

that the public has not had an opportunity to judge of their merits in a practical manner. Further, the users of the road have in the past looked at the matter of draught only. They prefer wide tires on the farm because the fields and lanes are not so cut up by them. The roads, however, have been regarded as public property and the users have not felt a personal interest in their condition.

Acetylene for Municipal Lighting Plants.

The course of an ordinary criminal case, when brought into court, is that the lawyer for the prosecution presents all the facts as they appear to convict the prisoner; while the lawyer for the defence arrays all possible evidence in the most favorable light. It is anticipated that an impartial judge or jury will carefully balance the two classes of evidence, and that thereby a just decision will be reached.

A recent number of *Municipal Journal and Engineer* contains an article by Augustine Davis on "Acetylene for Municipal Lighting Plants," which may be regarded as the case for acetylene. There are weaknesses in Mr. Davis' argument which the prosecution might present less favorably, while the case for coal gas and electric light remains to be presented. Mr. Davis' method of comparing cost, and his assumption that the superiority of acetylene as an illuminant is admitted, are both essential to the conclusion he reaches; but unfortunately both of these admit of qualification. Mr. Davis' views, however, are instructive, but as pointed out, it is the case for acetylene. The article is as follows:

"The municipal official who makes a thorough and unbiased investigation will learn that acetylene gas offers one of the best and cheapest means for town lighting. No one who has compared acetylene light with other illuminants will dispute its marked superiority.

That it is lower in cost in nearly every locality is readily demonstrated by making actual comparisons."

If it is true that acetylene lighting is better and cheaper than any other method of illumination, the sooner the advocate of municipal lighting satisfies himself of the fact, the more quickly he can benefit his constituency by his knowledge.

As to cost, calcium carbide can now be obtained by the ordinary user in a large portion of the United States for \$3.75 for 100 pounds, or $3\frac{3}{4}$ cents per pound. For municipal use in large quantities it can, of course, be purchased for considerably less. One pound of good carbide will produce five feet of acetylene gas, which, in turn, will yield 240 candle power for one hour. Four pounds of carbide would then yield 960 candle power at a cost of 15 cents. Allowing for the reduction in the cost of carbide when bought in quantities for municipal use, it would be perfectly safe to calculate the cost of 1,000 candle power, by use of acetylene, at 15 cents.

It requires five feet of ordinary gas to produce twenty candle power, or 250 feet for 1,000 candle power, which at the low price of \$1.00 for 1,000 feet—a rate made only by the largest cities—would cost 25 cents.

The ordinary charge for electricity is one cent per hour for 16 candle power incandescent lamp, and it requires more than sixty two such lamps to produce 1,000 candle power at a cost of over 62 cents.

If such a state of facts does exist, it will be asked why acetylene is not in more general use?

It is in use far more extensively than the ordinary citizen is aware, and its introduction on wrong principles has been so rapid that improper gas generation and the consequent unsatisfactory results are today the chief obstacles in its progress. Chemists, from its inception, have warned us that the proper generation of the gas can only be obtained by dropping carbide into water and not by dropping water on to carbide, yet there is one manufacturer who claims to have disposed of 20,000 generators, all of them of the objectionable type. Hundreds of other makers have been pushing the same kind of generators, almost invariably styling them as the "only perfect machine," until the clogging of pipes, smoking of burners, stench of over-heated residuum, and the expense caused by the waste from after generation, has created a smudge of discredit about acetylene lighting which requires a little persistent investigation to clear it of unjust criticism.

Something like seven years of general effort has greatly improved the quantity of gas generation, as well as burners and other accessories, and acetylene lighting is now just as practicable and certain as is illumination by any of the long established methods.

Rivals will tell you that it is "dangerous," "expensive," and a "failure," and will in many cases offer to prove it by citing instances where defective apparatus has been employed.

The insurance authorities have an established laboratory for the rigid examination of acetylene apparatus, and that it is safe when passed at the laboratory is backed by the cold-blooded commercial fact that no additional charge is made for insurance because of the installation of such plants.

Unfortunately, all the "safe" generators, from an insurance standpoint, are not by any means ideal from a gas producing view, and it will not do to accept insurance approval alone as a guide in purchasing.

A good town plant must be of the carbide-feed type, operate positively and infallibly, have a sufficient supply of water to absorb the heat of generation, contain all the gas after generation, and should be automatic in operation, not only as to feeding the carbide, but as to water supply and disposal of residuum also.

A good acetylene plant, of say 2,000 light capacity, can be purchased for approximately \$2,000. Compare this with the cost of installing an electric plant of the same capacity. Any intelligent laborer can operate an acetylene plant, while it requires high priced experts to run either an electric or water gas plant. The moment the power ceases in an electric plant, that instant the light fails, while with an acetylene plant the light is always "on tap." Acetylene gas having from twelve to fifteen times the illuminating power of water gas, can be conveyed through much smaller pipes and mains, and consequently the cost of piping is much less. It requires no skilled attendance and employs no heat or power. No lighting, while no city is beyond its town is so small too employ this method of capacity.

Its superiority as an illuminant is acknowledged. With cost of installation only a fraction of that of water-gas or electricity, expense of operation merely nominal, and easily adapted to the smallest and largest requirements, the persistent, unprejudicial investigator will find in acetylene the most promising factor in solving satisfactorily the problem of municipal illumination.

The Good Roads Train.

The work of the good roads train in Eastern Ontario is proving a revelation to those who have witnessed the working of the graders in shaping the travelled roadway; the crushers in breaking stone; the rollers in consolidating the material and leaving it ready for use—doing in a few days the work which, under the old methods, could only be accomplished in several years. The cost, too, is proving much less than opponents of the movement have prophesied, and the concrete culverts are regarded with admiration.

Sample sections of road have been completed at Gananoque, Lansdowne and Iroquois. Writing to Mr. H. B. Cowan, secretary of the Association, John A. Webster, county councillor of Lansdowne, says:

DEAR SIR,—

Yours requesting my opinion of the work that is being done by the Good Roads Train is at hand, and in reply I might say that I am well pleased with it.

Owing to the recent heavy rains the section at Lansdowne is not yet completed, but as far as it is finished, it is very fine, perfectly smooth and apparently solid. A month ago the township built a stretch nearly adjoining it and the contrast between the two is very great; while people take the muddy side in preference to driving on the stones on the portion built by the township, they can drive at full speed on that made by the train.

As for the concrete culverts, there is no question but that they are fine. On the whole I am well satisfied.

Sincerely yours,

JOHN A. WEBSTER.

Altogether the good roads train promises to accomplish everything that was at first hoped for it. The only trouble which seems likely to arise is through