

Talk at Cordoba, Argentina

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A NATION'S HIGHWAYS

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It is a happy fortune that casts this Highway Conference in the Beautiful city of Cordoba, and surrounds it with the serene atmosphere of this ancient university, which has so proudly established and led the culture and academic thought on this western continent since the beginning of the seventeenth century.

While it is a real honor and a rare pleasure under such circumstances to be permitted to speak to a gathering of those who are so keenly interested and so devoted to the cause of modern highway improvement, there is yet that understandable hesitation of a devotee of the same cause, who would remain silent rather than risk the vitalizing of any opposition to a movement which means so much to any country, but how much more to a country of such magnificent natural resources, and such dynamic power as the Argentine Republic. Out of the experience of a quarter century in the public service, and for this period wholly engaged in the furtherance of highway legislation and the actual administration of highway building, certain deeply established convictions have grown into definite and tangible form, which to me are inescapable and which, once

generously accepted, must surely provide security against misunderstanding of either motive or objective.

The highways of a nation spring from within and not from without. They are integral with the culture and character of the nation. Highways of adequate serviceability and of sufficient extent never have and never will be built until that nation as a whole wills so to do. So huge a public undertaking can have no adequate conception and no promise of fulfillment until it becomes a vigorous, surging, expression of national pride and national determination. There is conceivable no thought more futile than this one that highway policies may be either imposed upon or their achievement thwarted from without. The choice is made between these always within the nation itself. Nor is it to be expected that an undertaking requiring the extensive organization and the, both relatively and actually, large annual expenditures can be forced ahead or held back in any respect by an outside influence, whether friendly or unfriendly, until that time comes when the national conscience shall mature the conviction that the building of highways on a nationwide scale is both an economic and a social necessity, the actual accomplishment will be limited and sporadic indeed. With a full appreciation of these truths it then rests with us, who represented the United States of North America in the Second Pan American Road Congress, as we return, and along the way are permitted to meet these

who are pioneering the movement for a national road improvement program for Argentina, and for these other countries, to become informed as to the problems of the several nations, to receive impressions and information that are both broadening and enlightening, and to lend sympathetic and enthusiastic encouragement as we may. The interest to us of the visit to this country is already more than assured and if, as we hope, we make new friends and strengthen those friendships long established, we will be more than content. Thus, in considering what might be said in a brief time that would possibly remain as a worthwhile memorial of our visit to the Argentine Republic, and to this most interesting and progressive Province of Cordoba, it has seemed that a resume of some of the fundamental principles underlying the securing and the utilization of a nation's highways, which have become apparent to us over the past decade, may be remembered and may contain something of helpful interest. That is, a statement in brief of those principles which, perhaps because of their very simplicity, like life, itself, must be experienced before they become apparent, and, yet, how much of wasted time, effort and resources is the price of their discovery, and their understanding. All this may sound abstruse, but is it? More and more we are compelled in the final analysis to admit the economic control of the individual and of each nation. Over a long period of actual years,

but not so long relatively to the life of a nation, not laws, not restrictions, man-made, and not covenants, may finally control but all must be controlled by the relentless, untiring economic laws. There has long been the examination in detail and formulation of definite theories or principles as to the relationship of production and consumption, or of supply and demand, but there has not always been, and there is not now, the general recognition that a third element, transportation, takes its place equally with these other elements of our economic organization, and always interposes itself between the potential and the actual.

In the whole scheme of transportation the highway has its distinctive place. We have the railways, the waterways and the splendid beginnings of the airways, but none of these in itself completes a transportation service. The highway is always the essential complement, and itself provides, in conjunction with the motor vehicle, a large percentage of the transportation needs of the individual. The first and the last of the transportation service is carried by the highway. It connects the individual with the whole scheme of transportation; it provides him with the intimate, the individual, transportation requirements. This is the key of the highway problem, to extend adequate service of the highways to the individual, and finally, to all of the individuals of a nation. Thus, the building of highways adequate in character and in extent

becomes, next to the education of the child, the greatest public responsibility in all of our, otherwise highly developed, nations of this Western Continent. How is such a tremendous task to be accomplished as a physical undertaking? How is it possible to meet the financial requirements? The answer to each question is the same. By a faithful adherence to fundamental principles, intelligently applied to the conditions at hand, it will be possible to make rapid progress in the development of a highway system of adequate character within reasonable time, and those problems which superficially appear the most difficult really disappear once the most difficult are successfully solved. Neither the physical nor the financial problems of highway development are the most difficult. Those which have to do with the public policies involved are far more difficult and may be stated somewhat in this manner: what form of administration is best suited to the needs of the country? How is it possible to combine the resources of the nation, the state or province, and the municipality or locality toward the accomplishment of the same objective? How is it possible to bring all of the conflicting and perhaps radically different ideas and motives governing political thought into an effective scheme of highway legislation? In comparison with these questions which go deeply into the life and thought of the individual, the more technical engineering and financial problems are

relatively simple. The very great extent of the difficulties involved in meeting these questions of public policy, based so largely on human motives, sometimes unselfish, but frequently selfish wishes and aspirations, prompts the earlier declaration that the formulation of a national program of highway improvement and its unfaltering support over a long period which is necessarily involved in so huge a task must come from within the nation itself. It can only be the product of a reasonably united public mind. This united mind, in turn, may come only as a result of such work as is being carried on in this country by the National Road Congress, the Touring and Automobile Clubs, and the road departments of the Federal and Provincial Governments.

With the knowledge that these principles are already well understood by your highway leaders, officials, and engineers, it yet seems desirable to repeat them here, because of the relative importance they have assumed to us of the United States of North America out of the experience of the past decade during which the building of highways has been the outstanding public undertaking, and in every respect has surpassed by a large margin every other public undertaking, not excepting the construction of the Panama Canal, when considered in the aggregate.

There are three principal aspects - the administrative, the technical and the financial to be established and synchronized into

a complete program. Both the First Pan American Road Congress at Buenos Aires in 1925, and the Second Pan American Road Congress at Rio de Janeiro, in 1929, considered all of these phases in much detail, and we believe the conclusions which were adopted by both congresses form a reasonably complete summary of the principles which are the result of long experience and thought by all of the nations, members of the Congress. It is not necessary to repeat them here, but there are certain comments which do seem appropriate.

As to the administrative problem all of the nations of this Western Continent face an enormous physical task. We have each been painstakingly changing the conditions which the pioneer met to those adapted to the habitation of an increasing population and a constantly ascending standard of living. We have not the heritage of highways travelled and even built to high standards from the days of the early Roman Empire possessed by the European nations. The far flung boundaries of these large republics are not comparable with the smaller areas of the countries of the old world; the whole conditions are so different that we must test every administrative policy which has proven successful in the older nations by its adaptability to our physical dimensions and our entirely different population distribution. It is doubtful if there is one more important item than the planning of the primary system of highways. Here, again, because the highway is an intimate service, to each of the communities a really adequate system

must develop from the locality to the nation, rather than be developed from the nation to the locality. The most important local roads must become a link in the national highway scheme, and, thus, the whole system of major highways can be planned on the basis of greatest service to the locality and through this very fact to the nation as a whole. Following this same thought, and based on an accomplished undertaking over the past ten years of more than seventy thousand miles of highways built by co-operation between the Federal and State Governments the conviction is definite that for these big republics a plan of cooperation between the Federal Government and the States or Provinces is the only way that a system of major highways can be rapidly built. This, with the full knowledge that in many of the smaller nations of Europe a plan of separation of the Federal roads and the provincial or departmental roads is followed. It must be remembered that in France, a nation which has given us perhaps more than any other, certainly earlier than others, a scientific approach to the matter of highway administration, the same administrative policies and technical training permeates the whole structure from Federal to local. Under the conditions of this continent the individual states or provinces are so important that the establishment of cooperative administrative and financial policies is indicated as the one sure method of accomplishing so huge a task. The urge of the people for highway improvement is felt most acutely by the provincial governments and it is



apparent to me that here there is now a surging enthusiasm and desire in many of the provinces to become engaged upon a much larger program of highway extension and improvement. It is necessary to make use and to develop the possibilities of these provincial organizations. Once a program of construction and maintenance on a full national scale gets under way in so large a country the organization becomes unwieldy if confined to the Federal Government alone. Further, and more important, once cooperative relations are established between the Federal Government and the provinces the motive for continuity is firmly established. If there is one thing which we have learned from the decade of highway activity it is the effectiveness of a truly cooperative relationship between the Federal Government and the State Governments. Such relationship establishes continuity and provides a safeguard against inefficiency, favoritism and the loss of public support. It lifts the highway improvement program to a plane of greater security than is possible under any other plan.

As to the technical requirements engineering research, modern scientific equipment and standardized laboratory methods have lifted design and construction of the modern highway to a satisfactory place relative to the general status of other fields of engineering. Still, we feel that we have made only a beginning, that as time goes on and the demand constantly increases for miles

and yet more miles of highways that an ever increasing knowledge and experience is demanded of the engineer. Thus is established the importance of continuity of organization and the encouragement of engineers of highest qualifications to remain in and devote their whole energies to the public service. Without continuity of service there can be no efficient technical organization.

It has been relatively simple to develop the construction of standard high type pavements. At the moment we are devoting increasing effort to the study of soils and their control, and the design and construction of the low cost roadway surfaces. The public demands a smooth, dustless highway both for utility and safety, and further demands that it remain so throughout the twelve-month period. That is, the highway becomes less a physical entity and takes on the character of a satisfactory service. This is the service which the engineer must have the experience and the technical knowledge to supply rapidly and economically. It is readily apparent that national service of satisfactory character cannot await the construction of wholly new, modern type highways. The time element is too important. Therefore, in any program, given a certain total possible expenditure, the existing highways must be brought to a condition of reasonable serviceability and the new construction program proceed at a slower rate if it thus becomes necessary. The emphasis must be

placed upon the provision and maintenance of reasonable service on a nation-wide scale. This means that the organization of continuous maintenance and betterment is more important, if possible, and certainly more difficult, than the building of wholly new highways of the standard, accepted types. A little thought is convincing that economy demands continuity of a reasonable program of new highways each year, replacing the present roadways when they are no longer capable of being maintained under the traffic and that, if the nation expects at the end of one or even two decades to have a system of adequate main highways, the program of new construction must be continued over the whole period.

As to the financial problems involved, which seem always the most difficult, there certainly may be held out considerable encouragement. Almost ten years ago for the first time in the history of the United States the rural road improvement expenditures reached the annual sum of one billion dollars, divided between the localities, the states, and the Federal Government. This rate of expenditure has been maintained continuously since, with a small annual increase, until at the end of the decade it reaches about one and one half billion. In the beginning the income was largely predicated upon real property taxes. With the building of highways the increase in the number and relative use of the motor vehicle, and the imposition of motor vehicle license taxes and gasoline taxes, the income from the use of the highway has grown rapidly until, even with the now 50 per cent higher

expenditures, the income from the use of the highways paid by the motor vehicle owner and user has reached approximately one-half of the annual expenditure, and an additional considerable percentage of the annual expenditure is met from bonds, which are issued against the proceeds of the motor vehicles. Taking for example the state of Illinois, which has carried on one of the largest highway improvement programs, all of the new construction has been financed from bond issues, the principal and interest of which are carried entirely from the motor vehicle license fees and the income is exceeding the most sanguine estimates. To the question, therefore, "Can a nation afford modern, improved highways?" there must inevitably come the response that no nation can afford to do without them. But general property or other income must be relied upon, and must be sufficient to provide in the first instance reasonably satisfactory highways, because until such are put into operation they do not possess an earning capacity. The improved highway, properly located with respect to population, distribution and potential traffic flow, has a high potential earning capacity, but not until it is in operation as a part of a system of highways that afford not only service but that afford satisfactory service.

Finally, there is an additional thought that we wish to express to all the friends of improved highways, and to those who

are devoting their very earnest efforts to this end, that it is a cause in which they can have absolute faith. Repeating what was earlier said; transportation is an economic element and highway transportation has not only its earning capacity in the end to support itself, but socially to contribute to the common good perhaps more of comfort and increased possibilities of the enjoyment and happiness of life than any other public undertaking. It is not with any uncertainty that this assertion is made, and there is no lack of confidence that the efforts of the leaders and the officials of this country will result successfully, and, we believe, at an early date, in a greatly enlarged highway program. No nation can afford economically or socially the waste resulting from the lack of adequate, improved, modern highways. We are certain of the realization of wholly adequate highways on a national scale because of the natural resources, the energy and the will of the people of the Argentine Republic.



In closing may I express the great pleasure it has been to all of us to have the opportunity to see something of the highway development, to meet the engineers and officials of the country, and we hope we have formed friendships that will be enduring and mutually desirable.