reserves of any mine in the Dominion, being second only to the Nipissing. The latter company, according to the company's last report, had around 8,000,000 ounces in ore reserves. Allowing for a good deal of over-enthusiasm in the un-official estimates of the reserves of the Miller Lake O'Brien, it is still evident they are large. This one great mine has been the sheets-anchor of the whole Gowganda district. Success here on a large scale has spurred to renewed and greater effort the owners of the property in its vicinity. Work in the district is being done on the theory that the best place to prospect is near the proven mines. Judging from the results of operations at nearby properties the chances of the proven area becoming considerably broadened appear bright.