

tion becomes more general (and the day will come when every person in our land will be able to read and write), our morals will be better instead of worse. Education raises the standard of thought to a higher level. Public opinion will require a higher moral standard. Our papers will not be so largely filled with accounts of crimes committed. I do not mean to say that crime will vanish altogether; far from it; but it will be less common.

Looking backward over the progress we have made and peering into the future, it does seem that like "The Children of Israel" of old, we are indeed a chosen people. That we have been selected from the nations of earth to demonstrate what a "government of the people, by the people and for the people" may become—a nation of cities and of men in the highest and best sense of the word.

P. P. STURDEVANT.

ELECTRICAL PROGRESS.

We clip the following from an article written by Prof. A. S. Kimball of the Worcester Polytechnic Institute:

Fifteen years ago when engineers were asked what electricity promised in the near future, their answers claimed so broad a field of application that few were found whose confidence in the new science was strong enough to allow them to treat the prophecy seriously.

To-day the electrical engineer is as confident of the future as he was in that early time; his plans seem almost as visionary, but he has conquered respect. Large undertakings need opportunity, capital and ample time for their complete development; but enough has been done to assure us that the possibilities of electricity were not overestimated.

During the past year no great discoveries in the science have been announced, and no new and wonderful application of electricity to the arts has been made; nevertheless, substantial progress has been realized. One of the most assuring features of electric business is the air of per-

manence it is acquiring. Cheap engines and boilers, temporary quarters and makeshift appliances are rapidly giving way to thoroughly built stations designed with the greatest care for the work and equipped with the best modern machinery. Capital has found out that the business has come to stay, and will pay dividends on liberal investments.

At the same time the business is rapidly increasing. According to estimates presented at the meeting of the National Electric Light Association last August, there are in the United States 1,379 stations, representing nearly one hundred and twenty millions of capital invested, supplying 127,000 arc and 1,590,000 incandescent lights. But the most astonishing development is to be seen in the application of electricity to motor work. There are now in the United States more electric street railways, with 1,500 miles of track and 3,000 motor cars already built; and over 1,000 miles more will be completed early this year. Experience has shown that the running expenses of a well built and equipped electric road are less than those of a horse car line of the same capacity and we may feel tolerably sure that as soon as the electric roads have passed successfully the ordeal of a severe winter, and the relative merits of rival systems have been ascertained, the days of the horse car will be numbered. Electric engineers will then turn their attention to long distance railroading with heavy traffic and challenge the locomotive.

We have no right to expect that the introduction of an agent distributing energy on so large a scale as required by our electric light and power systems will be unattended with difficulties. When telegraph and telephone wires were first erected, they had the whole field to themselves, and they dealt with small currents. Poor insulation harmed no one but the owners of the lines, and they balanced their loss from leakage against the cheaper construction required. Now the use of heavy currents has made poor insulation not only expensive but it has interfered with the telephone