The Automobile and Road Building in California

By Stanley David

[NOTE. Mr. Stanley David is a New Zealander who went to America to continue his Engineering studies. His observations will therefore be doubly interesting to us here.]

As New Zealand, backed by government and county enterprise is gradually improving her roads and highways and meeting and overcoming many difficulties, it might be of interest to consider the progress made along this line during the last two or three years, by a country, similar in climate and formation to New Zealand—namely California, U.S.A.

Here in the far west the spirit of progress and upbuilding is keen and very noticeable, just as it is in New Zealand and Australia and all new countries. In fact, to walk through the business areas of San Francisco to-day and see the tall buildings, well paved streets, and ever rushing crowds and dense traffic, one can hardly realize that, but one short decade has passed since what is now a great and modern city, was but a heap of smouldering ruins.

Yet it is a reality, and the exposition of last year was a living monument of triumph to the city and state whose progress has been so remarkable. It is evident then, that this spirit should be manifest in her public work and business methods. The former is illustrated in the way she is building a wonderful system of roads, and the latter in the wonderful way motor transport has come to the fore in all lines of commercial activity. That each depends on the other is self evident, and, as I will show later, good roads and the popularity and demand for the automobile have gone hand in hand in California. Not only for business, but for pleasure too, the motor car has a great demand here and is every year becoming more popular, and more easily attained by the great mass of people. And with the betterment of roads the "auto craze" as the Americans call it, is getting greater.

Of course, the natural beauty of California, its equable climate and tourist traffic, all go to make motoring popular, and to make it necessary for the government to provide adequate means of communication. With Fords selling at £70, no wonder that motoring is so popular. Yet that is what a Ford can be obtained for in San Francisco to-day and other makes are low in proportion. The competition between motor manufacturers in the U.S.A. is terrific; yet all seem to be making enormous profits.

The advent of the auto then, as a means of transportation and business necessity (motor trucks with great carrying capacity and weighing tons, have practically superseded the old horse vehicles for all heavy work), is the reason why California, one of the youngest states of the American Union and with a population of only two and a half millions, is now spending forty millions of dollars, or £8,000,000 of state money in the construction of a rational system of concrete highways, to carry traffic through her great valleys and over her mountains, from one part of the state to another. What the state government is doing, each county administration is doing on a smaller scale, and in a very short time California will be simply labyrinthed with splendid roads.

And magnificent types of roads they are—the very acme of engineering skill and scientific construction. The specifications laid down by the authorities carrying out the plan, follow these general standards: "A right of way not less than sixty feet in width, where it is reasonably possible, and as direct between objective points as is consistently possible; grades not exceeding 7 per cent. even in mountainous districts; curves as open as possible and in no case less than fifty feet in radius; as many culverts of sufficient capacity as are needed to take care of surface and underground water; travelled way under ordinary circumstances not less than twenty-one feet in width, and in mountains not less than sixteen feet wide, with the centre paved or surfaced so as to be hard and smooth under all climatic conditions of the year, the width of surfacing to be in general fifteen feet, with smoothly graded roadsides, reserved for future tree planting."

"Some" specifications, the American says, and indeed they are; but they are being carefully carried out. Already over eighteen hundred miles of the proposed four thousand miles of state highway are finished, and to ride in a motor car on them one can be as comfortable as riding in a first-class car on the Auckland express, so smooth is the road way, and gentle the grades.

I have watched the construction in many parts of the state and some of the methods used may prove interesting. After the survey has been made teams come along, if the ground is soft, and plough up the future roadway. If an old road is being reconstructed, motor tractors come and tear it up as easily as the horse ploughs tear the soft land. Following the plough comes a movable steam shovel, which digs out the earth until the required depth is reached. The shovel deposits its mouthful on enormous motor trucks which run back or forward with the material to build up grades on other parts of the highway.

Following the steam shovel come the rows of cement bags and gravel placed each side of the road to be. These are brought up from a railroad depot or storage base in the rear by auto trucks. Then further back, perhaps a mile or two miles, comes the concrete mixer with its complement of men numbering from ten to twenty. The mixer empties the concrete, mixed in the exact proportions necessary, on to the gravel bed by means of a chute that makes an arc of a circle across the road as the concrete emerges. This leaves the latter distributed fairly evenly and the men with shovels do the levelling. Later after the concrete is dry come the surface dressers who surface the road with macadam or bituminous wearing surface.

The type of this latter and final paving laid in any locality depends upon the traffic requirement peculiar to the locality. Where the traffic volume is great the paving is wider and wearing surface