

service to such an extent as to utterly destroy its efficiency in certain localities. Here are grave questions for courts and legislatures to settle, and it is a matter of the first importance that they should be settled justly. Cheap work and poor insulation means danger to persons and property, and it is evident that electric wires for all purposes must soon be put under the supervision of competent state or city inspectors.

There is now little doubt that light in all its manifestations, from the tiny spark of the glow-worm to the glare of the noon day sun, is an electro-magnetic phenomenon, and the conditions of its production and propagation are receiving careful attention. Recent investigations have shown that the efficiency of all our methods for the production of light is very low. By efficiency we here mean that part of the energy of the substance consumed to produce light, which is given back to us in the forces of luminous radiations. These efficiencies vary from one per cent. in the case of arc light down to less than one-third of one per cent. for gas and oil and one-fifth of one per cent. for candles. If the work of the engineer is to utilize wasted or misdirected energy, he evidently has a large field open to him in the direction of artificial illumination. In the case of electric lighting eighty-five per cent. or more is lost in the boilers and engines even when these are of the best type. Ninety to ninety-five per cent. of what is left is spent in heat in the electric circuit, which is unaccompanied by light.

These facts clearly indicate two great problems for the scientist—the cheap production of electricity from coal without the use of boilers and engines, and the production of luminous energy from the electric current with a smaller loss of radiant heat. The second problem, that of electric light with little heat loss, has not yet reached the experimental stage? Its possibility is a recent suggestion; but the first question, how to produce electricity on a commercial scale from fuel without the aid of the steam engine, has for some time engaged the attention of experimenters

and any day may bring its solution. A very moderate degree of success in this direction would make the electric light the cheapest, as well as the best, form of illumination, and would at once displace the steam engine in all its forms from its place of leadership as a prime motor.

WHY SHOULD WE ANNEX CANADA?

During the past two or three years much has been said in an unofficial way concerning the plan of annexing Canada to the United States. The talk has been largely on our part, as it is generally known that Canadian? are not very willing to give the matter consideration. The leniency with which England has allowed Canada to manage her own internal affairs has done much to strengthen the good feeling of the latter toward her; and besides the English element of the population is increasing very fast.

If Canada were to be annexed, she would have to first gain her independence; annexation without independence would inevitably be a cause for war between England and ourselves. We have not the slightest reason for conjecturing the occurrence of either of the two events. All talk concerning this annexation has been the invention of shrewd politicians and newspaper men. But notwithstanding the fallibility of such reports we find many people in favor of the scheme.

Canada occupies a section of North America as large or larger than the United States. Its climate, its people and their history, are too well known to need mentioning at length here. It is known that the inhabitable portion of Canada is the southern half, the whole northern part being too cold and sterile for civilized people to inhabit. The large majority of her population is contained in the south-eastern part, known to us as "Old Canada." The chief natural resources of Canada are the products of agriculture, lumber, fish, and minerals. In none of these can she compare with our own country, neither has she any resources worth mentioning which we have not. With the