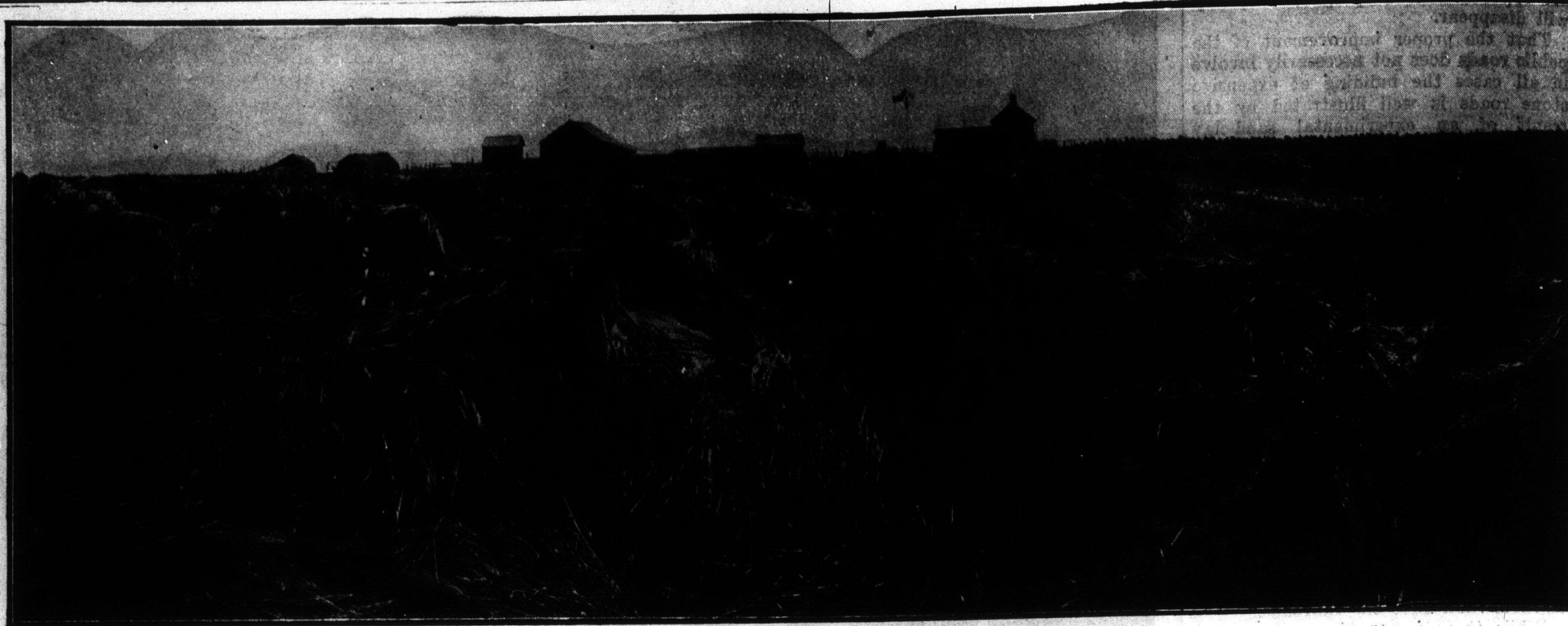




A Rich 1909 Wheatfield near Calgary

in the construction of such roads will not only minimize the danger of disease by reducing the dust nuisance, but they are in a measure possessed of antiseptic properties. That this statement is not based on mere theoretical conclusions but is substantiated by actual proof is indicated by the following extract from a recent report of the medical officer of health for Southall-Morwood, England:

"I believe if the roads throughout the district were so treated it would minimize the incidence of certain illnesses in the summer. Those competent to speak on the matter assert that a large part of the diarrhoea and sore-throat illness during the summer is due to microbial infection conveyed from dusty roads. In one or two towns the experiment has been made of treating the road surfaces, with some dust-laying substance, of certain streets in which the incidence of these complaints had been greatest, and the result was a marked decline in the sickness rates of these complaints in the particular area so treated, compared with those not treated."

There is no phase of life in the country, social or economic, which is not affected by good roads. There is a direct relation between improved highways and the value of land, the attendance of children at school, the health of the community, and everything else that tends to make life in the country efficient. And this, in turn, affects the people in the cities who live on the country products. It is a task—the maintenance of good roads—which affects every person in the country, no matter where he lives or what his profession.

The first requisite is a sufficient revenue. In order that America may set the world an unprecedented example of road building and maintenance, certain essential features must be provided. The first of these is an ample cash revenue. The total expenditure in money and labor in 1904 was about \$80,000,000. This may appear to be a large sum, but, when divided among the 2,155,000 miles, it means an average per mile of only about \$37. As only \$60,000,000 of the total revenue was cash, it follows that the expenditure in cash per mile was only \$28. England, with only 150,000 miles of road, spent last year more than \$89,000,000, or an average of \$593 per mile. Even though we substitute the cash tax for the \$20,000,000, now being paid in labor and substitute good management for bad management, \$80,000,000, is far from sufficient.

The present system of taxation, tried upon an unfair basis, cannot be expected to produce the best results. It is essential that the methods which are adopted for obtaining road revenues shall so distribute the burden that all parties and interests benefited shall contribute in proportion to their means

and the advantages to be obtained. This will necessitate a general revision of road laws so as to provide for state appropriations to supplement county and township funds and an adjustment of taxation so that the cities, the great corporations, and the owners of automobiles will bear a considerable portion of the cost.

From time immemorial, localization has proven a totally inadequate policy in the administration of public roads. The interests of most of the counties and townships are too small, and the available revenues too meagre to admit of the continuous employment of skilled engineers and road builders to direct this kind of internal improvement. On the other hand, a centralization of authority and supervision in a state official is feasible and economical because the state can, for the benefit of counties, maintain a corps of competent highway engineers who will systematize and properly direct the work in each county, the total cost of this state department being so widely distributed as to rest lightly upon the individual counties. Centralization must, therefore, be a prominent factor in solving our road problems.

The first work to be done on the roads themselves is their classification.

Opposition on the part of ultra-conservatives to a general improvement of the public roads is frequently based upon the belief that the advocates of road improvement contemplate the surfacing with hard material of the entire 2,155,000 miles of road in the United States. They point to the fact that to macadamize two million miles at \$5,000 a mile would cost ten billion dollars. That this is a mistaken view of the subject will be easily demonstrated when all of the country roads are classified according to traffic requirements. This classification, which is a prominent feature in all of the leading countries of Europe, contemplates the character and extent of improvement exactly adapted to the needs of traffic on each road. This classification will result in the elimination of many thousand miles of totally unnecessary roads and of many more thousand miles by relocation, straightening of curves, and various other expedients. It will demonstrate that inexpensive forms of construction are in many cases entirely adequate, and, in short, will enable the great work of building and maintaining the public roads to be carried forward rapidly, intelligently, and systematically.

Once classified, the proper kinds of roads can be built, but in the future they must be built by trained men.

Road building is an art based upon a science. In this age of specialists, it almost surpasses belief that the American people, so practical in all other lines of endeavor, should permit their golden millions to be frittered away by men who for the most part

know little or nothing about either the science or the art of road building. There are to-day more than one hundred thousand petty road officials in the United States, each and all receiving compensation. Very few of these men devote more than a fraction of their time to road work, because their interests lie elsewhere and their daily compensation is too small to enable them to devote their entire time to the work. It is not surprising that a century and a quarter of this kind of supervision has resulted in the present chaotic condition of our public roads. The reforms that should take place will provide a comparatively small body of trained competent road builders devoting their entire time to continuous road work.

Not only must the roads be built by trained men, but they must be kept in repair.

It has been the universal practice in America to repair the roads at such times as will interfere least with individual duties, and this has crystallized into working the roads once or twice a year. So hard and fast has this custom become in many states that, even if costly macadamized roads are constructed at great expense, they are allowed to go to ruin because minor defects are permitted to go unrepaired until they result in practical destruction of the road.

No more admirable system of maintenance could be devised than that which is followed in France. Every mile of road is inspected daily, and the slightest defect repaired at its inspection. The maintenance of way departments of our great railroad systems do not provide a more thorough inspection of railroad tracks than do the French for their public roads. The changes which should come in the American system will mean the adoption of a continuous system of repair and a methodical inspection of all roads.

And the road building era has already begun; already great strides have been made in recent years toward bringing about these needed reforms in the road laws and administration, in providing more adequate revenues, and in devising methods of construction and maintenance adapted to the requirements of modern traffic.

In 1891, New Jersey adopted what is generally known as the state-aid plan by appropriating funds directly from the state treasury in aid of road building throughout the state, and of establishing a state highway department. Other states have followed the example of New Jersey, until at the present time every state north of Mason and Dixon's line (with the exception of Indiana), and in addition to these, the states of Maryland, Virginia, West Virginia, Georgia, Missouri, Iowa, Minnesota, California, and Washington have adopted the principle of state aid; while the states of Oklahoma, Kansas, South

Dakota, and Utah have taken steps in this direction. Every change that has been made by the legislatures in the states granting state-aid has been toward increases in the state appropriations and a broadening of the scope of the state highway departments. Thus we are heading rapidly toward the centralization so necessary to the accomplishment of this great work.

In the matter of providing sufficient cash revenues and eliminating the labor tax, great progress is now being made and still greater will come within the next few years. New York has made a total appropriation of more than fourteen million dollars; Massachusetts, nine; Pennsylvania, eight; Connecticut, six; Maryland, five; New Jersey, two; and Rhode Island's in nearly two million. In the last annual appropriation, Connecticut leads with nearly five millions; New York, three; Pennsylvania, one and a half; Maryland, one.

Virginia, Georgia, Illinois, and California are affording notable examples of the possibilities in the use of convict labor. Georgia, at the last session of its legislature, abolished the objectionable lease system and enacted new legislation, which, on April 1st, placed more than four thousand convicts at work throughout the state. Virginia is using state and county convict labor in improving the roads and has supplemented this aid by a state appropriation of \$250,000. Illinois and California are successfully employing the convicts in the preparation of road material, which in Illinois is furnished the various localities upon payment of cost of transportation, while in California it is sold at a nominal figure.

The demand for competent supervision of road work is assuming concrete shape, probably the most striking example being that New York has provided for a civil-service examination to test the qualifications of candidates for the positions of highway engineer and superintendent of road construction.

The National Government, through the Office of Public Roads of the United States Department of Agriculture, is, by means of a great educational propaganda and scientific research and experiment, aiding materially in carrying forward this all-important work, and the service of its corps of engineers and experts are given free to the people of the United States.

Through indiscretion in eating green fruit in summer many children become subject to cholera morbus caused by irritating acids that act violently on the lining of the intestines. Pains and dangerous purgings ensue and the delicate system of the child suffers under the strain. In such cases the safest and surest medicine is Dr. J. D. Kellogg's Laxative Candy. It will check the inflammation and save the child's life.