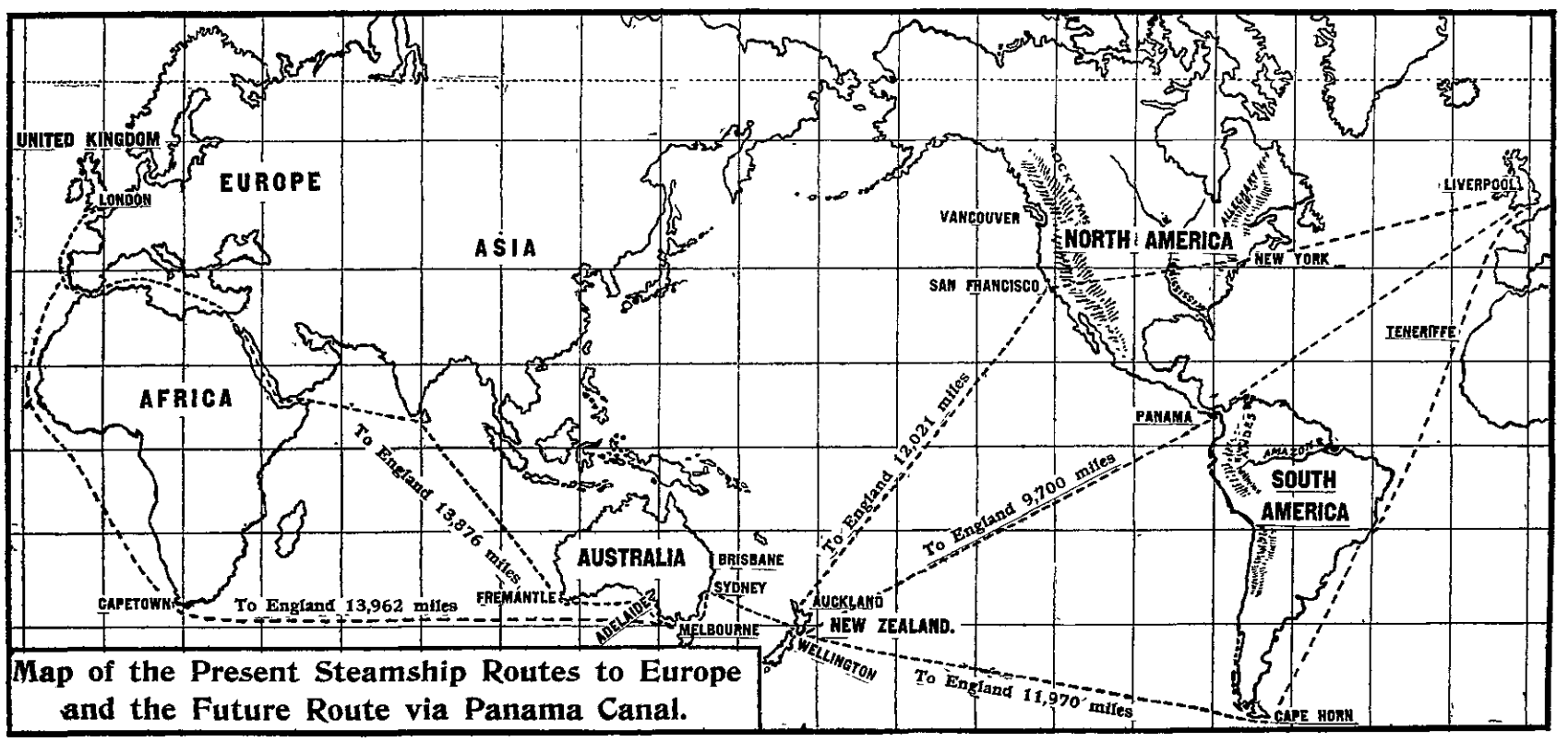
THE PANAMA CANAL.

By P. J. O'Regan.

The news recently cabled that a lock canal has been decided on by the American Government, means that the great enterprise of piercing the Isthmus of Panama will be completed much sooner than would necessarily be the case if de Lesseps' idea of a sea-level waterway had been adhered to. The great Frenchman, in his zeal to "marry the two oceans," actually dug a third of the channel; but, though the Americans have for some time been working assiduously on the route selected by de Lesseps, a great deal more will have to be done before reaching the point at which the lock proposal will take shape. The waterway planned by de Lesseps was to 72 to 78 feet wide at the bottom, it was to contain 30 feet of water, and was to be from 92 to 164 feet in width at the water surface. At the Culebra Ridge the waterway was to be three-quarters of a mile wide at the top, and 360 feet deep, or 540 feet as measured by the slope of the cutting on the higher side. The Americans have selected the route chosen by de Lesseps, but their determination to adopt a lock canal necessarily means less excavation. The canal when complete will be 46 miles long, or, if we measure from a depth of 36 feet of water on either side, the distance will be 54 miles. The Suez Canal is 99 miles long, but, nevertheless, the Panama Canal is a much more formidable undertaking, for the Suez route not only has the advantage of several lakes, but lies for the remainder of the distance through a sea of sand. The Panama Canal will follow the bed of the Chagres river for some distance, and this, though it means a saving of labour in one way, implies an outlay of some £5,000,000 for a dam which, when completed, will be by far the largest in the world. The rainy season at the Isthmus lasts about eight months, during which time the rivers are in high flood. The object of the dam is to maintain a normal flow in that part of the river bed which will be included in the waterway, and it will be erected across the valley of the Rio Obispo just above its junction with the Chagres. The proposed reservoir will be 3120 feet long at the base, and 6370 feet at the top, while its height will be 146 feet. By its means the flood water will be held back, and carried off to the sea by lateral channels along the hillside. As one writer has graphically put it, the rainwater will be "hung up" above the river bed, and thus will the Canal be made immune from damage by floods.

What will be the effect of the Panama Canal on the world's commerce? It is impossible to answer the question in the space of an article like this. That the Canal will revolutionise commerce goes without saying, and in this connection the reader may draw his own conclusions by studying the map of the world. Doubtless, however, it will help him if we place a few facts before him, more especially as he may readily verify them for himself. A glance at the map of the two American continents shows that all their great rivers flow into the Atlantic Ocean. The stupendous mountain chain of the Andes runs along the Pacific coast of the Southern continent, with the result that rivers draining into the Pacific are short and rapid torrents, while those pouring their waters into the Atlantic are majestic streams several thousands of miles in length. Turning to the Northern continent we see that two immense mountain ranges—the Rockies on the Pacific Coast and the Alleghanies on the Atlantic—enclose between them the great valley of the Mississippi. The word "Mississippi" is an Indian equivalent for "Father of Waters," and the name is well deserved, for the Mississippi and its tributaries provide about 30,000 miles of navigable water. The Mississippi flows into the Gulf of Mexico, and is therefore shut off from service to the Pacific coast, just as are the great rivers of the Southern continent. The Panama Canal will change all that, for it will enable vessels to sail from the interior of either continent along both coasts. This spells the end of the Panama railway as a means of transit, and it must seriously impair traffic on the American transcontinental rails. But it must also involve an enormous gain to the commerce of the two Americas; in fact, the contemplation of the potentialities of the Canal to American coastal trade enables us to realise that the Americans are wise in proposing to run the waterway at a loss as far as tolls are concerned. They must gain very much in other directions.

But a question of more practical concern to New Zealanders is the effect of the Canal on their own country and on Australia. A cursory glance at the map of the world shows that, after the Americans, we have more to gain in distance than any other country in the world. Let the reader follow the course of ships from Auckland to San Francisco, let him follow the railroad from 'the City of the Golden Gate" to New York, and thence to London. Then let him follow the dotted line which marks the track of ships from London to Cape Horn and from Cape Horn to Wellington, and he will have a figure approximating to a parallelogram. Let him now draw a line from Wellington or Auckland to Panama, and thence to New York or London, and he will have a line bisecting the parallelogram—in other words, dividing it into two triangles; and, since any two sides of a triangle are together greater than the third side, it follows that the Panama route must be shorter than either of the others. In the course of a lecture some weeks ago on the Canal, the writer mentioned that the Panama route would save 3,000 miles on the route via Cape Horn, as between Wellington and New York or London. A few days later he was assured by a friend that he was incorrect, as there was really very little difference in distance owing to the greater curve in the earth's figure along the Panama route. My authority, however, is Professor Lawrence of the Royal Naval College, Greenwich, and I find the statement fully borne out by a return furnished by the Marine Department and laid on the table of both Houses last session on the motion of Mr. Duthie. Now, a saving in distance of 3,000 miles means a saving of about nine days' steaming, and that surely implies a great gain for the New Zealand producer. At present the Argentine pastoralist can reach London in less than half the time it takes us, but a gain of nine days must give us a decided advantage as compared with the present state of things. I have not as yet, however, touched on a point of much greater importance to us. Let me ask the reader to glance once more at the map of North America, and to note that, with the single exception of San Francisco, all the great American seaports are situated on the Atlantic coast; that is to say, on the side of the great continent remote from us. A shipment of goods, say from New York to Wellington or Auckland, may be sent in either of two ways—it may be borne the whole distance by sea, in which case it would have to come round Cape Horn, or it may come by "the overland route," in which case it would have to be carried by rail from New York to San Francisco, and shipped thence to New Zealand. When the Canal will have been completed, however, neither route will be used, for the goods will be shipped at New York, and borne to their destination by sea in nine days less time than is now possible. Let the reader recollect that sea-carriage is much cheaper than railage, that the Panama route will lie through regions of comparative calm; let him think of the saving involved in the reduced handling of the goods, and he will realise the far-reaching effect of the Panama Canal on the commerce of this country, even if he takes no account of the increased means of propulsion which are certain to be adopted in a few years. Certainly those people who talk glibly about "shutting out American goods" can never have given a thought to the Panama Canal!



Map of the Present Steamship Routes to Europe and the Future Route via Panama Canal.

One point more: The stretch of ocean between Panama and Auckland or Wellington will constitute the longest run in the world without a coaling station. Hence it seems clear that all steamers coming from and going to Australia, via Panama, must touch either at Auckland or Wellington. This fact alone must be one of great importance to New Zealanders, and many others equally interesting and reassuring will suggest themselves to the reader who considers the points I have touched upon. The Canal will in all probability be completed by 1914—that is to say in eight years hence, and let us hope that many who read this article may yet enjoy the luxury of a journey to the other side of the world by the new route. Increased commerce means increased travelling facilities, and a closer spirit of brotherhood as between nations. We may say with confidence that this wonderful undertaking will contribute in no small degree to abate the dangers of insularity to the people, both of this country and of Australia. I have given but a rough outline of the picture. The careful reader may complete it for himself and he may even realise that the federation of mankind is not after all the idle dream of impracticable visionaries.

At a preliminary meeting held on the 26th June last the *modus vivendi* of the Feilding Road Car Co. was discussed. A condensed report appears elsewhere in this issue.