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BEFORE THE HONORABLE BOARD
OF
GOVERNMENT ENGINEERS

Col. Wm. P. CRAIGHILL, Presiding.

IN THE MATTER OF THE LOCATION OF A DEEP-WATER
HARBOR IN SAN PEDRO OR SANTA MONICA BAYS.

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CHAMBER OF COMMERCE ROOMS, Los Angeles, Cal.,
Thursday, September 8, 1892, 10 A.M.

Mr. C. M. Wells.—This meeting will please come to order. I will say, as a preliminary, that the meeting has been called at the suggestion of this Board of Engineers, and has been called in the rooms of the Chamber of Commerce because the Chamber of Commerce is representing the general good of Southern California. And it is proper to say that, in this matter of selecting the best site for a harbor upon this coast at one of the points named, the Chamber of Commerce is not taking a part; is not throwing its influence in favor of any one position as against another. Los Angeles City and the surrounding country desires a deep water harbor, and we all understand that it is the effort of these eminent engineering officers to determine which is the most suitable point for the construction of such a harbor, and where it can be constructed at the least cost. So that the Chamber of Commerce is simply aiding these engineers in collecting their information; and that is what this meetings is for. Colonel Craighill, the President of the Board, will state to you in detail the kind of information he desires, and how he desires it presented; and the meeting will be entirely under the direction of the Board of Engineers. It is not necessary to say anything further. We all know how anxious we are as a community, and how needful it is, to have a deep sea harbor of this kind, and the great benefits that will accrue to this section of the country from its construction. Gentlemen, this is Colonel Craighill, the President of the Board.

Col. Wm. P. Craighill.—Gentlemen, the President of the Chamber of Commerce has already stated the object of the meeting, so that it is not necessary for me to do so. I will be much obliged to him, however, if he will read for me the law under which the Board is acting.

Mr. Wells.—“The Secretary of War is hereby authorized and directed to appoint a Board of five engineering officers of the United States Army, whose duty it shall be to make a careful and critical examination for a proposed deep-water harbor at San Pedro or Santa Monica bays, and to report as to which is the more eligible location for such harbor in depth, width and capacity to accommodate the largest ocean going vessels, and the commercial and naval necessities of the country, together with an estimate of the cost of the same. Said Board of Engineers shall report the result of its investigations to the Secretary of War on or before the first of November, 1892; and ten thousand

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dollars, or so much thereof as may be necessary, are hereby appropriated for said purpose."

Col. Craighill.—You will observe, gentlemen, from the terms of the law, that there are two points of view from which this matter is to be investigated. One is the commercial point, and the other is the engineering point. Today, we wish first to take up the commercial aspect of the question; that is to say, we will be glad, as the first object of inquiry, to have information which will guide us in coming to a conclusion as to the need of a harbor of refuge anywhere within the limits of San Pedro or Santa Monica bays. That is the first point of inquiry, and the general subject in which we are all interested. And, although you are strangers to me, I have no doubt that Los Angeles is particularly interested, and is largely represented here. After discussing the general subject, there are some points with reference to the matter of engineering about which we desire information from this assembly; and that is, the character of the holding ground throughout these bays, the direction of the wind and currents, and things of that sort which will have an influence upon us in coming to a decision as to this question. We will begin, then, by the discussion of the general subject; and, after that has been sufficiently reviewed, we will take up the separate localities, in order. And I will take the liberty of designating the order in which their respective claims shall be presented. As San Pedro is the oldest place which has claims, we will hear first from San Pedro after the general discussion. Next we will take up Santa Monica; and, third, Redondo; and then any other points that may wish to present their claims. After these have been discussed before the Board, as some persons may wish to reply to others who have spoken, advocating special interests, we will go over these places again in the same order, so that every locality will have an opportunity to be heard twice and of replying to the others. Now, Mr. President, if you will indicate persons in succession, as they are all strangers to me, we will hear someone on the general topic of the need of a harbor in Santa Monica or San Pedro bays.

Mr. Wells.—As I stated before, Colonel, the Chamber has laid out no program, and has not attempted to inform itself of what will be advanced here today. It has simply called on different localities to make their representations. And, therefore, the order of presentation will be entirely in your hands. If there is no objection, then, I will call for the general presentation of the subject by anyone who will volunteer. The floor will be open now to anyone who wishes to talk upon that topic.

Mr. Merick Reynolds.—Is Dr. Widney present? He is a speaker from the San Pedro point.

Mr. J. P. Widney.—I was not aware, gentlemen, until my name was called, that I was to speak for San Pedro in this matter. But then I have the facts at my fingers' ends—

Mr. Wells.—Gentlemen, this is Dr. J. P. Widney, who has given lots of time to the investigation of this question.

Col. Craighill.—You understand, Doctor, we wish a discussion as to the general subject.

Mr. Widney.—I was going to ask what you wished.

Col. Craighill.—The needs of this coast for a harbor at either Santa Monica or San Pedro bays.

Mr. Widney.—Is there a large map here, gentlemen, and then I can show you what we desire?

Mr. Wells.—There is a large map, but it is out of reach.

Mr. Widney.—You can see this. The first point is this: There is a large coastwise commerce between San Francisco and San Diego, a distance of four or five hundred miles, which hugs the coast closely, as the nearest line is along the coast and the prevailing wind is an on-shore wind. The winter storms, the southerly storms, are all shore storms.

The vessels hug the coast line. They have no refuge, between San Diego and San Francisco, from a southerly gale during the winter. This fact endangers commerce greatly. They can run up to Catalina Island, but that compels them to leave their anchorage and go out to sea. This shows the importance of a harbor of refuge for our coast commerce.

There is coming, however, or there is even now, a very heavy commerce from abroad, a deep-sea commerce, in addition to the coast trade. That does not come to us from San Francisco, but from all parts of the world. The vessels come direct to these southern ports. They unload, and load, and go abroad again. During the winter these vessels have no shelter at any one of these points where they can lie at port. In the beginning of a gale they are exposed at San Pedro, as the wind generally commences in the south, and that gives them the swell at that point. As the storm works around it works into the west, and then Santa Monica gets the full force. So that a vessel has no protection at either point during a southerly storm in the winter, San Pedro getting the first of it; and, during the latter part of the gale, by reason of the wind veering around to the west, Santa Monica is exposed. There have been times when vessels at San Pedro have dragged from their anchorage. There have been times when, during the latter part of the storm, the waves have been high enough to compel them to take their railroad trains off the wharf at Santa Monica for fear the wharf would be destroyed. That shows the way storms affect the two points. From the ordinary westerly winds of the summer all of these points of headlands give a certain amount of shelter, as at San Pedro and Santa Monica and Port Harford and at Santa Cruz.

So much for the needs of the present commerce. This would justify the expenditure of a very fair amount of money, possibly amounting to many millions.

There is rapidly coming, however, gentlemen, a change for the better in the commerce of this coast. With the building of the Nicaragua canal the trade of the whole Pacific Coast will be revolutionized. As it is now, sailing vessels going around the Horn find it easier to go out into mid-Pacific and strike the trade winds and reach San Francisco from the Southern ports. That is the reason why San Francisco has remained for so long the metropolis of the coast. Vessels could make that point more easily. With the building of the Nicaragua canal this changes, and the commerce would be transported, as it is now through the canal of Suez, by means of propellers. These propellers, by reason of lighter draft, would hug the coast coming north. At present, if they want to reach us with freight, they go right past our ports; and, if they go to San Francisco, the freight has to be shipped back to us. With good harbor facilities those vessels could discharge here, while they cannot do so now, except during certain seasons of the year.

Another fact. San Francisco lies opposite the highest point of the Sierra. They cross the Sierra, with the Central Pacific, at an elevation of about seven thousand feet. I have forgotten exactly what it is, but it is about that. Unfortunately for them, they lie opposite the highest point of the great backbone of the Sierra, while it drops in altitude going north and south. It is that fact that has forced the new railroads south and north of San Francisco. They go north and strike the easy grades at Puget Sound; and the mountain range, coming south, drops off at San Diego. We cross here at an elevation of about 2560 feet, I think, at the San Luis Pass. These easier grades bring the roads southward. With the building of the Nicaragua canal these railroads afford quick and easy communication from our Southern California ports for the interior traffic. They flank the Sierra on the other side, and the supply ports for the whole of that interior of the country will be and should be, not San Francisco, but some one of these southern ports,

where you have the shorter hauls for vessels coming from Nicaragua, and then shorter railroad lines and lower grades.

Now, it is that commerce of the future rather than the present commerce that we are anxious about; and that is the reason why it seems it would justify the Government in spending, not simply enough to accommodate our present local coast commerce, but the commerce of the future, for the time is coming soon when the Government will need a good port on the coast of Southern California. The supply points of all these lands in the interior will be from some one of these Southern California ports. This lifts the project out of the ranks of mere local improvement into a great public improvement for national purposes. Some point more desirable than San Francisco will become necessary for Nevada and Utah and that great interior plateau to receive their supplies from, connected by shorter lines of railroad and having lower grades than is possible from San Francisco. It is this commerce we are anxious about as well as the present. We could get along for the present without a great deal of bettering of our accommodations, but the commerce of the future cannot be accommodated except with better water facilities than we have now.

There is another thing: When that commerce comes to us it means that the vessels coming from the Nicaragua canal and other distant ports must have places to repair and re-equip. They cannot put freight right down in the surf and run it ashore; but it must be in sheltered water. It means a certain amount of ship building, as well as repairing, and all of these things must be accommodated.

With regard to the country immediately around here and back of us, I suppose you understand. It is a country that in the six southern counties of California will be a population within the next twenty or thirty years, running up to two or three millions. We have the country to support them and make them rich. We have, back of these low passes, the Arizona country and the Nevada country and Salt Lake, and they must all reach the coast at this point.

For these reasons we think money should be put here, not only to make a local harbor but a deep-sea harbor. This will have to be one of the great shipping points of the United States.

I believe, gentlemen, I have said all I desire on the deep-sea harbor question at this point. Anything with regard to the localities comes later on in the discussion.

Col. Craighill.—Yes, sir.

Mr. Wells.—There is opportunity for others upon the same line, or other points which they may wish to present.

Mr. J. de Barth Shorb.—Mr. Chairman.

Mr. Wells.—Mr. Shorb, gentlemen.

Mr. Shorb.—I don't know, Mr. Chairman, that I can add much to the remarks of Dr. Widney, who has preceded me. Of the necessity of a deep-sea harbor, possibly from a practical standpoint and surely from a personal one, I have a deeper interest than even Dr. Widney has. I have for years been the largest producer of wines and brandies in the southern country. It is a freight that necessarily requires low rates of transportation. The freight from the north, as Dr. Widney has remarked, has been largely made up of lumber, with a few other things, such as coal, which possibly may come in in another direction. I will simply say that so far as that one product is concerned, of all which is blended with the great prosperity of this country and which will finally cover all of the dry hills of this country, the wine industry possibly is the most prominent, and needs facilities for cheap transportation to market. I was offered in San Francisco, last August a year, a charter to Havre, France, for four cents a gallon. I presume you want a practical presentation of this thing. I have been paying the railroads from ten to thirteen cents per gallon for transportation across the continent. France last year imported into her country not less than 288,000,000 gallons of

wine, coming principally from Algeria, Spain and Italy. If you multiply 288,000,000 gallons by ten pounds you have the enormous tonnage which that one product amounts to. I think I can venture to say that it is greater in one year than all the tonnage that has been received here at San Pedro or Santa Monica. Commerce certainly is engendered in the wants and necessities of the many.

Dr. Widney has very properly remarked that the day is coming when probably three or four millions of people will have congregated in and around the country tributary to this point. Now, so far as the general question is concerned, we want to be independent of San Francisco. We are entitled to it. The Government should have it. The harbor should be located, it seems to me, at a point where fortifications also could be built. Furthermore, I shall state that Governor Stanford himself said one time in Sacramento that, if the Government would permit him to finish the Southern Pacific railroad system, the Government might take the Central Pacific. They were rather tired of operating that road, because of the Sierra Nevadas. During further conversations with Governor Stanford, and also with Mr. Huntington, they both dwelt upon the necessities of having some harbor here where the freight might come direct from the Occident, be carried over their lower grades here in the south to some point on the Atlantic Ocean, and then shipped by a line of steamers to Europe. They are probably two of the greatest authorities I can quote as to the necessity of a harbor here at Wilmington, or at Santa Monica, as the case may be. I don't think I have anything more to offer, gentlemen.

Mr. Wells.—Are there others to be heard on that topic? If there are no others who wish to occupy the time, I desire to allude to one phase which has not been touched upon. We know the Government has appropriated a large amount of money, or has promised to appropriate a large amount of money, for the improvement of Galveston harbor. We in this community feel that the construction of this harbor on this coast will be the complement and fitting completion of the harbor at Galveston, as it will make the shortest line of rail travel between the Pacific Ocean and the Atlantic Ocean on the Gulf of Mexico within the United States territory that is possible, and over the lowest grades. We feel that with the construction of the harbor here that the money that has been appropriated for the construction of Galveston harbor will be in a greater degree available; that it will be appropriated to a better purpose, and that it will contribute to build up that section of the country, and this section also. I allude to it simply that your minds may fasten upon the importance of connecting the two.

Mr. Widney.—Mr. Chairman, I think there is a misunderstanding, slightly. The invitation was for San Pedro to speak, and I fear the others feel barred out.

Mr. Wells.—I don't think the topic was confined to any people.

Mr. Widney.—I thought possibly they feared the floor was given to San Pedro.

Col. Craighill.—The idea was after the general subject had been discussed that each particular locality would have an opportunity to speak for itself, and I simply indicated San Pedro first because it is the oldest port that we know of in this section of the country, and proposed next to take Santa Monica, which has recently come to the front; and then Redondo, which I understand to be the youngest. We take them in point of age. If the general subject has now been exhausted we would be glad to hear from the San Pedro people.

Mr. Widney.—I don't know, gentlemen, whether I shall speak again for you, or have you somebody else?

Several.—Dr. Widney.

Mr. Widney.—There was no program arranged beforehand, Mr. Chairman, and I had no knowledge I was to speak for the San Pedro people; but it happens I have been in that work from the beginning. I

believe I have prepared personally every document that has gone to Congress in nearly eighteen years, about that harbor, and have known all the engineers; so I have kept myself well posted about the harbor. It is not necessary to give the scientific facts, because those you get elsewhere. You will hardly depend on the newspapers or our statements here for the facts you want.

Col. Craighill.—We are here in the commercial aspect of the question of the necessity.

Mr. Widney.—That is illustrated by an incident that occurred the other day of a gentleman making the statement about the anchorage at San Pedro and the shoaling; and I have the Government charts for thirty years that show no shoaling whatever.

Coming to the commercial point, I shall speak of only one thing, as I think all the information you want on other branches is contained in the circular or the statements which will be filed with you in writing by the San Pedro people. There is one point alone, however, I shall speak upon. In looking to the accommodation of the commerce of the future it is a question of how much water frontage we shall need. It is not simply a question of one mile or a thousand feet, but what will accommodate the commerce of the future. In the reports made by the Board which examined this question about two years ago, they estimated—I cannot give the exact number of feet, because I loaned the copy which I had and it has not come back; otherwise I should have had it with me today. But they estimated about four to five thousand feet in length of breakwater at either San Pedro or Santa Monica, at a cost of about four millions of dollars.

Now, the commerce to be accommodated is not simply a deep-water commerce. It is a shoal-water commerce as well; it is ship building, it is ship repairing; dock-yards; all of these things. Now, those industries must have shelter from the swell of the sea. We are utilizing at San Pedro today, the gentlemen inform me, between four and five thousand feet of water front, and we are using it all. The estimates for the breakwater at Santa Monica were for a breakwater of four to five thousand feet in length. It might be supposed that would shelter four or five thousand feet of water front; but my understanding is, however, that when you take a certain length of breakwater out about three-fourths of a mile to a mile, it will not shelter that amount of water front along the shore, because you have the angling in of storms that will practically make it shelter much less water front. I speak of this as it seems to me, being a layman and not a scientific man of your profession. It seems to me that breakwater would probably not protect from the angling storms of the winter, because they come from both quarters, over half that amount. But, granting the full amount of four to five thousand feet, when the four million dollars have been expended it would make about five thousand feet of breakwater, and we then have sheltered only as much water front as we are using today at San Pedro. How about the extra amount we want?

Another fact. You are building a deep-water breakwater at a cost of millions, to shelter, not big sea-going vessels, but schooners and smaller craft, and all these ship yards. Well, it is a very costly thing to do. Looking at the business at other ports, and the water front they utilize, and what we have, it seems to me any project that has in it less than from five to six or seven miles of water front is not the project for the future.

Now, if that water front is secured at the open roadstead at Santa Monica—and I am not speaking invidiously, but simply giving facts—it means six or seven miles of breakwater, and every mile of that costing about four millions of dollars. Now, it is questionable whether we as a people can expect the Government to put in from twenty-four to thirty millions of dollars for a harbor for us. I doubt if we ever get it. Yet that amount will be necessary to shelter the water front the com-

merce of the future will have to have for its ship yards and shoal-water shelter, and everything of that kind. The peculiarity of San Pedro is this, that we have already developed a large interior harbor, which will have about sixteen feet of water, at the lowest calculation, through the bar, with deeper water inside.

Mr. Shorb.—Doctor, I don't want to interrupt you, but if you will excuse me, probably I can give you the information you desire (handing document to Mr. Widney).

Mr. Widney.—I have that, and loaned it to some of my San Pedro friends, and they failed to return it. Thank you. Now, at San Pedro the peculiarity is this: We have already an interior harbor which has about four miles of water front—I will speak generally, but I think I am correct—at least four miles of water front, that will give at the lower end a depth of about twenty feet at low tide, and at the upper end about six feet at low tide. It has back of this channels running in all directions, that are low washes. The matter in them is so soft that the engineer told me you could take an iron rod and stand it up and it would sink down ten or twelve feet. Those channels ramify in all directions, and a little dredging will clean them out. So that you have there, at no expense to the Government, anywhere from six to ten miles of water frontage that does not come into the calculation for the outer breakwater.

Now, the actual amount of deep water necessary is very small in any port. I expect you could take the San Francisco commerce today and put the deep-water vessels in half a mile. It is the greater number of light draft vessels that make the commerce. At San Pedro, instead of having to build a great many miles to accommodate these, you have simply to build enough deep-water breakwater to accommodate the few deep-sea vessels, while we have already the interior harbor, under the Government appropriation, that takes everything under twenty feet.

Col. Craighill.—Before you finish your remarks, Doctor, give us an idea of the character of the vessels which you use on this coast; whether sailing vessels or schooners; and their tonnage. Their draft, rather than tonnage. Their draft.

Mr. Widney.—All right. We are using—

Col. Craighill.—Not at this particular moment, necessarily, but before you get through.

Mr. Widney.—I can answer now just as well. We are using both. The vessels that come to us from abroad are largely sailing vessels, because of the distance. With the building of the Nicaragua canal they will be steamers. Captain, how much do the lumber vessels draw?

Capt. David Weldt.—The schooners draw twelve, fourteen, eighteen and as high as twenty feet.

Mr. Widney.—Those vessels nearly all run inside now, don't they?

Mr. Weldt.—Yes, sir.

Mr. Widney.—I believe all the vessels come in.

Mr. Weldt.—All the vessels come in; anything less than eighteen and nineteen feet, they all come inside.

Mr. Widney.—And lie right at the wharf. The coast steamers running to sea draw how much, Captain Weldt?

Mr. Weldt.—They draw all the way from eighteen and twenty feet of water.

Mr. Widney.—In my last trip up on the Santa Rosa the officers of the vessel told me—that is the largest and longest vessel—they said: “We could take the vessel right in to the wharves if the channel was a little straighter. It is not quite straight enough through the bar.” They said they could run right in now, the largest vessel that comes to us, if the channel was a little straighter. And that will be straightened out with the next year's work. The Corona, which is the next in size, comes right in. In sailing vessels we have vessels drawing twenty feet of water that come to us. There are, therefore, a small number of vessels that would have to be accommodated by a deep-sea wall. The estimates given me by

the engineers in San Francisco show they would be able to shelter about a mile and an eighth, between Dead Man's Island and the point beyond, of deep-sea water, with the proposed work, at a cost of about four millions. Now that runs out to waters that are forty and fifty feet deep, as you understand by the drafts you have. You would simply have to ask the Government to pay four millions of dollars there to give us about a mile and a quarter there of deep water, which we need. And then we have the harbor already built for the remainder of the commerce of the future, and for our ship building and ship repairing. The great point commercially that is in favor of San Pedro is this: that the Government, at a cost of four millions, will accommodate a commerce and ship building and repairing which would take from twenty to thirty millions at any other point, because we have the shoal harbor already and only have to protect the deep-sea vessels.

Now, there is one point more, gentlemen, if you will excuse me for one moment. It is partly for the Board, and also for our own citizens. If we go ahead and improve the Santa Monica Bay, say a mile in length, it means this: We can accommodate there our deep-sea vessels, but we have to divide our commerce. All the remainder of it has to go to San Pedro for the lack of room. We will have to take our schooners and ship building to San Pedro. That means two seaports, and not one, and a divided commerce and a divided strength. For instance, you can take a large river frontage with miles of deep water, and it will get centered down to one point. It is found more economical to do that. It is cheaper for capital to get to one point and get everything there. It is cheaper for the country. Now, if we have to divide the commerce of the future, as we should then be compelled to do, and put our light draft craft at San Pedro and our deep-sea vessels at Santa Monica, then we are compelled to build two harbors instead of one, and that is not good economy. It may not mean much to the Government in their outlay, but it means millions to us in our outlay. For this reason alone, and without touching upon other matters which will be presented in written form, it seems to me that, looking at it from the Government standpoint, and from ours also, the more economical point to select is San Pedro. The other facts you have on file.

Mr. Wells.—The Colonel wishes to continue the presentation from San Pedro, if there are other facts to be presented.

Mr. Shorb.—Now, Mr. Chairman, I think some of the facts that the people of Wilmington and San Pedro wish to present to your honorable Board is this report of the late Board of Engineers. I think that is their best brief. I propose to be very brief in my remarks, because Dr. Widney has already presented them so well and carefully that there is very little more to be said. Certainly at this point, before charts, before coast surveys, before anything in the way of shipping facilities were afforded, the vessels that were coming here and trading selected that point of all others as the safest point for them to land. The long line of kelp reaching out from that rocky bottom, and the certain amount of protection afforded by the topography of the land around there probably suggested that point for them to land and discharge and take on their cargoes.

I will say this now. Possibly the question comes up of comparison between Santa Monica and San Pedro. I was guilty of writing a letter some few days since, in which I animadverted upon the proposition of the Board of Engineers calling to their assistance the general public. And to your Honorable Board I wish to apologize, because I didn't exactly understand the idea at the time. I thought then that a matter of so great moment to our people should be left to a corps of gentlemen whose life, whose education, whose experience would lead them to proper conclusions, against newspapers, against individuals who had private interests to subserve, against railroads, against even railroad engineers. This is a distinct business, to which you gentlemen have

given a life study; and I desire very publicly to state here it has been my proud privilege to know a great many gentlemen connected with the Engineer Corps of the United States Army over a great many years. I believe you are a body of gentlemen that haven't your peers in the United States of America, and, whatever your decision may be in relation to this point, in behalf of myself, in behalf of the people of Wilmington and San Pedro, we bow absolute submission to your judgment.

There are some matters that I think ought to be given public expression to here. I do not speak with any feeling or any unkindness, but there are some things that look rather peculiar, and that we as citizens have a right to inquire into. During all of these years since John Alexander, Mendell and those gentlemen have been employed in completing the improvements at San Pedro, the advantages there have principally been to the Southern Pacific railroad company. I have had long conversations with Governor Stanford and Mr. Huntington. They were not in confidence, or certainly that confidence would remain inviolate. Both of those gentlemen have time and again said—and I know they have said the same thing to others—spoke of the necessity of a breakwater at Wilmington. That was their only point. Governor Stanford told me himself that he proposed to make it the work of his Senatorial life to secure for that point such appropriations as may be necessary to furnish what was desired. He even went so far, after having acquired wharf privileges at Santa Monica and building and using a wharf, to pull it down. I think it is a privilege and a right for us to inquire now: How is it that those gentlemen think all that has been done down here has been wasted money, and that the only point for the Board of Government Engineers to select is some point down here in the gorge of Santa Monica; which, according to common report—I don't state it as a fact, and I have no doubt these gentlemen will answer that proposition—is to work to their exclusive advantage, if built?

Now, Mr. Chairman, there is a gentleman here who for thirty-two years of his life has been navigating the bay of San Pedro, who was intimately acquainted with it long before the Government spent one dollar in the improvement of that harbor. He is a man that has no interests to advance, who has no land to improve, either at Santa Monica or Wilmington. He is a man who has the confidence of the Board of Engineers and of those who have been immediately in charge of that work, and who has done a great deal of the work himself for them. I refer to Captain A. A. Polhemus, now at San Diego, who knows more about that harbor, about the holdings or about the anchorage, than probably any other man in this community; and I should like to have the privilege, sir, of presenting him to you, and then I shall close my remarks. If Captain Polhemus will come forward, I think, gentlemen, he will give you all the information that is desired.

Mr. Polhemus.—Mr. Chairman, I think Mr. Shorb is a little premature, because the question under discussion now is with reference to the commerce, and I think I will come later on.

Col. Craighill.—No, we are discussing the merits of San Pedro now.

Mr. Polhemus.—I beg your pardon, then. Does anchorage come under discussion?

Col. Craighill.—Yes.

Mr. Polhemus.—I first went into the employ, at San Pedro, of General Banning, the father of the present transportation company, in 1860; and, shortly afterwards, took charge of the lighters and everything pertaining to the water anchorage outside. I remained with him until he transferred his interests to the Los Angeles and San Pedro railroad company, and from them to the Southern Pacific, and then back to General Banning again; remaining with him until 1884, and then I ceased my connection with him.

With relation to the anchorage I will state that San Pedro is known

among shipping men as one of the best holding grounds on the coast. Our lighters there always use small anchors and very heavy chains, as anybody can see by looking there today, for the reason the anchors never drag; and when anything went ashore it was simply because the chains parted. A small anchor always hold, so necessarily the chains always parted. You will find in the rules of ship-owners that our chains are out of all proportions to the weight of the anchor. The Cooper, Adelaide Cooper, the Amelia, and the brig Calor, were all wrecked while I was at San Pedro, every one of them leaving their anchorage in San Pedro and parting their chains. The bottom there is a loose rock; not a ledge, but a loose rock, on which kelp grows. There was a vessel at anchorage there in a gale of wind. The captain found he was dragging his anchor, and was much surprised to find the ship was drifting and the chain not broken. And he called me aboard, and the fluke of the anchor had turned straight back in the line of the shank of it, showing how strong the holding was, to turn the anchor in preference to dragging over the ground. Now, speaking of the inner harbor—

Col. Craighill.—You have been speaking of the outer harbor?

Mr. Polhemus.—I have been speaking of the outer harbor. Now, the inner harbor. There is not near the advantage taken of that harbor that there might have been. Before I left there in the '70's I brought coal vessels over that bar, bringing about thirteen hundred tons of coal, thirteen and fourteen feet draft; and every vessel that could come in with coal came inside. Shortly after that an edict came forth that everything that carried coal remain outside. The bark Valparaiso loaded in that inner harbor with wheat. Since that date all the wheat has been put aboard on the outside. And Colonel Mendell said to me one day: "This harbor is the only place south of San Francisco where the Government has spent one cent, and it is the only harbor south of San Francisco where a wagon can't get alongside of a vessel."—You can't go into that port and charter a vessel and load it with produce without paying tariff to somebody else to put it aboard. They won't allow you to do it yourself. I believe that is all I have to say to you.

Col. Craighill.—Captain, some of the other members of the Board want to ask you some questions.

Lieut.-Col. Haynes.—How much area does that holding ground bottom extend over?

Mr. Polhemus.—It extends in a direct line nearly due south from Dead Man's Island. After you pass below that land you have then the same formation you have over at Santa Monica—sandy bottom, where an anchor won't hold near as well. When you get outside the kelp line the bottom changes from mud and stone to sand. There the anchors do not hold as well. But wherever you have muddy bottom and little patches of kelp growing around, there the holding ground is better.

Mr. Wells.—Perhaps you could indicate it on the map, so they could see that more clearly.

Mr. Haynes.—There is the line of proposed breakwater (indicating on a plat).

Mr. Polhemus.—In a due south line from Dead Man's Island (illustrating on the plat). Off this way the kelp grows in patches; all through there. When you pass down over here you strike sand.

Mr. Haynes.—That is, all to the westward of that line.

Mr. Polhemus.—Yes, sir—all to the westward of that line. To the westward of the line it is good, and to the eastward it is sand.

Lieut.-Col. Robert.—That part is sand, and this is your rock, in here (indicating).

Mr. Polhemus.—Yes, sir. And I would state if that is called in question I can bring oaths from—well, all the captains on the coast that has been there.

Mr. Robert.—Have you ever known of any case of a vessel dragging its anchor in a storm, in all your thirty-eight years' experience?

Mr. Polhemus.—Not to my knowledge, unless by lying there the anchor had been fouled and caught around the fluke, and dragged that way, stern first. Where care has been taken to keep the anchor clear, I have never known an instance of it. There may have been, but not to my knowledge.

Mr. Haynes.—Another point, Captain, before you leave, and that is, from which direction do you get the greatest swells? After what storms?

Mr. Polhemus.—With southeast winds; this point, between the lower end of Catalina Island and Point San Juan. The winds begin there and blow with very heavy violence; and when the storm shifts—it never stays long down on the lower coast—to the southwest, it swings around west and west-northwest; and when it gets around it is a sure sign the storm is broke with us. A bark lay there once drawing fifteen feet of water, and she unshipped her rudder and stove her keel off in twenty-seven feet. She was dropping twelve feet in the roll of the water. But still she held on. She never dragged. She belonged to a millionaire owner in San Francisco, and he will verify that statement, if you desire. Twelve feet under her keel in shoal water, and she never slipped.

Mr. Haynes.—I would like to ask you a question, based upon your observation as to the fact.

Mr. Polhemus.—Certainly.

Mr. Haynes.—Whether Catalina Island affords any real protection to the harbor of San Pedro.

Mr. Polhemus.—Oh, it does.

Mr. Haynes.—From what; the winds, or the—

Mr. Polhemus.—From the winds. Not the wind, but the swell; that is, the sea swell. If you will go along the inside shore of Catalina Island you can land anywhere with a boat. On the ocean side you can't touch it, except with a harbor; a heavy sea swell breaking against it all the time.

Major Handbury.—Does not that section of calm play out, as it were, before it gets to the shore?

Mr. Polhemus.—I don't know as I understand you.

Mr. Handbury.—There is a calm section. When the wind is blowing in this direction you have it rough on the other side and a calm on this side. Now, will that area of protected—

Mr. Polhemus.—Yes, sir. I understand you now.

Mr. Handbury.—How much of this shore, then, is protected by the calm?

Mr. Polhemus.—Well, it modifies, as I say, the swell all around. The swell comes around Catalina and meets and blows in here, but it is modified wonderfully from what it would be. Go down to Newport and around that beach where it is not protected. You will find the westerly swell a great deal heavier. And also up to Santa Monica, and around there. Where it is not protected it is a great deal heavier. But in the summer winds it is to a certain extent sheltered. There is no westerly wind that comes in there that a vessel can't stand.

Mr. Haynes.—Are those southeasters usually accompanied by rain, or how is that?

Mr. Polhemus.—Sometimes we have what is called a dry southeaster, but they are not numerous. They are few.

Major Raymond.—Captain, on the map there are two lines which indicate the location of the proposed breakwater at Point Fermin. Suppose that western end was closed, that is indicated on the map—

Col. Craighill.—That, you understand, is the breakwater proposed by the previous Board.

Mr. Raymond.—Suppose that was closed, could the harbor be sufficiently accessible for vessels, with the direction of the wind in which

they want to make the harbor? Could they get in the harbor around that side?

Mr. Polhemus.—Yes, sir, they could.

Mr. Raymond.—It would be almost due west.

Mr. Polhemus.—They could haul up here (indicating), and make that entrance at any time.

Mr. Raymond.—In your opinion an entrance on the west side is not absolutely necessary?

Mr. Polhemus.—It is not absolutely necessary. No, sir, it is not.

Mr. Handbury.—Suppose you were in there and wanted to get out during one of these southeasterly winds. Could you do so if that opening wasn't there?

Mr. Polhemus.—If you are in there and there is a southeaster you never want to get out. Unless you are going south, with one of these southeasters you never have any desire. If there are two sides to that breakwater you would prefer the inner side all through.

Mr. Handbury.—Couldn't you put out in the lee of Catalina Island? And if the wind whipped around there you would want to get back.

Mr. Polhemus.—Yes, sir. Well, if it got worse you would hold ground, or go out. But if there was a breakwater there you would want to stay inside.

Mr. Handbury.—I was thinking more particularly about when there was a slight wind, and you wanted to go to sea; whether it wouldn't be better to have the opening to go out through that way rather than beat around down against the wind.

Mr. Polhemus.—Well, most all vessels going out there of any size, like they do in San Francisco and New York harbor, always employ a tug to get them started. They look more upon making a harbor safe and then using a tug to get in and out. It is very seldom they depend wholly on the sails to get in or go out, in all harbors, nowadays.

Mr. Haynes.—They either have their own steam, or else are towed out.

Mr. Polhemus.—Yes, sir. Anything further, gentlemen?

Mr. Haynes.—I think not.

Mr. Shorb.—I would like to have Captain Hawthorne come forward.

Mr. Hawthorne.—I am a ship master in San Pedro five years; running there a deep-water ship; and I found the holding good with a seventeen hundred ton ship. It laid there and rode out a heavy southeaster without a pound of ballast in the ship. The holding ground is good, and the facilities there are good for a deep-water harbor.

Mr. Haynes.—Where did you lay, Captain? Up here in this part that is described by Captain Polhemus?

Mr. Hawthorne.—Here is Dead Man's Island right here, sir. In seven fathom of water (indicating). That is all I have to say.

Mr. Shorb.—Captain Hamilton, gentlemen, on behalf of San Pedro.

Captain Hamilton.—Do you wish me to talk on the holding ground, or—

Col. Craighill.—Well, that is what we are talking about now, Captain.

Mr. Hamilton.—I have been running along the coast for twelve years, and nine years of that time I have been running to San Pedro, steady. I have been on a steamer for the last five years for Kerckhoff & Cuzner, here in Los Angeles. Previous to that I had a sailing schooner, a large three masted schooner called the Challenge, and I used to run here all the time. I have been anchored outside and run through some pretty heavy gales of wind, and I never had but one anchor down in all the time I have been at San Pedro bay. I have never thought I wanted but one anchor. I never saw an English ship drag here. I have seen an American ship drag once or twice, but I think the anchor was fouled, the teeth filled.

Mr. Haynes.—Were the storms severe?

Mr. Hamilton.—The storms have been severe; lots of times when I

would sooner be ashore than out there, and the vessels I have been on have never dragged, and I never had but one anchor down. I am satisfied it is good holding ground, if you don't get down here where it is sand and the anchor won't hold.

Col. Craighill.—You say “down here.” How far down is that?

Mr. Hamilton.—Well, say a couple of miles down from Point Fermin. Anywhere to the eastward of that I don't consider the holding ground as good.

Col. Craighill.—Within two miles of Point Fermin?

Mr. Hamilton.—Well, two miles to two miles and a half.

Col. Craighill.—And out to what depth?

Mr. Hamilton.—You don't want to get outside of eight or nine fathom. I consider the holding ground better inside of that than outside.

Mr. Robert.—Have you ever anchored in Santa Monica?

Mr. Hamilton.—Never, never anchored in Santa Monica.

Col. Craighill.—If there is any other point you would like to present, Captain, we would like to hear it.

Mr. Hamilton.—There is no place I know of around here, taking the places as they are left by nature, without the help of the Government at all, where I would sooner anchor and trust my vessel in than I would in San Pedro. That is, between the points named; between Point Loma and San Juan. I consider I am safer in San Pedro today, with it just as it stands today, than any other point, under the same circumstances.

Col. Craighill.—Have you gentlemen any questions you would like to ask?

Someone.—What is the safety under a west wind at San Pedro?

Mr. Hamilton.—Well, it is good with a west wind at San Pedro. The southeast wind is the only wind that we ever undertake to get away from.

Someone.—Well, that is the prevailing wind.

Mr. Hamilton.—The southeast wind is our heavy gales. Our westerly winds are the prevailing winds. San Pedro is safe under all circumstances with a westerly wind. A man has good ground.

Col. Craighill.—How many of those gales occur in a year, Captain, and at what seasons?

Mr. Hamilton.—Some years we don't have a heavy southeaster down here at all, and some years we have two or three of them.

Col. Craighill.—In what season?

Mr. Hamilton.—In the winter season; from the month of November on to April, to March.

Mr. Craighill.—How many days do they last?

Mr. Hamilton.—Well, about two or three days, down here. They last longer as you go north.

Col. Craighill.—We are talking about San Pedro. About three days.

Mr. Hamilton.—Well, not as long as that, sir. Generally the weight of it is blown over in twenty-four hours. It comes around the south, and due southwest and west.

Col. Craighill.—When it gets around to the west, you don't care.

Mr. Hamilton.—We don't care. It is uncomfortable to lay there, because the sea hasn't gone down. It is southerly and southeast sea. But then it is over.

Mr. Robert.—The direction of the worst swell right here would be what?

Mr. Hamilton.—This is north?

Mr. Robert.—Yes, sir.

Mr. Hamilton.—Southeast. The worst sea comes in around the south end of Catalina Island.

Mr. Robert.—Well, take that direction there. How would a break-water here protect you, if that is the worst swell coming that way?

Mr. Hamilton.—Well, get in here.

Mr. Robert.—You would have to get in very close.

Mr. Hamilton.—Well, if you know there is something to the windward of you, you ain't as scared to get in there. If there is nothing in front of you, you want to get out here, where you can get out if you think anything is going to take place.

Mr. Robert.—Are there any swells coming in here that amount to anything? Take that gap there. Does not that cause trouble?

Mr. Hamilton.—No.

Mr. Robert.—Would you rather have that opening there?

Mr. Hamilton.—No.

Mr. Robert.—Have you ever known of a single case of a vessel dragging her anchors when they were not fouled?

Mr. Hamilton.—Never.

Mr. Robert.—Never heard of such a case?

Mr. Hamilton.—No, not here in San Pedro.

Mr. Shorb.—Have you ever heard of one at Santa Monica, Captain?

Mr. Hamilton.—My experience of Santa Monica is all hearsay.

Col. Craighill.—We don't want any hearsay.

Mr. Hamilton.—It is no use in talking from hearsay.

Col. Craighill.—Confine yourself to San Pedro, please.

Mr. Hamilton.—The gentleman asked me.

Col. Craighill.—No questions about Santa Monica.

Mr. Reynolds.—I would like to ask a question.

Col. Craighill.—Is it regarding San Pedro?

Mr. Reynolds.—Yes, sir.

Col. Craighill.—Very well.

Mr. Reynolds.—And that is regarding the submerged reef which runs southerly from Point Fermin.—Is it not a natural protection to the present harbor?

Mr. Hamilton.—Partly, yes, sir; as far as it goes.

Mr. Reynolds.—What is its distance? How long is it?

Mr. Hamilton.—About half a mile off from the Point.

Mr. Reynolds.—From kelp line or shore line?

Mr. Hamilton.—No, the shore is very close to the kelp line. Half a mile from the shore line.

Mr. Reynolds.—How much water is there over it?

Mr. Hamilton.—About six or eight feet at the time I was there. I was out aboard the ship that was wrecked there two or three times while she lay there.

Mr. Raymond.—Kindly indicate that on the map for my benefit, Captain.

Mr. Hamilton.—Right about here. The ship run on there in broad daylight.

Col. Craighill.—Any further questions, gentlemen?

Mr. McVickery.—Well, gentlemen, I have been at San Pedro for about thirteen years. Seven years I have been master, which Captain Polhemus knows; and since I have been master, and when I was mate, when I was master, when I got there I always anchored, no matter how the weather was. As far as the anchorage is concerned, we never dragged and never used but one anchor off of San Pedro; never was any occasion to use any more. That is about all I can say about it. It is good holding ground, and a good harbor.

Col. Craighill.—That is an opinion founded upon your own observation?

Mr. McVickery.—That is from experience, sir; thirteen years running to San Pedro; pretty near steady, excepting a few trips.

Col. Craighill.—Any questions you would like to ask?

Mr. Robert.—You have no experience of the other places, so as to compare them?

Mr. McVickery.—I was never there, sir, since I have been running. I had no occasion to go there.

Mr. Robert.—No, sir.

Col. Craighill.—We have no further questions to ask.

• Mr. Reynolds.—Captain Rasmus.

Mr. Rasmus.—I have been running to San Pedro for the last five years, and always found San Pedro harbor a good holding ground, and a good place for anchors. And in the year '87 I was a witness of the ship America, and also the ——— there was one chain carried away, and the Kennedy had his anchors fouled. It was not on account of the holding ground at all. The ship America was holding the chain from below, and when they thought it was all safe the chain slipped, and that is the way the vessel went ashore. I also witnessed the bark San Luis when he went ashore. He slipped his chain and was trying to make it sailing out, but he couldn't, and went on the beach. When a vessel parts her chain there must be good holding ground. When the holding ground is poor the vessel never parts her chain. I think it would be a very good place for a deep-water harbor or any other harbor. That is all I can say.

Mr. Shorb.—Captain Paul.

Mr. Paul.—I have been master on this coast for about twenty years, all the time on coast vessels; and I have run to San Pedro for a number of years. I always found it a nice place to go to. I have come here sometimes when a heavy wind was blowing, when you couldn't dream of going into any other place on the coast, and when you got in San Pedro the vessel rested quite comfortably. And then we have lots of strange vessels that come to San Pedro, in going from San Francisco, that get dismasted, or something like that. We had a Chilean vessel last year that come down to repair, and come in there at night. It is a place you can always make in the night time. We had a vessel got dismasted at Redondo Beach and had to come to San Pedro. So I don't think there is any place better to come to than San Pedro. I have been twenty years experienced in it.

Mr. Shorb.—For the present we have nothing more to offer.

Col. Craighill.—Gentlemen, the San Pedro subject is exhausted for the present; although, as I said before, there will be an opportunity for the San Pedro people to say something more after having heard the others. We will now be very glad for Santa Monica to make its case.

Mr. R. B. Carpenter.—Mr. President, and gentlemen of the Board: I have here the report of the Board of Trustees of Santa Monica that I will read, or hand to the Board without reading, as they desire.

Mr. Haynes.—We will leave it to you, Judge, to decide.

Mr. Carpenter.—Well, it is not lengthy, and perhaps it will be better to read it:

“The Committee of the Whole of the Board of Trustees of the Town of Santa Monica, and citizens, present the following facts in relation to this locality as the most feasible point for the proposed deep-sea harbor, and invite your careful consideration of the same.

FRONTAGE OF A DEEP-SEA HARBOR IF CONSTRUCTED AT SANTA MONICA.

“At Santa Monica there are no sloughs or swamps to interfere with or render expensive the use of the frontage protected by a breakwater. All the frontage protected would be available for wharves without piling or other expenses for the approaches.

“The business that would be conducted at present in a harbor such as proposed would be extensive. The presumption is reasonable that such business would grow, not only with the growth of the adjacent country, but also by reason of the facility of approach from the interior through the low grades of the passes, the absence of snow and the favorable climate.

“A harbor constructed to accommodate the present business of Los

Angeles could at Santa Monica be indefinitely extended. When we consider the large wharf frontage required for the transaction of business in good and conveniently located harbors, say as at San Francisco, ten or fifteen miles of such frontage may reasonably be expected to be eventually necessary. Santa Monica Bay offers this frontage for the eventual extension of the deep-sea harbor, should the business warrant it. In building a harbor at this point, the Government would be guaranteed in having room enough to enlarge it to meet the requirements of any future trade. The irrigation of Arizona lands and consequently increased products from that section, together with the rapid growth of the whole southwest, would, under good facilities, support a large coast commerce.

"The extension of American commerce on the Pacific, and the completion of the Nicaragua Canal would likewise give large business to a harbor at this point.

"It may be noted that the nearest available harbor to Los Angeles is at present at San Diego, one hundred and twenty miles distant, and that the intervening grades are heavy and expensive to work. To the north the nearest harbor is San Francisco, four hundred and eighty miles distant, with heavy grades to surmount. In the eastern states, on the Atlantic coast, no such vast extent of seaboard is without numerous harbors.

"Los Angeles being situated at the only natural break in the mountain chains separating California from the interior, is eminently deserving of being aided by the Government in the construction of a deep-sea harbor. In serving Los Angeles the whole southwest, and in fact the whole eastern states are likewise accommodated with the best outlet for Pacific commerce.

ADVANTAGES OF SANTA MONICA AS REGARDS DISTANCE.

"Every mile of distance and every hour of time saved in transportation is so much gained, and other things being equal, should decide the location of a harbor at the point most favorably situated.

"Our large and heavy business, lumber, coal and merchandise, is now with San Francisco and other points north. Santa Monica is nearer these points than any other in this county. It is also the nearest to Los Angeles City.

"In this connection it may be observed that natural causes force the future growth of Los Angeles westward. Every increment to the population of this railroad center brings it nearer to Santa Monica. Eventually it may be surmised that Los Angeles itself will extend to the sea at Santa Monica. No such result can be anticipated elsewhere.

"The distance between Santa Monica and the following stations in Los Angeles are as follows:

1. By the Southern Pacific Railway:
 - University, at the west end of Los Angeles, 12.74 miles;
 - Jefferson street station, 13.74 miles;
 - Arcade depot, 17.4 miles;
 - Commercial street station, 18.2 miles;
 - San Fernando street, 19.3 miles.
2. By the Southern California Railway Co. (Santa Fé system):
 - First street station, 20.7 miles;
 - Central avenue station, 15 miles.

APPROACHES BY LAND.

"No difficulties either in the construction or operation of railroads between the two places exist.

"The Southern Pacific has a right of way for twenty-five feet each side from the center of its track along the beach to its wharf, and other lines of railway secure similar rights of way, also through the town,

and Santa Monica cañon, and there is already a wagon road along the beach to and beyond the wharf of the Southern Pacific Co.

“The wharf of the Southern Pacific Co., of which 750 feet is now constructed, will be when completed over 6000 feet in length, accessible to vessels from all parts of the world.

“The Santa Fé Co. have also a line constructed and in operation to this point. They contemplate constructing a wharf at an early day.

“There is also another line between Los Angeles and Santa Monica known as the Los Angeles & Pacific Railway, which is not now in operation.

“Santa Monica has a safe and open approach from the sea. No shoals, rocks, or dangers of any kind exist. Insurance in the cost of pilotage at this point would therefore be at a minimum. The holding ground for anchorage is uniformly good, both inside and outside of any breakwater that might be constructed. The ocean at this point shoals gradually and uniformly.

“The trade winds blow regularly from the west about 350 days in the year. This wind forms for Santa Monica what is known in the West Indies as a lazy man’s wind, that is, a wind which permits sailing vessels to approach or depart, north or south, without tacking. This favorable condition would place the cost of towage at this point at a minimum.

“The report made in 1876 by Patteson of the Coast Survey says: ‘The use of the lead insures entire safety, for the shoaling is gradual, and a vessel can approach the shore anywhere in this vicinity to within four and a half fathoms without danger.’

“The large commerce transacted at Santa Monica wharf in 1875, ’76, ’77, ’78, was not attended by wrecks or disasters such as have unfortunately and frequently occurred at every other wharf and landing in this county.

MATERIAL FOR BREAKWATER.

“At Santa Monica a range of mountains comes down to and juts out into the sea. These mountains from the beach to their summits are composed of various kinds of rock. They consist mainly of the following:

“Granite can be found at Cold Water Cañon back of the Soldiers Home, at Sepulveda Hills, at Tunie Cañon and also Declezville. All of these points are easily accessible.

“The ocean bottom is as nearly perfect as it could be for the construction of a breakwater at Santa Monica. The official maps of the coast survey indicate the conditions in detail.

“The slope of the shore is very gradual. There are no quicksands to swallow up material and there is no stream such as the Los Angeles, San Gabriel or Santa Ana rivers to bring in debris to choke up a harbor when completed.

“The soundings show that the ten-fathom line of depth runs at a uniform distance from the shore of about one mile and a half for some ten miles from the old Santa Monica Cañon, south.

“The peculiar situation of Santa Monica and the prevailing westerly trade winds and swell would, by a breakwater constructed here, provide considerable protection to the entire stretch of Santa Monica Bay to the south. Consequently a breakwater constructed here would protect more coast than if constructed at any other point on Santa Monica Bay.

“The Government holds at present two reservations at Santa Monica, one at the coast on the west side of the town of Santa Monica, of about ten acres. There is also a reservation of five hundred acres back of the town of Santa Monica, part of which is now occupied by a National Soldiers’ Home. These Government lands could be utilized by the Government in any defensive or other operations in connection with a deep-sea harbor.

“Water in abundance and of good quality is, in our days of steam,

an essential for extensive shipping interests. The Santa Monica mountains furnish and contain large supplies of fine water. Rustic, Temescal and Santa Ynez cañons all contain fine perennial streams, and the Malibu cañon, a very large stream.

"We believe that no place upon the line of coast designated for your inquiries contains a supply of water equal to that available at Santa Monica. Respectfully submitted,

THE COMMITTEE.

"By J. J. CARILLO, Chairman."

Mr. Raymond.—Who submits that?

Mr. Carpenter.—It is the Trustees of the City of Santa Monica. Mr. President, and gentlemen of the Board, we now introduce Captain Stoddard.

Mr. Stoddard.—Gentlemen, I can only speak from the standpoint of a mariner. I have had some seven years' experience on the coast here; some experience at Santa Monica and at San Pedro, and different places. And with regard to Santa Monica, we have fine holding ground; good holding ground. We have good approaches, clear of all hidden dangers; accessible at any time. It is not necessary to speak of any thing but Santa Monica.

Col. Craighill.—Nothing but Santa Monica.

Mr. Stoddard.—I have discharged freight at the old wharf at Santa Monica in very bad weather. On one occasion I was discharging freight the whole night in a southeaster, and it was a pretty severe one, too. And in the morning I went around to San Pedro, but was not able to discharge freight there. I carried the freight to San Diego, and left it on the return trip. It was not practicable and probably not possible to discharge it at San Pedro. In Santa Monica, even in the heaviest gales, I never knew of a heavy ocean swell with a breaker on top to come in there. There is sometimes a heavy roll, a heavy roll swell; but the sea, the ocean swell, is broken up by the outlying islands, and then again it is interrupted by the slight current of the Santa Barbara channel. It is a very sensitive thing. And by the time it gets in to the beach it is the remnants of the old roll; sometimes very large, but it is very seldom. I have never seen a dangerous sea there at all. And I know of one night a bark at anchor there had got under way, with close reefed tops. It was in the night; and worked out. And the only reason she was obliged to get under way was because she hadn't room to veer her cable, for the wharf. The wharf was too near, and she hadn't room to veer her cable, or she would have laid there; remained there. I am satisfied that the slight current that is almost constantly running down the Santa Barbara channel has a perceptible effect upon the sea. We had a little experience of that on the coast of North Carolina during the war, when the blockading fleet lay anchored off Port Fisher for the year round. We certainly couldn't have done it east of the Gulf, and I attribute our success to the effects of the Gulf Stream. And all our sailing instructions to sailing vessels or masters were to keep outside of that bight between Cape Lookout and Cape Fear. And I lay there in a sloop of war part of two winters, and never got under way but once, and that was by signal of the Admiral; but never was obliged to get under way for bad weather. And a similar state of affairs are at Santa Monica. I think a vessel—I know a vessel can go there and hold on in any weather, the year round. Moor a vessel there, with her anchor down, and she rides there, because the holding ground is very good. If you get further to the southward it is not so good as it is a little east of the town.

Mr. Handbury.—Did you ever have occasion to ride out a storm in that locality?

Mr. Stoddard.—Yes, sir, I did; along side of the dock, and discharged freight all night.

Mr. Handbury.—I mean anchored off outside of the dock.

Mr. Stoddard.—No, sir.

Mr. Handbury.—What was the size of the vessel you was in the habit of commanding?

Mr. Stoddard.—It was about a thousand ton.

Mr. Handbury.—Did you ever anchor out from the dock at all?

Mr. Stoddard.—No, we never had occasion to anchor there.

Mr. Handbury.—Then your experience is confined entirely to about the dock?

Mr. Stoddard.—Yes, sir.

Mr. Handbury.—From practical experience do you know anything about the holding ground there?

Mr. Stoddard.—Well, yes, I have—I often, in going alongside of the dock I run the ship ahead past the end of the dock for her length, and let go our anchor to ease the lines you make fast to the dock with, and then veer the cable to the proper position to the dock and make the ship fast.

Mr. Handbury.—That would be just a small anchor, kedge anchor, or something of that kind.

Mr. Stoddard.—No, sir, one of our bow anchors.

Mr. Haynes.—That was in good weather.

Mr. Stoddard.—Well, if there was any breeze or any swell—sometimes a swell rolls in there, and the undertow bothers me more than the swell. The wharf was not long enough to get beyond the undertow. The undertow made a great surge alongside of the dock.

Mr. Handbury.—What was the character of the material that would come up on your anchor when you anchored out there?

Mr. Stoddard.—Sand and mud.

Mr. Handbury.—Do you know of any vessel that has been anchored off of that beach in time of storm, and rode it out?

Mr. Stoddard.—I do not, sir.

Mr. Haynes.—Speaking about the current, Captain, that runs along the shore, can you indicate the direction of it along there? Here is the line, and here is Santa Monica.

Mr. Stoddard.—In speaking of the current outside of?

Mr. Haynes.—You referred to a current out there.

Mr. Stoddard.—The Santa Barbara Channel?

Mr. Haynes.—There is no current along here?

Mr. Stoddard.—Well, there is. We have slight——

Mr. Haynes.—That is not the current you referred to?

Mr. Stoddard.—No, sir.

Mr. Raymond.—Does that current all run in the same direction?

Mr. Stoddard.—It may be and is deflected sometimes, and affected by the southeast gales, temporarily.

Mr. Raymond.—Well, it runs in about the same direction.

Mr. Stoddard.—Yes, sir, it runs right down past Santa Barbara. Everybody calls it the Santa Barbara current. It runs there about nine months in the year. It is a little affected by other winds.

Mr. Haynes.—Do you find any currents along close in the shore, Captain?

Mr. Stoddard.—There are little currents here along the shore I have no experience with, only I knew the old dock, the water shoals perceptibly underneath the dock after a while.

Mr. Robert.—That was the current that was going to the west.

Mr. Stoddard.—Yes, sir.

Mr. Robert.—The one you refer to is a warmer current?

Mr. Stoddard.—It comes down Santa Barbara channel.

Mr. Robert.—That is warmer than the others, isn't it?

Mr. Stoddard.—The temperature? I don't know.

Mr. Carpenter.—He asked you if that isn't a warmer current.

Mr. Stoddard.—I am not positive about the temperature, whether it is higher or lower. But I know that the heavy ocean swell—although there is sometimes a little swell comes in here, I have never seen an

ocean swell come in here. It is broken up with the outlying islands and the current, and this has an influence on the fragments, and you have only this space here (indicating), and it don't come with violence.

Mr. Handbury.—Captain, there is one more question. The vessels that you have been sailing over those waters, are they sailing vessels or steamers?

Mr. Stoddard.—Steamers.

Mr. Handbury.—What is the tonnage?

Mr. Stoddard.—About a thousand ton.

Mr. Handbury.—How much water do they draw when loaded?

Mr. Stoddard.—We use from twelve to fourteen feet.

Mr. Handbury.—You have never had any experience in those waters, then, with sailing vessels?

Mr. Stoddard.—Not with sailing vessels.

Someone.—Captain, what vessel was it you were running at Santa Monica; what kind of a vessel?

Mr. Stoddard.—A sidewheel vessel.

Someone.—A steam schooner?

Mr. Stoddard.—No, sir, a sidewheel steamer.

Someone else.—Would you like to go in with a sailing vessel under some circumstances?

Mr. Stoddard.—I wouldn't have any hesitation in doing it with ten fathoms of water, because I can get out whenever I please. I have a long board either way.

Someone else.—How about San Pedro, in going into San Pedro?

Mr. Stoddard.—Well, you could enter the harbor and proceed to your anchorage.

Someone else.—In that storm where you put out and couldn't land there—

Mr. Stoddard.—I went there and anchored my vessel; but it was too heavy to allow the lighters to remain alongside.

Someone else.—If there had been a wharf there, would you go alongside the wharf?

Mr. Stoddard.—Not by any means, sir.

Someone.—Did you make a statement that you got under way?

Mr. Stoddard.—What do you say?

Someone.—Didn't you make a statement that you got under way there one night, under close-reefed topsails?

Mr. Stoddard.—No, sir. I made the statement that I saw a bark get under way.

Someone.—And she didn't have room enough to pay out chain?

Mr. Stoddard.—No, sir, for the wharf. She was anchored just off the buoy and—

Someone.—She didn't have room enough to pay out her cable, but still got under way in the dark?

Mr. Stoddard.—Yes, sir, got under way in the dark.

Someone.—Could you see that she was close-reefed?

Someone else.—Did you ever see a ship get under way under close-reefed topsails on a lee-shore?

Mr. Stoddard.—This was not a lee-shore.

Someone.—Well, it was all right, then. The wind was off the land, and you could go anyway.

Mr. Stoddard.—It wasn't off the land, but it wasn't a lee-shore. And he had plenty of time after he got his ship—

Someone.—Aren't you master of the Centaur at this time?

Mr. Stoddard.—Yes, sir. He had plenty of time after he got his vessel on his course, or up to the wind, to turn out his reefs and make sail.

Someone.—How was the wind at the time?

Mr. Stoddard.—The wind blowing—

Someone.—I want to know how the wind was. I know how the land lays.

Mr. Stoddard.—I can't tell you by the compass how it was blowing, but it was from the direction where the southeast wind comes in.

Someone.—I know all about the lay of the land.

Mr. Stoddard.—It was one of those southeast gales; had the direction they come in.

Mr. Haynes.—The captain has the floor.

Someone.—Yes, but I would like him to speak the truth.

Mr. Stoddard.—Yes, that is right.

Col. Craighill.—You will have an opportunity later.

Mr. Stoddard.—As far as I am concerned, I will challenge anybody to investigate it and demonstrate what I say.

Mr. T. E. Gibbon.—Captain, may I ask you one question, please?

Mr. Stoddard.—Any question.

Mr. Gibbon.—Did you ever know a ship to come into Santa Monica during your experience at that port?

Mr. Stoddard.—A full rigged ship, I don't. I recollect a bark.

Mr. Gibbon.—Did you know anything about a ship called the Frank Austin attempting to make harbor there?

Mr. Stoddard.—No, I don't know the Frank Austin. I don't recollect it. If any more of these people want to come for me, I am ready for them.

Col. Craighill.—Have you gentlemen any further questions?

Mr. Carpenter.—I would like to ask you, Captain, before you close, to state to the Board the direction that a ship coming from Nicaragua or from other parts of the world would come, with reference to this part of the country. Do you understand?

Mr. Stoddard.—Yes, sir.

Mr. Carpenter.—I wish you would explain that fully to them.

Mr. Stoddard.—I suppose that any man coming from a foreign port here would make this coast here in the broad open passage, leaving Ana Capa and Santa Cruz Islands and San Miguel Islands and Santa Rosa on the left, on the port hand, and San Nicholas. It lays right in a fair way. You can make that fair way buoy, and go either side of it.

Mr. Carpenter.—Come here and point out to the Board on the map.

Mr. Stoddard.—Here would be the fair way passage, right here (indicating); either one side or the other, as circumstances might require, of San Nicholas Island, leaving these two, Clemente and Catalina, on his right, and these other islands on the left, and there would be a fair way in, with no interruption except little Santa Barbara. We can come here—

Mr. Carpenter.—Come here. Where would the ship first reach this part of the country, this coast?

Mr. Stoddard.—He would reach it right here, where his destination was.

Mr. Carpenter.—Well, "right here." What is "here?"

Mr. Stoddard.—That is San Clemente Island, and that is right in the broad, in the fair way passage.

Mr. Carpenter.—Well, what place does he get to there?

Mr. Stoddard.—He gets to Santa Monica.

Mr. Carpenter.—Ah! In coming from San Francisco, how would he come?

Mr. Stoddard.—He would come the same way. He certainly wouldn't go in between the mainland and Santa Cruz. And he might go down there coastward of the land. He might go in there. But, ordinarily, coming down the coast here from so far north, he would keep outside and go around here, Santa Rosa.

Mr. Carpenter.—Suppose he wants to land at San Pedro, would he have to pass Santa Monica to go there?

Mr. Stoddard.—Yes, sir, he would have to pass it, sir.

Mr. Carpenter.—Well, now, if he comes from Nicaragua or elsewhere across the ocean?

Mr. Stoddard.—He would come right in here. He wouldn't have—the distance would be probably about the same.

Mr. Carpenter.—Well, "right in here." The stenographer won't know where it is. Will you say what place, or near what place?

Mr. Stoddard.—The approaches are at San Nicholas Island and at Santa Barbara Island; and if he is bound to San Pedro he would keep down the channel between Point Fermin and Catalina, and haul up to port there. But the distance wouldn't be very widely different.

Mr. Wells. Santa Monica still has the floor. I believe the Captain has got through.

Mr. Stoddard.—One moment, if you please. I have been interrogated on my side of the house, and I want to ask a question with regard to San Pedro.

Mr. Craighill.—One minute, Captain. When the San Pedro people come on the floor again you will have an opportunity.

Mr. Carpenter.—Where do we come in to interrogate the witnesses of San Pedro or anybody else? We understand we are not to say anything about San Pedro. They have closed and now we are at it; and when do we come in again?

Col. Craighill.—At the next innings. I will explain what my object is in having the successive arrangement. Next time San Pedro comes to the front I want the Santa Monica people to ask them as many questions as they desire, or for anybody else to do so. And when Santa Monica comes up again they can ask them questions. What we want now is to have the advantages of each place brought forth prominently, and the next time the criticisms.

Mr. Carpenter.—Mr. President, and gentlemen of the Board. This is Captain Thompson.

Mr. Thompson.—I don't know I can add anything to the Captain's testimony here, further than I have been about Santa Monica a number of times in small sailing vessels. Discharged lumber there; that is, years ago. I have been at anchor there and gone out of there in a southeaster. I had no trouble at all in laying there; no obstructions going in, and good holding ground while we were in there. I don't know as I can say any more.

Col. Craighill.—Were you there in a good gale of wind?

Mr. Thompson. Well, pretty good southeaster. If we had been at San Pedro we should have done the same thing.

Mr. Handbury.—You came to an anchor there, did you, or were you past the wharf?

Mr. Thompson.—We stayed until it blew heavy, and then we went out.

Mr. Handbury.—What were you fast to when you were there?

Mr. Thompson.—Our anchor held us; thirty fathoms of chain.

Mr. Handbury.—What sized vessel were you in?

Mr. Thompson.—The last vessel I was in there was of seventy-three tons, the John D. Semborne, an eastern vessel; came from Santa Cruz there with a cargo.

Mr. Handbury.—How much did she draw?

Mr. Thompson.—I have been there in a still smaller vessel than that. Perhaps it is as hard to hold small vessels as a large one, if the sea is heavy enough, and I don't know but what harder. I have been in San Pedro a great many times in a southeaster.

Mr. Handbury.—What is the character of the bottom there?

Mr. Thompson.—As near as I could judge as it states here on the chart, sand. That is the only way I can judge. I have never any necessity of sounding there, or anything of that kind.

Mr. Handbury.—Do you know anything of a large vessel ever having ridden out a storm in those waters?

Mr. Thompson.—No, sir.

Mr. Handbury.—What we are trying to get at is whether there is anyone here that knows of a large vessel that has ridden out a storm there, so that we can get some fair idea of the holding ground.

Mr. Thompson.—I don't know of any. I don't know of anything more I can say. If there are any questions I can answer—

Mr. Wells.—That is all, then, the Board wishes to ask. Santa Monica still has the floor.

Mr. Carpenter.—Captain Ellis, Mr. President and gentlemen of the Board.

Mr. Ellis.—Gentlemen, I have been for the last twelve years sailing on the coast in small vessels, as master; all along the coast, from San Pedro up. And the reason that I know of for building a breakwater at Santa Monica is that it is a better place to get in to for vessels coming from the southward, and also from the northward. From observation I should say, Oh, well nine vessels out of ten big ships that come around the Horn come to San Pedro. They all make Point Conception as the first land they make. After they make Point Conception they come down in this course. The reason they do that, they keep outside in the northeast wind until they get way to windward. As for instance, there is a bark now lying in Santa Barbara, and he says he got up very near the latitude of the Columbia river before he began to come down this way. Now, they all go the same way; and when they come this way they come, as you see, they come off in this direction. That is the way they come in. And in coming in here, Santa Monica, there is nothing to prevent their coming right straight in. And, also, the wind is always better in this bay than it is down further, nearer San Pedro. Down in here between Catalina and San Pedro, as everybody knows, you often get becalmed. I have laid there for twenty-hours, floating around, and could get no wind at all; whereas, up on the upper coast there you always—most always get a land breeze off-coast, which will help you in or out. That is one advantage for Santa Monica. Another is, practically nine months in the year we need no harbors. We have no gales to amount to anything. The only trouble with gales on this coast is from the southeast. They begin about east of southeast, and work around to the southward and westward, and generally wind up with a heavy northwest storm. Now, a vessel in Santa Monica—I don't suppose it is presumed a big ship going in there would always get behind a breakwater, whether it was at San Pedro or Santa Monica. The chances are they would be lying outside, a great many times. Our southeasters come up very suddenly; and when one came up in the night or early in the morning, as they generally come, a vessel could get out from Santa Monica when it would be impossible to get away from the anchorage in San Pedro. As you can see by the lay of the coast, that you can very easily lay out from Santa Monica, whereas you couldn't from the anchorage in San Pedro. And that is one advantage in having a breakwater at Santa Monica. It is nearer of access, and it is a much better place to get into and a much better place to get out of. San Pedro in a southeaster, without a tow-boat, it is about impossible to get out. Santa Monica you could get out. There are no obstructions in the way. It is a large open bay. And for that reason I should say that Santa Monica would be the place to build the breakwater.

Mr. Carpenter—Captain, did you ever try to strike the harbor of San Pedro with a southeaster, with your vessel?

Mr. Ellis.—No. Whenever I have been there I have always been in small vessels, and gone inside.

Mr. Handbury.—One moment, Captain. Whereabouts in this Santa Monica bay would be a preferable location for a breakwater?

Mr. Ellis.—The nearer up under this shore in my opinion would be the better place.

Mr. Handbury.—Further to the northward.

Mr. Ellis.—I should say so, yes, sir.

Mr. Handbury.—Why would it be better there than down at the other end of the bay?

Mr. Ellis.—The wind and sea comes from this direction. Of course Point Dumas protects it in a measure, and as you get outside of that you get much more sea on this coast there than you do on this shore here. In regard to the holding ground at Santa Monica, I think it is as good as at San Pedro, but I think there is no trouble at either place.

Mr. Handbury.—Have you had any practical experience in the holding ground?

Mr. Ellis.—I have anchored, as you see on the map, all along that upper shore there along the coast, and I have always found good holding ground. I have never actually anchored in Santa Monica, because—

Mr. Handbury.—Anywhere along in that Santa Monica bay?

Mr. Ellis.—Along this shore, yes, sir. I have anchored along this shore at various times, and always found good holding ground. I never actually anchored in Santa Monica; and you can't get testimony from people who have actually anchored there, because there has been very little use of their going there. It hasn't been a commercial port, like San Pedro. And there has very few sea captains ever gone in there and actually laid there.

Mr. Handbury.—We understand that. What we want to know more particularly about is the holding ground.

Mr. Ellis.—The holding ground is good. I have never actually anchored there, but I have anchored along this upper coast.

Mr. Raymond.—You have anchored, Captain, at San Pedro, have you not?

Mr. Ellis.—I have.

Mr. Handbury.—From what directions do your worst swells come in this bay?

Mr. Ellis.—You mean through the majority of the year?

Mr. Handbury.—Yes.

Mr. Ellis.—Well, about west, northwest.

Mr. Handbury.—But when you have—in stormy weather, when you are liable to have a storm that would drive you away, and you want shelter?

Mr. Ellis.—When we have a storm the wind comes from this direction, generally. It commences about east-southeast, and it works around in this direction, and generally winds up from the northwest.

Mr. Handbury.—You have your greatest swells, then, at what time? When the wind is coming from the northwest, do you, or when it is from the other direction?

Mr. Ellis.—The early part of the storm we have them from the southeast, and later on from the northwest.

Mr. Handbury.—Then this rocky point down there, Point Vincent, and those points, would protect you in the first part of the storm.

Mr. Ellis.—They would, yes, sir. And there is very little room to get up a sea here when the southeaster begins.

Mr. Handbury.—Then the further down you would get your breakwater under those circumstances, the nearer underneath that, you would be better protected, wouldn't you?

Mr. Ellis.—If I was going to build a breakwater I would build one where it would be the most service the greater part of the year. Ten months in the year our wind and sea is from the westward, and about two months in the year at various times we have southeast storms.

Mr. Handbury.—Those are the violent storms that you want to be protected from?

Mr. Ellis.—Those are the storms you want to get away from.

Mr. Handbury.—The ordinary summer storm, if I understand the situation up there, you don't need much protection from.

Mr. Ellis.—No, sir, it is from the southeast storms, which come in

this direction and go across from here; and then you have room to get out of Santa Monica. It is nearer coming down the coast, because the vessels make higher up. It is nearer both ways—from the north and from the south.

Mr. Robert.—I didn't understand, Captain, which swell was the worst during the progress of the storm.

Col. Craighill.—How long does the storm last, generally?

Mr. Ellis.—Oh, sometimes twenty-four hours, and sometimes two or three days.

Mr. Robert.—Now, the swell is the worst during what part of the storm?

Mr. Ellis.—Well, I should say the southeast swell was the worst, outside.

Mr. Robert.—At the beginning of the storm?

Mr. Ellis.—Yes, sir, and in the height of the storm.

Mr. Handbury.—You say "outside." Do you mean outside here, or—

Mr. Ellis.—I mean outside of the islands, where the wind gets a chance to sweep up and down.

Mr. Handbury.—We are speaking about the bay. When is the worst swell there; what part of the storm?

Mr. Ellis.—Well, I don't think there could be a great deal of swell in there at any time until it gets around to the westward.

Mr. Handbury.—Then the westward, then.

Mr. Ellis.—The latter part of the storm.

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Mr. Ellis.—I should think there would be more swell during the storm at Santa Monica in the latter part of the gale than in the fore part.

Mr. Handbury.—From your practical experience and from your practical knowledge.

Mr. Ellis.—I have never been in Santa Monica in a southeaster.

Mr. Shorb.—Captain, will you permit me to ask one question? What has been the size of your vessels that you have anchored along in the bay of Santa Monica?

Mr. Ellis.—They have all been small vessels, under thirty tons. As I say, you get very little testimony from big ships, because they have never been in there. They have had no occasion to go there.

Mr. Carpenter.—Do you happen to know, Captain, if the Charleston was anchored off there at Santa Monica?

Mr. Ellis.—Merely from hearsay.

Someone.—I know it.

Mr. Wells.—Has any member of the Board any further questions to ask, gentlemen?

Col. Craighill.—No sir.

Mr. Wells.—That will be all.

Mr. Carpenter.—Mr. Gillett, gentlemen, and he is the assistant chief engineer of the Southern Pacific.

Mr. Gillett.—In May and June of this year I was engaged in making borings at this proposed site, for a breakwater, or for a wharf at Santa Monica; and I have here a profile showing the character of the material found by those borings. That I will show to you. The character of the material is indicated by the different colors. The borings are made from twelve to twenty-five feet in depth, into the bottom, and the distances apart of from one hundred and fifty or two hundred feet to four or five hundred feet, according to whether they are variable or not.

Someone.—Mr. Chairman, many of the gentlemen who are interested in hearing these statements cannot understand the gentleman at all. We would like to hear both sides.

Mr. Gillett.—I am willing to speak as loud as I can.

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Mr. Wells.—Come to order, gentlemen. It is in order to continue with the presentation of the case of Santa Monica.

Mr. Carpenter.—We will call Mr. Charles Monroe. We want you to state to the Board the means of access of other railroads to the harbor at Santa Monica, if one is constructed. Mr. Monroe, you are an attorney at law, I believe.

Mr. Charles Monroe.—Yes, sir.

Mr. Carpenter.—You represent Jones & Baker, do you not?

Mr. Monroe.—Yes, sir.

Mr. Carpenter.—Large land owners near Santa Monica.

Mr. Monroe.—Our firm does—Wells, Monroe & Lee.

Mr. Carpenter.—Well, now, will you state what means other railroads have of getting into the harbor there?

Mr. Monroe.—Well, I shall have to state that from the standpoint of a lawyer, and what was done down there. Last fall the Southern Pacific instituted condemnation proceedings to obtain a right of way up the beach for their railroad to the location of the proposed wharf. These condemnation proceedings, as I understood it, contemplated the obtaining of one hundred feet. Messrs. Jones & Baker contested that, and contested that on the ground solely that they were afraid that would prejudice other railroad companies that desired to come in there. Before the case came to a hearing, the railroad company and Jones & Baker agreed; Jones & Baker agreeing, on certain conditions, to grant to the Southern Pacific railroad company a right of way of fifty feet in width. In their instructions to us, and in the conferences with the railroad company where I was present, it was stated by Jones & Baker and by myself at their direction, that they would not grant any right of way and would contest the giving of any right of way to the Southern Pacific that would prevent other roads from going in. But they did agree to give fifty feet, providing it was taken immediately under the bluff. The Southern Pacific had made a survey, and their stakes were along under the bluff. We went down there and Mr. Jones and Mr. Baker, I think Mr. Stone of the Southern Pacific, and some of the other officers of the Southern Pacific; and Mr. Jones and Colonel Baker then stated that they were satisfied with the right of way of the stakes indicated where it was; but that railroads had a habit sometimes of throwing their track over, where the right of way was given as so many feet on each side of the center of the track, and so not having it in a fixed place. If it could be arranged so that it should always be where the stakes were, they were content with that. So that a demand was made of the Southern Pacific field notes. The field notes were then verified by the engineer of Jones & Baker, and the description put in the deed was the field notes furnished and verified; so that they are tied up to a particular location. This right of way of fifty feet along the beach, as I say, is close under the bluff; and I don't know that I can locate it exactly at the bath house on what is known as the north beach, and there the edge of the right of way toward the ocean does not come within—nearer than about ten feet of the rear of the bath house. So that I should judge there was somewhere from one hundred to one hundred and fifty feet between their right of way and high-water mark. There is quite a large distance. I may be wrong in the figures, but there is quite a distance. There is the whole width of that building, and a good deal of the beach besides before getting to the high-water mark. And that is the condition all the way up the beach. And I might add that—I don't know but what I have said that in all the conferences between Jones & Baker and the railroad company, the main idea with Jones & Baker was that they wanted to leave plenty of room there so that other railroads could get in, and we believe that we have done that, and I think it has been done. There is plenty of room there. And their anxiety

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all the time was that other railroads should get there. They are very anxious to have as many roads there as can come.

Mr. Carpenter.—That is all, unless the commission wish to ask you something.

Mr. A. M. Stephens.—I would like to ask a question or two, with the permission of the honorable Board. How far up the coast does this grant which Messrs. Jones & Baker gave to the railroad extend, with reference to the old wharf at Santa Monica?

Mr. Monroe.—It runs up to Santa Monica Cañon, and then I think—that is the first piece. There is another grant beyond there. Now, I have brought with me a copy of the deed, which I would be very glad to submit to the Board, if they care to see it. That gives a description of the right of way granted, by the field notes.

Mr. Stephens.—Are you speaking now of the grant made by Messrs. Jones & Baker?

Mr. Monroe.—Yes.

Mr. Stephens.—Which extends up to the old cañon?

Mr. Monroe.—It extends up to the cañon. And then there is another piece beginning further up. As I recollect it now, the land immediately north of the cañon does not belong to Jones & Baker, that is my recollection, but still above there there is some that does; and right of way over that was also included in the grant.

Mr. Stephens.—Now, with respect to the projected pier which is partly constructed by the Southern Pacific railroad, how near does the Jones & Baker grant come to that?

Mr. Monroe.—My recollection is, I am not positive about that, but my recollection is that immediately at the pier they owned land and did give a strip of land immediately above the pier, I think beginning below the pier, I am not certain about that, for a roundhouse. That is my recollection of it now, that that was one of the pieces.

Mr. Stephens.—But the distance from the old wharf of Santa Monica, the old cañon, to the pier, can you give us that?

Mr. Monroe.—I can't give that.

Mr. Stephens.—That space in there, you have no idea as to the title?

Mr. Monroe.—I have no idea about that, or about anything except what is contained in the deed from Jones & Baker.

Mr. Stephens.—Isn't that a narrow pass, bounded upon the north by extremely high hills and upon the south by the ocean?

Mr. Monroe.—I have never been above the cañon, and know nothing about it.

Mr. Stephens.—And that exact distance you do not know?

Mr. Monroe.—That I do not know. My knowledge of the locality is simply up to the cañon, and my knowledge of the descriptions is simply what was given by the engineer and put into the deed.

Mr. Stephens.—But you know that the grant which you have described does not extend up to the shore end of the pier.

Mr. Monroe. Not without a break, as I understand it. Is that all?

Mr. Wells.—That is all, then, Mr. Monroe. We are ready for the next, Judge Carpenter.

Mr. Carpenter.—Mr. Crawley, gentlemen; assistant freight and passenger agent of the Southern Pacific railroad.

Mr. Wells.—Mr. Crawley, you have the floor.

Mr. Crawley.—Well, in response to any question, or to start in myself?

Col. Craighill.—You may make any statement you think proper.

Mr. Crawley.—Well, speaking from a commercial point of view, and and which has been demonstrated by the fact that the Redondo Railway Company has secured considerable business, not on account of any, in my opinion location or facilities, but simply in the question of time. I think if there was a deep sea harbor at Santa Monica that great saving of time could be made on freight and passengers from the north. They

the desire to take from the Redondo wharf the business which they have taken from the San Pedro wharf?

Mr. Crawley.—I don't look at it that way. The building of that wharf, so far as I know, is simply to better the conditions of commerce; to give better facilities to the commercial man to ship his freight and receive his freight than at present exist.

Mr. Gibbon.—Better facilities than the Redondo wharf at the present time affords?

Mr. Crawley.—Above any.

Mr. Gibbon.—It is a fact, is it not, that the Redondo wharf—

Mr. Wells.—I beg pardon, but I think it is the desire of the Board to confine this examination strictly to the merits of Santa Monica.

Mr. Gibbon.—This is simply a series of questions intending to get at the matter of Santa Monica. This is the last question, before I reach the Santa Monica matter, I desire to ask. It is a fact that most of this commerce now is carried on very conveniently by the Redondo wharf?

Mr. Crawley.—A great portion of it.

Mr. Gibbon.—What is the difference in time between Santa Monica and Redondo by steamer? An hour?

Mr. Crawley.—I should say nearly six.

Mr. Gibbon.—Six?

Mr. Crawley.—Five or six hours, yes.

Mr. Gibbon.—That a steamer would reach Santa Monica five or six hours before it would reach Redondo?

Mr. Crawley.—It depends upon the cargo that has to be unloaded at Santa Monica.

Mr. Gibbon.—I am not speaking about unloading, now; simply the question of time of reaching the two points.

Mr. Crawley.—Well, I should say about an hour and a half or two hours.

Mr. Gibbon.—Then, in point of fact, the only difference in the handling of this freight is about an hour and a half or two hours, as between Redondo and Santa Monica?

Mr. Crawley.—No sir. There is the time consumed in lowering the cargo from the steamer.

Mr. Gibbon.—They would have to unload, of course, at Redondo or Santa Monica, either one, of course.

Mr. Crawley.—But there would be time consumed in unloading at Santa Monica wharf. That time must be added to the difference of the running time between Santa Monica and Redondo.

Mr. Gibbon.—But that time would be consumed at Redondo just the same.

Mr. Crawley.—Exactly.

Mr. Gibbon.—So the difference would be the difference in time between the arrivals of the steamer.

Mr. Crawley.—Oh, no. You must add to that the time consumed in unloading the freight.

Mr. Gibbon.—We are speaking—inasmuch as that time would be the same at either place, of course the time at one place offsets the time at the other.

Col. Craighill.—Speaking of the same freight at either place?

Mr. Gibbon.—Yes, sir. If it took you but four hours to unload at Santa Monica it would take you the same time at Redondo.

Mr. Crawley.—But you must add that four to the two; that makes six. And then add four more; that makes ten, at San Pedro.

Mr. Gibbon.—I am speaking of Redondo. The only difference would be the difference in the distance which the schooner has to go as between Santa Monica and Redondo, which you say would be about an hour and a half. Isn't that true?

Mr. Crawley.—No, sir.

Mr. Gibbon.—Why not?

all the time was that other railroads should get there. They are very anxious to have as many roads there as can come.

Mr. Carpenter.—That is all, unless the commission wish to ask you something.

Mr. A. M. Stephens.—I would like to ask a question or two, with the permission of the honorable Board. How far up the coast does this grant which Messrs. Jones & Baker gave to the railroad extend, with reference to the old wharf at Santa Monica?

Mr. Monroe.—It runs up to Santa Monica Cañon, and then I think—that is the first piece. There is another grant beyond there. Now, I have brought with me a copy of the deed, which I would be very glad to submit to the Board, if they care to see it. That gives a description of the right of way granted, by the field notes.

Mr. Stephens.—Are you speaking now of the grant made by Messrs. Jones & Baker?

Mr. Monroe.—Yes.

Mr. Stephens.—Which extends up to the old cañon?

Mr. Monroe.—It extends up to the cañon. And then there is another piece beginning further up. As I recollect it now, the land immediately north of the cañon does not belong to Jones & Baker, that is my recollection, but still above there there is some that does; and right of way over that was also included in the grant.

Mr. Stephens.—Now, with respect to the projected pier which is partly constructed by the Southern Pacific railroad, how near does the Jones & Baker grant come to that?

Mr. Monroe.—My recollection is, I am not positive about that, but my recollection is that immediately at the pier they owned land and did give a strip of land immediately above the pier, I think beginning below the pier, I am not certain about that, for a roundhouse. That is my recollection of it now, that that was one of the pieces.

Mr. Stephens.—But the distance from the old wharf of Santa Monica, the old cañon, to the pier, can you give us that?

Mr. Monroe.—I can't give that.

Mr. Stephens.—That space in there, you have no idea as to the title?

Mr. Monroe.—I have no idea about that, or about anything except what is contained in the deed from Jones & Baker.

Mr. Stephens.—Isn't that a narrow pass, bounded upon the north by extremely high hills and upon the south by the ocean?

Mr. Monroe.—I have never been above the cañon, and know nothing about it.

Mr. Stephens.—And that exact distance you do not know?

Mr. Monroe.—That I do not know. My knowledge of the locality is simply up to the cañon, and my knowledge of the descriptions is simply what was given by the engineer and put into the deed.

Mr. Stephens.—But you know that the grant which you have described does not extend up to the shore end of the pier.

Mr. Monroe. Not without a break, as I understand it. Is that all?

Mr. Wells.—That is all, then, Mr. Monroe. We are ready for the next, Judge Carpenter.

Mr. Carpenter.—Mr. Crawley, gentlemen; assistant freight and passenger agent of the Southern Pacific railroad.

Mr. Wells.—Mr. Crawley, you have the floor.

Mr. Crawley.—Well, in response to any question, or to start in myself?

Col. Craighill.—You may make any statement you think proper.

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Mr. Crawley.—No, sir.

Mr. Gibbon.—Why not?

Mr. Crawley.—You must add the time consumed in getting the freight out of the vessel.

Mr. Gibbon.—But you consume the same time at either point.

Mr. Crawley.—But Redondo is an after consideration. Santa Monica comes first. By the time we got the Santa Monica freight in Los Angeles that we would get at our dock, the next wharf would have their freight unloaded at the wharf.

Mr. Gibbon.—Take it now that there is no wharf at Santa Monica. The freight at Redondo would reach this town, supposing the steamers stopped there first, only about two hours later than it would if landed at Santa Monica.

Mr. Crawley.—Oh, no, sir.

Mr. Gibbon.—Why not?

Mr. Crawley.—It would be the time consumed in getting the freight out at Redondo added to the difference in time between Redondo and San Pedro.

Mr. Gibbon.—But you would consume that same time at Santa Monica.

Mr. Crawley.—You do, but that is the first stop, my friend.

Mr. Gibbon.—Yes. That is all.

Mr. Wells.—Have you any further statements to make?

Mr. Crawley.—No, sir, unless the gentlemen have some questions.

Mr. Wells.—Unless the Board has further questions, that will be all. I wish to say the Board desires to get through today, if possible, and I hope no one will think I am crowding matters if I urge haste and ask your representatives to confine themselves to the essential points just as much as it is possible and make them clear. Judge Carpenter.

Mr. Carpenter.—Mr. President, and gentlemen of the Board. I will now introduce Mr. Hood, the chief engineer of the Southern Pacific Company. And I will ask Mr. Hood to go over the ground gone over this morning—you are familiar with it—in your own way.

Mr. William Hood.—Mr. Chairman, I am ready for any questions that yourself or Board wish to ask.

Col. Craighill.—Well, I will say with reference to Mr. Hood that, as far as the engineering questions are concerned, we don't care to have them touched on before this meeting at all. As far as the engineering questions are concerned, we propose to have a special interview with Mr. Hood, as well as the other engineers of the road and other interests involved; and I think that is a matter with which this meeting has nothing to do.

Mr. Hood.—Mr. Chairman, there have been questions touched on here in such a way that I feel it might be appropriate for me to refer to them.

Col. Craighill.—Yes.

Mr. Hood.—As I understand it, the present stage of the inquiry is confined to Santa Monica, but to a certain extent I can hardly answer questions about the one without somewhat touching on the other. One of the early speakers in this conference said that it was due to the public as well as to the Board that the question be asked why the Southern Pacific Company advocated the building of great public improvements at Santa Monica in a position where they will surely get all the benefit of it; and I am prepared to answer that question to the Board or to any one who wishes to ask for details, or to volunteer an answer, as may be desired.

Lieut.-Col. Robert.—We would like to have you answer.

Mr. Hood.—Yes. In the first place, in connection with that matter, I will submit to the Board a map on tracing cloth which shows exactly the property either owned or claimed, or in any other way affected by the Southern Pacific Railroad, or Southern Pacific Company's interest (exhibiting map to the Board). Secondly, I will show, after this has

been sufficiently inspected, a map showing all the property owned, claimed, or in any way controlled by the respective railroad companies whom I represent to a certain extent, or by the individual members thereof, at San Pedro. Any possible claim or interest that the company possesses at either point is shown on these two maps. I think that these two maps, in combination with and also as illustrating the remarks of the attorney of Jones & Baker, will show clearly that the Southern Pacific railroad company has a preponderance of land interests and improvement interests at San Pedro; and, that being so, that the whole question will be very promptly dropped. This, gentlemen, colored in red or carmine is absolutely the entire property owned and claimed by the Southern Pacific railroad, which you all know is leased by the Southern Pacific Company. It is the same thing, as far as you are concerned. This map also shows that the town of Santa Monica exists to a certain extent on the coast; shows that Jones & Baker own up to a certain point in Santa Monica cañon; shows that other private parties own in Santa Monica cañon. Jones & Baker own to the westward of the wharf to a distance too far for this map to show, which you have no further interest in, I imagine. And here is a tract abutting on the land adjoining the wharf, known as the Santa Monica Heights Tract. Now, that has been referred to as a very important piece of property for the Southern Pacific railroad. To the best of my knowledge, that property belongs essentially and in fact to Mr. C. P. Huntington; and, to the best of my knowledge, being a piece of property which abuts on the ocean, with a bluff one hundred and seventy-five feet, vertical, in height; and, to the best of my knowledge and according to his assertions and according to all probability, that property was purchased as a matter of real estate, and he informed me to be given to one of his relatives. His nephew has also informed me the same thing. But it cuts no figure at all. We are willing to let it stand as railroad property, if you like. It makes no difference. It is a piece of property that can by no possibility be utilized for port purposes.

Major Raymond.—Between the bluff of Santa Monica, that large cañon, and the wharf.

Mr. Hood.—It abuts on the water.

Major Raymond.—Yes, it is right on the water.

Mr. Gibbon.—It carries the title to the water.

Mr. Hood.—It carries the title to the water to the usual limit. And our sidetracks that we propose to use in connection with the wharf are immediately in front of and upon that land. Now, this company does have more property from Jones & Baker than has been represented, simply from negligence in detail. It does have a tract of land fifty feet on one side and seventy-five feet on the other, just at Santa Monica cañon, just for station purposes. It does have a hundred feet in width through the other owners and through the Santa Monica Heights Tract. It does have a small piece of land on the point for engine purposes. Further than that, through the Jones & Baker Tract and through Santa Monica, it has a piece of land only fifty feet wide, but so adjusted in reference to the center line of the railroad that we can readily put in another track on the ocean side. In other words, instead of being twenty-five feet on each side of the center line, it is thirty-one and one-half feet to the ocean side from the center of our track, and only eighteen feet and a half upon the bluff side. That is with our deliberate intention of putting in a double track there in the near future to handle the large business we expect. Aside from that there is a distance, averaging fully from one hundred and fifty to two hundred feet wide, the least is a hundred, and from that to one hundred and fifty, between our right of way and the ocean; where, as has been said, there is ample access for half a dozen railroads with as much facilities as we have; and I hope you will see them there, if they want to come.

In addition to that, the size of this breakwater, perhaps, does not seem to be appreciated. There have been errors in the statement of

figures. The lowest size of the breakwater that was ever proposed by the former Board at Santa Monica, in a situation further to the east, was 8250 feet long, or considerably more than a mile and a half. I say freely that the Southern Pacific favors in place of that, not critically, but because we conceive it to be to our interests, a location at the other side, the necessary length of breakwater to be subject to proper approval, eighty-four hundred feet long, commencing just to the westerly of our coast wharf, and extending westwardly to the Santa Monica town limits; that is, to opposite the Santa Monica town limits, leaving this entire space free for anybody and everybody to be situated exactly as well as the Southern Pacific railroad company. And you will notice—not to take any credit for it—but we have incidentally placed the improvements that are now going on there to the extreme westward limit, furthest from the town; or north of it, if you prefer to use the term, of the proposed protected area of the breakwater. There is certainly a chance for as much wharfage to go out under other control than the Southern Pacific, in such protected area as there is in half of the entire present frontage of San Francisco. I think that will settle that question; but, at any rate, I will leave this on file with you, if you will accept it.

Col. Craighill.—Certainly.

Mr. Shorb.—May I ask you one question?

Mr. Hood.—Certainly.

Mr. Shorb.—If the chairman will permit me. You state that your company, or the one for which you are representative here, that you put the wharf at the extreme western limits for the purpose of leaving all this—

Mr. Hood.—Excuse me.

Mr. Shorb.—Free, for purposes to be hereafter enjoyed by competing companies, did I understand you to say?

Mr. Hood.—No, sir, you misunderstood me entirely. I said we claimed no credit for any such public spirit, although we sometimes ought to get it; but I said incidentally, as can be very readily identified. We have done it for motives I don't touch on; motives you can infer yourself. We claim no motives. We have none.

Mr. Stephens.—May I ask, if you please? It is proposed to project a breakwater oceanward from a point beyond your pier. How far north?

Mr. Hood.—I should have to refer to the chart that was left here by Mr. Gillett this morning, in blue print. But essentially it may be said to be four thousand feet. That is—understand. We are not proposing any breakwater. We are not proposing its position, or any plan. We are proposing a general position, nothing more. It is not our province, the province of the railroad company, to say to a Board of Engineers, or to anybody else, how a breakwater should be built, or where, or anything else. We do freely, when our interests are affected, use any influence we can to get such improvement where we think it will do the most good to us, or other people; but, further than that, we make no proposition of any description.

Mr. Shorb.—I don't think there is any misunderstanding, as far as that is concerned. It wasn't that you were presenting any breakwater, but you were presenting another one. Is that the proposition?

Mr. Hood.—Yes. To get at the essence of your inquiry in general, we had thought that a breakwater along the line I have described, the western limit which is essentially opposite our wharf, which we are now building rapidly, and which we are going to build and handle commerce on whether there is a breakwater built in the United States or not—we had thought a good place for that breakwater would be, its western limit to be about opposite our wharf, and to extend eastwardly to opposite Santa Monica.

Mr. Stephens.—What would be the necessary length of the westernmost line of it, projected out into the ocean?

Mr. Hood.—It is all in the ocean. There is no arm going to the shore. We had considered, with a limited knowledge of those matters, that an arm of the breakwater project from the shore, and then an outlet further out in a locality where it is well known there are moderately strong shore currents one way and another, depending on the wind and tides, would be so sure to close it up, or so likely to do so, that no engineer would propose it for Santa Monica. And I am confirmed in that by the former Board having proposed a breakwater as we have here. In fact, we have just copied it.

Major Handbury.—What advantage in position do you find between the one established by the other Board and the position of this?

Mr. Hood.—Our view of the subject is this—I use the term “our” and “we” as railroad men do about the mother corporation.

Major Handbury.—We understand that.

Mr. Hood.—Our views of the subject was this: The old Santa Monica wharf, which was acquired by the Southern Pacific railroad company, and which used to extend out eighteen or nineteen hundred feet, and which was in a place where, as you have received testimony this morning, captains could tie to in pretty bad weather and receive freight. But we found, and it was well known by navigators, that when the swell was exceedingly heavy with a westerly gale, so heavy as to make it practically impossible to lie to the wharf, but necessary to go out to moorings indicated by buoys, or to run away, that up in here, two miles and more to the westward, the water was comparatively calm; not calm. There is no calm water there; but comparatively so. We found the times would frequently occur that when we couldn't handle vessels lying along the wharf there, without danger to the wharf and the vessels both simply from the violence with which they would heave, that the water was much smoother there, and that we could much oftener keep a vessel there than here; all without any reference to breakwaters whatever. And, further than that, the Pacific Coast Steamship Company, who would naturally give us a great deal of freight and discharge business, told us that they could under no circumstances guarantee to come to a wharf there, but they would do so if we would go in this older known, well known, locality.

Major Handbury.—How do you explain that?

Mr. Hood.—Of course this explanation is evidently for the audience. This Board must be well aware that Point Dumas is so situated with reference to the westerly swell, which is pretty constant in direction, but not always so, that it comes practically unbroken here; and is more the result of what I might call a reflected swell there than it is of a direct one. That is our observation. As the result of that, as the Pacific Coast Steamship Company, who would be our direct connecting company, practically refused to consider coming to the wharf there—we knew they were right—we went up there and commenced building our wharf, without any reference to breakwaters, whatever.

Mr. Shorb.—That is the reason that wharf was abandoned, then?

Mr. Hood.—One of the reasons. And this design for the wharf—although the execution of it is recent, the design for the wharf was fixed somewhere between two and three years ago, so far as location is concerned, on those grounds only, before the breakwater question had come up, before we knew there was any show for a breakwater at all. And the obvious benefit of a breakwater up there to a wharf, even in a sheltered locality, would be that sometimes the swell is of sufficient violence so that we would much rather have one there than not, even if it is less than at Santa Monica.

Mr. Shorb.—How long after this wharf was abandoned right opposite Santa Monica, Mr. Hood, before you conceived the idea of building this breakwater up here, or here?

Mr. Hood.—Well, I couldn't put it in that way. But I don't remem-

ber having myself given that subject any study. I was directed to give it study—more than three or four years ago; and I will only say that in a general manner, because I don't pretend to remember accurately, but it was about that time.

Mr. Shorb.—The only reason I asked is this: Governor Stanford, long after that wharf was abandoned there, was intent upon securing all the appropriation he thought he could obtain from the United States Government to improve the breakwater at San Pedro. That is the reason I ask the questions.

Mr. Hood.—Well, I can only say I know nothing of Governor Stanford's motives, intentions, wishes or desires in that matter as a public officer.

Mr. Shorb.—I merely asked that for information.

Mr. Hood.—I am densely ignorant on the subject. I simply know what I was ordered to investigate, and about when.

Mr. Gibbon.—Mr. Hood, you indicate in a general way the contour of the coast line beyond here?

Mr. Hood.—I can indicate it on any chart.

Mr. Gibbon.—If you can give me a general indication of it it will serve my purpose.

Major Handbury.—Mr. Hood, was that old wharf at Santa Monica, any part of it, washed away, or was it merely abandoned?

Mr. Hood.—No, sir, it was taken down. It got badly toredo eaten, and unsafe for use. It was built of wood piles.

Major Handbury.—How far out in the ocean was it?

Mr. Hood.—My remembrance is it was about eighteen hundred odd feet.

Mr. Gibbon.—Now, will you please indicate—

Mr. Hood.—Yes, sir.

Mr. Gibbon.—Now, will you please indicate the position of your wharf there. Now, this, I understand, is the suggested breakwater.

Mr. Hood.—That is it.

Mr. Gibbon.—Now, you were just speaking a moment ago of what you thought a breakwater so located would secure. You were comparing it with San Francisco.

Mr. Hood.—Yes, sir.

Mr. Gibbon.—Can you say about how much of that breakwater frontage would be north of your—

Mr. Hood.—West.

Mr. Gibbon.—West of your proposed wharf.

Mr. Hood.—There might possibly be 700 feet out of 8400.

Mr. Gibbon.—And where would the remainder be?

Mr. Hood.—In here. That is, anyone can build a wharf on the same principle we are doing, and cheaper, because we are building a wharf against the waves, prior to the construction of the breakwater.

Mr. Gibbon.—As I understand you, this land here extending from the cañon, is the private property of Mr. Huntington, the President of the Company now.

Mr. Hood.—I say it is my opinion it is. I have no information whatever, but I have reason to believe it.

Mr. Gibbon.—It is the land of Mr. Kinney, isn't it?

Mr. Hood.—Yes, sir.

Mr. Gibbon.—And taken in the name of Mr. Frank—

Mr. Hood.—I don't know the details, but I understand it to be so, and you might as well assume it.

Mr. Gibbon.—That is a land with a very high bluff.

Mr. Hood.—Yes, sir.

Mr. Gibbon.—And your Company owns or can control all this property here. That represents a frontage of how much?

Mr. Hood.—It is about 2000 feet, more or less.

Mr. Gibbon.—And the 700 feet would be added to your frontage by the breakwater. It would make 2700 feet.

Mr. Hood.—Exactly. At the same time, you notice the shape of the wharf. It is necessary to give it with a curve. They can go anywhere they are a mind to after they get outside. You are all aware that if a railroad company has more land than it has use for it can't hold it.

Mr. Gibbon.—To be sure not, but what we are getting at just now is the length of usable land for railroad purposes, the breadth, rather, between those aligning bluffs and tide water.

Mr. Hood.—I think other railroads could go parallel with that, outside the right of way, for about seventy-five or eighty feet, and hold it as we propose to hold it: with rock.

Mr. Gibbon.—But you cut off all access here. It is necessary to cross your track to get across here.

Mr. Hood.—It would, but there is room there.

Mr. Gibbon.—Here your Company owns this strip of colored land.

Mr. Hood.—Yes, sir.

Mr. Gibbon.—And that extends along the whole water front, doesn't it?

Mr. Hood.—With these slight modifications.

Mr. Gibbon.—Down the whole front.

Mr. Hood.—No; as far as the old wharf.

Mr. Gibbon.—Along the whole protected water front of this breakwater.

Mr. Hood.—Yes, sir.

Mr. Gibbon.—Before another company could get in here it would be necessary for them to cross your track, wouldn't it?

Mr. Hood.—No, sir.

Mr. Gibbon.—How could they get in?

Mr. Hood.—By a number of routes; from down the coast; from the Arcadia Hotel; anywhere at all.

Mr. Gibbon.—What is the amount of space they would have?

Mr. Hood.—They would have enough for seven tracks, thirteen feet apart, with perfect safety; and more, if they choose to do a little protecting.

Mr. Gibbon.—Land which you don't own?

Mr. Hood.—Yes, sir.

Mr. Gibbon.—In point or fact, however, your Company at the present time occupies a strip of land the full width of the water front, leaving as a strip possibly for any other company a very narrow strip of, say, seventy-five feet in width.

Mr. Hood.—No, averaging at least a hundred; about room for seven tracks, without doing any strengthening work to protect against the ocean.

Mr. Gibbon.—And there is no possible approach from this side, because that is all bluff.

Mr. Hood.—That would be very difficult.

Mr. Stephens.—Mr. Hood, may I ask whether these indicate any water mark?

Mr. Hood.—It is very general. This map is not accurate in any respect. It is only a copy of the topography. The only thing accurate about it is the ownership.

Mr. Stephens.—When you speak of the hundred feet which lies between your right of way and the water line, do you mean between high or low water?

Mr. Hood.—I mean between extreme high water and our ownership. If you had been at Santa Monica you would remember the flat space at the foot of the bluff before it pitches down.

Mr. Stephens.—I am quite familiar with it, but I haven't been there since your road was built.

Mr. Hood.—We have held as close to the bluff as we dared, all the

way. Now, the second part of that, which I suppose you gentlemen would like to see, is absolutely all the property that is owned or controlled—

Mr. Carpenter.—Before you get on that subject—just on the one we are now—will you state to the Board whether a railroad track couldn't come down Santa Monica Cañon, without coming up the beach at all?

Mr. Hood.—They could do so very readily, and cross our track at grade or below our track, but most properly a grade crossing. They could do it with great ease, and they would have no steeper grade than we have getting from the beach up to our upper yard, which everybody is acquainted with at Santa Monica. It is just a question of details where any other company would choose to try to come in.

Mr. Shorb.—But they would be forced to go across your track, if they came down the cañon.

Mr. Hood.—Unquestionably. But you are perfectly well aware that the only penalty for that would be that they would pay for the iron crossings, and keep them up. Now, next, if I am not hindering your Board with too much detail, the property shaded in red, here at San Pedro and Wilmington, is the property owned and claimed by the Southern Pacific Railroad, and through them the Southern Pacific Company. The property shaded in yellow is property practically owned, a controlling interest, by individual members of the Southern Pacific's Board of Directors. It goes, you see, a mile and half above Point Fermin Light. And this map extends clear up to Wilmington, showing in that pink tint the Southern Pacific property, which they own and claim. If you will give attention to that form of language, you will see I don't assert anything but that we own and claim. In other words, we have rights, more or less, to all the property shaded in pink. Some of it we have a controlling interest in. Some of it we absolutely own. And the company practically owns that yellow strip going a mile up the coast from Point Fermin Light. In other words, the Southern Pacific Railroad Company owns and controls opposite the proposed breakwater, which is indicated by these dotted lines. This four and a half fathom line, every particle of property there is, with the exception of a small piece at Timm's Point. Every particle of property, excepting, of course, the town lots at San Pedro.

Someone.—Might I ask whether the Southern Pacific owns that land that is marked the "Government Reservation" here, sir?

Mr. Hood.—They have a title to it, which is what I state as owned and claimed. I will say, gentlemen, about this title, that I understand this is not a court of justice, in which we try land claims. I simply assert that this property is owned and claimed by the Southern Pacific Railway Company.

Mr. Wells.—I understand it is not the desire of the Board—

Col. Craighill.—We don't want to go into these details.

Someone.—We only want them to represent what is so, gentlemen.

Mr. Wells.—There will be an opportunity given to San Pedro, when the time comes, to controvert any statement which is now made; but now is not the proper time.

Col. Craighill.—I wish Mr. Hood would not be interrupted.

Mr. Wells.—Proceed, Mr. Hood.

Mr. Hood.—Well, gentlemen, I think it is quite certain that whatever attacks may be made on the Southern Pacific Railroad Company's title, it will be the province of our law department to defend it, and not us.

Mr. Wells.—Have you other points you wish to take up?

Mr. Hood.—Those points I will leave to you, gentlemen.

Mr. Shorb.—I would like simply to say one word, it will not take more than five minutes.

Colonel Craighill.—In connection with that?

Mr. Shorb.—Yes, sir. The reason we gentlemen claim is the fact it has been asserted through all the newspapers—

Col. Craighill.—We don't care a copper for what the newspapers say.

Mr. Shorb.—That they own this whole thing here and that, therefore, the only chance the public would have would be to use this out here, rather than here. And that is the only reason we bring it up here.

Mr. Hood.—I have only to say, Mr. Chairman, in further answer to the question which was asked, as to why the Railroad Company, the Southern Pacific Railroad Company, preferred the site that we have just been discussing, westward of Santa Monica Cañon, that, as I said, the Pacific Coast Steamship Company urged it; and I will file with you copies of letters which we have received from them.

I need hardly mention that the place where a vessel is most likely to lay out a heavy blow is the place where breakwaters can be most cheaply built and maintained. And in reference to other reasons why this company proposes to go to Santa Monica, I will say, in brief, that the Southern Pacific Railroad Company, as you all know, is a corporation. It has many million dollars at stake; more millions than we care to go into at present. That it is not accustomed to build a wharf 4500 feet long, the length of which is chiefly for ample facilities, without a good reason, when they have ample facilities at San Pedro. But it has been borne in on this company so positively and so peremptorily by what you might call nature, in one sense, and that is the amount of freight and passenger business, which comes very near following the laws of nature—that any company who relied wholly for their connection of rail with ships on San Pedro, would go to the wall. Now, the Southern Pacific Company does not care to go to the wall. And we are building without any reference to any breakwater proposition or deep-sea harbor proposition whatever, a wharf at Santa Monica on the site that has been discussed, which will ten months of the year take safely, we think, any sea going vessels, any coasting vessels or any other vessels, that choose to come there. We are going to carry that to completion, and the expenses will be very great; and that is where we are going to do a great deal of business. And it is so obvious to any business man that a company like the Southern Pacific Company is not going to make that expenditure for any other reason than the actual necessities of the case, the calls of the country. That, I think, needs no further demonstration. Gentlemen, I have nothing further to say, unless you have some questions.

Mr. Carpenter.—Mr. Hood, one gentleman who spoke with reference to San Pedro harbor said you had a deep-sea harbor at Santa Monica and then you would have to have another at San Pedro for smaller vessels. What have you to say about that?

Mr. Hood.—I did not understand fully why a small vessel can't go where a large one can. It is a novel proposition to me, and it is one that obviously requires thought, and I haven't given it any.

Mr. Widney.—I think you misapprehend the statement.

Mr. Carpenter.—The stenographer has it, and can read it after while.

Mr. Hood.—I certainly do.

Mr. Widney.—If I have the floor I can state what I said.

Colonel Craighill.—I think that is a question we can decide for ourselves.

Mr. Carpenter.—That is all, sir. That is all we have for the present, Mr. President.

Mr. Wells.—The Board desires next to call upon Redondo for the presentation of their facts and figures.

Mr. Stephens.—We will ask the privilege of having a statement from Mr. Walton, who is the agent, I believe, of the Atlantic and Pacific Steamship Company.

Mr. C. S. Walton.—Colonel Craighill, and gentlemen of the Board. It was my purpose, which I still adhere to, to address this Board on a broader idea of the commercial aspect of a deep-sea harbor on the

southern coast than can be included in the claims of any one particular point; particularly the contesting locations for harbors that are disputing for supremacy here. I will say, however, that the steamship line which I have the honor to represent, has had some experience at Redondo which has been entirely satisfactory to them. The port has presented certain advantages to the captain of the steamer recently arrived at that port, which I can simply repeat from hearsay, from the statements he made to me, and that was: that during the ten months of so-called smooth weather that we have here, even the open roadstead at Redondo was entirely adequate for the ordinary demands of deep-sea vessels; but that, during the time when southeasters or south-westers were liable to come on, it was the impression of that particular gentleman that the protection offered by Point Vincent, I think it is—the point that appears off to the right as you look to the sea from Redondo—off to the left—and the extreme northern end of Catalina Island, would form a certain natural breakwater which would be valuable in protecting that port from storms which arise in the south, and, as several gentlemen here—principally my friend, Captain Polhemus—stated, those storms do start in the southeast and southwest, and veer around westerly, and expend their force off in the northwest. And it was for that reason that this Captain, who is an old sea-going man, deep-sea sailor, thought that Redondo possessed peculiar advantages in being protected from the south and southwest anyhow, and requiring only that protection which comes from the storms appearing off west and northwesterly. I hope, before the meeting is over, to have the opportunity of speaking to you gentlemen on the commercial aspect of this whole enterprise. I have nothing further to say in regard to Redondo in particular.

Mr. Stephens.—Well, Mr. Walton, let me ask you what your future plans are with respect to your vessels coming to this coast. Where will they land?

Mr. Walton.—I will say, sir, at present we have a vessel on the way, shortly to arrive here—a large steamer, the *Connomore*.

Mr. Stephens.—Where is that from?

Mr. Walton.—From New York, carrying between 4000 and 4500 tons. We also have a clipper loading in Antwerp, providing the cholera doesn't make any trouble with it. We also expect a clipper from New York. We have another steamer in New York now about to go on berth to load. I cannot outline the future of the Company any further than that.

Mr. Stephens.—Is it the design of the owners that those vessels shall land and discharge at Redondo?

Mr. Walton.—Those vessels are practically engaged to land and discharge at Redondo.

Mr. Stephens.—Were those arrangements made after your experience with your ship which has landed there, and after the report of the Captain?

Mr. Walton.—A portion of them. Some were made—in fact the owners considered it very desirable to have the report of the Captain of the *Progreso*, which was the first ship appearing at Redondo of our line, before going into the thing more than as an experiment. But they were very well pleased, and the arrangement continues in force to land vessels at Redondo, for the fact largely that there is a great saving in time by landing at what at that time seemed to be the nearest harbor for Los Angeles that offered the greatest amount of business. Is there anything further, Colonel?

Col. Craighill.—Not that I know of.

Mr. Stephens.—Mr. President, and gentlemen of the Board. I shall say a few words in behalf of Redondo. It seems to me there are two questions as to the location of a deep-sea harbor; two questions as to

the approaches. First, we want to know when the harbor is created whether it is available upon the land side, because a harbor which is not available to the shore and to which all the people have not access, is not a very good harbor. It also ought to be accessible from the ocean side. Both these considerations are important. I have this to say in behalf of the gentlemen who control the land about Redondo Beach, that, so far as their action is concerned, they will act in the future as they have in the past. They will invite everybody to come to Redondo Beach; every corporation which carries a car; every individual who can drive a wagon and bring freight to deliver at that point, or to carry it away. Their policy has been a policy of public spirit, and I believe that every member of the Chamber of Commerce would corroborate what I say in regard to that.

There is already in existence at that port a railroad, I think the greatest on the continent, the most liberal on the continent, and a railroad to which this community owes more than to any other organization that exists in this country. I would state to you, gentlemen, and I state it as a citizen and not as an advocate of the Redondo Beach Company, that the prosperity of this community dates from the day we first heard the whistle of the Santa Fé railroad in this country. That is a fact which can be testified to by everybody in this county. Our prosperity dates from that moment. That great railroad enterprise is there. It does not have to get there. It does not have to condemn rights of way across other railroads. It does not have to build breakwaters of stone and iron out in the ocean, but is there to day, with one end of its road in the waters of the Pacific and other branches at Boston and at Chicago. And I state again, for the gentlemen who back this enterprise, that their principal interest is not in building up a wharf or a harbor or a pier, but in building up the town in which they have cast their fortunes. And we will give bond, if the Chamber of Commerce wants it, that everybody shall have access, so far as they are concerned, to that harbor. Now, so much for the land side of this question.

We will turn our attention to the sea. As a matter of fact, as I have learned from the testimony of witnesses here, and from statements of reliable gentlemen who are perfectly familiar with this fact, it is only about three miles further from San Francisco to Redondo than it is from the proposed site of the Santa Monica wharf. That is, for vessels passing through the Santa Barbara Channel. And I understand from the statement of one witness here, I think the first Captain of a vessel who testified in regard to the Santa Monica wharf, that for vessels which pass around the islands and do not pass through that channel, that we are practically as near to San Francisco as this Santa Monica wharf is. Then, so far as the distance is concerned between San Francisco and Los Angeles, between these two great commercial points, there is no practical difference between Redondo and Santa Monica.

Now, with respect to the location and the availability of this harbor. I have gathered from the testimony of all the witnesses who have made statements here today, that the danger on this coast is the south wind. I gather that the storms come from the southeast; that their duration is from one to three days; that they wear off with the wind from the west and from the northwest. Now then, as a matter of fact, at Redondo it is utterly impossible, nature has made it impossible—and nature has done much, very much, for this location—nature has made it impossible that we should ever suffer there from southeast winds. There are the Palos Verdes Hills, which rise so high. Nature has almost made a perfect harbor there. And when I come down to the statistics I am going to be a little easier upon them, because I fear if the Government knows how safe a thing it is to ship and receive freight at Redondo they may say that we don't need any Government money out here at all. That is the danger I am in. I will have to curb myself a

little, in order that we don't knock out this whole plan of appropriation for this coast.

And I will give a few statistics about the shipping there. I am not going to read any long documents to you gentlemen: I believe it is only about one page; very briefly and concisely stated in the document, which will be handed to you gentlemen. And I don't know that we ask that this be forwarded to the Government at all.

The following shows the amounts of freight landed at Redondo by the various steamers during the past three years:

In 1889, from the opening of the wharf in June until December the 1st of that year, eighty-five steamers, 8261 tons, or 1180 tons per month.

In 1890, 182 steamers, 26,835 tons, or 2236 tons per month.

In 1891, 194 steamers, 29,187 tons, or 2432 tons per month.

And to August 31, this year, only eight months, 192 steamers, 20,098 tons, 2512 tons per month.

Aggregating 651 steamers, 84,389 tons, or 120 tons per steamer.

And I interject here the statement that there has never been a steamer lost at this port, and never any serious injury to any steamer in that port. I will state also, which I believe can be backed up by the statistics, without going into them, that the holding-ground of this port is excellent; that it is as good as any in this quarter of the country, if we need it. It is not very often that we need it there; because as a distinguished military officer stated in my hearing the other day, who has been in this country some time and most of the time at that place, that there were 360 days in the year when a steamer could lay in perfect safety alongside the pier at Redondo; 360 out of the 365 days. And let me state to your Honorable Board that the history of our storms here is such that if a storm is brewing and gathering and blowing from the southeast that vessels laying there can haul off to sea, and be out of any danger, if it could possibly reach that point.

These are the merchant vessels: Lumber vessels, from June to December 31st, 1889, eighteen vessels, with, in round figures, 6,000,000 feet. In 1890, twenty-nine vessels; 10,000,000 feet. In 1891, sixty-one vessels, with 21,000,000 feet. And to August 31st of this year, thirty-nine vessels, with 14,000,000 feet. Aggregating over 50,000,000 feet of lumber, or 350,000 feet of lumber per vessel, in addition to the steamers and sailing craft mentioned.

A few months ago the British Ship Kirkwood, Britisher, one of the largest sailing vessels, of deep draft, arrived direct from Antwerp and discharged her cargo of 1700 tons alongside of the wharf and into the cars, with ease and safety, in the remarkably short working time of seventy-three hours.

There has also arrived from New York, within the past month, at Redondo, the Progreso. This is the vessel mentioned by Mr. Walton, and he has detailed the safety with which she landed, and it was satisfactory to his employers. And I would like to state here that at this time, omitting of course, lumber and coal, I am informed and have no doubt that it is true, that Redondo Beach has received sixty per cent of the merchandise which comes seaward to Los Angeles; sixty per cent today.

Now, in regard to the feasibility of a wharf at that point. I am sure that I know nothing about it, but I am informed that a breakwater can be constructed there; either a floating or a submerged breakwater. About these things I know absolutely nothing; and, of course, you gentlemen do not want to hear from anybody on that subject, anyway.

We think that, so far as improvements are concerned here, that the Government can by a comparatively small expenditure in a floating breakwater, protect us in the five days out of the 365 when we need any protection. I am told that this can be constructed at a cost of one-tenth of what a breakwater will cost. I don't know anything about that. I am told that. You gentlemen must find that out yourselves. If it be

true, it is much wiser for us people of Los Angeles to ask for something that we can get rather than have a four million breakwater, which will almost break the Government. As a matter of fact, it took a great number of years, 5,000,000 of people, a strong combination of States having Senators and Representatives all in their interests, to accomplish an appropriation of five or six million, I forget which, for Galveston. It was a great difficulty. We talk about building harbors, or of five millions or four millions and extending them indefinitely, any number of miles through the ocean, for the accommodation of everybody, as if we had this whole matter in our hands. It does seem to me that we ought to moderate our views a little and ask an appropriation and improvement which will be acceptable to the Government. We already have at San Pedro a very good harbor for light draught vessels. Of that there is no doubt. The great bulk of our lumber comes in light draught vessels from the upper coast and is landed at that place. And all we need to provide for is the seagoing vessels. We have almost done it at Redondo, and a little aid from the Government we think will accomplish the whole matter. And we respectfully submit that Redondo offers more natural advantages than any other place, and we respectfully submit that the necessary protection can be afforded by the Government there at very much less expense than elsewhere.

There are statistics contained in the report of Colonel Mendell which will be read before your Honorable Board. Of course I will not consume the time in undertaking to read it, except that I will say this: that when he examined this port at the instance of the gentlemen who founded it, he prophesied the very results which have been accomplished by these gentlemen. And I want to say, further, in regard to that, that this enterprise has been launched and has been sustained and backed up by gentlemen of very large experience, by the Messrs. Thompson and Ainsworth, men of age and capital and great experience in navigation. They saw this harbor; they took possession of it; bought it. They have spent a million and a half of money in and about that harbor; upon the pier; upon the hotels; upon railroads; and we think that the people of this community would rather that they and the Santa Fé should have Government support and appropriations than any other enterprise in this country.

And let me say something I ought to have said a little further back; that the Southern Pacific, by running a spur from its San Pedro line, can reach this port in ten miles. That the Terminal Road, which we all hope is the western congeries, because they have a number of roads centering here, that they are a part of a grand trans-continental system which would reach here from Salt Lake City—they can reach this port within ten miles, and they will be welcomed when they come, and no man will stand in their way.

Mr. Wells.—Are there any questions the Board has to ask the gentlemen? Are there other gentlemen you wish to have heard?

Mr. Stephens.—There are gentlemen here who are perfectly familiar with the mooring, with the holding qualities of the sea there. Captain Ainsworth and Captain Thompson.

Mr. Wells.—Would the Board like to hear on that point? The Board would like to hear on the holding capacity of Redondo.

Mr. Stephens.—Captain George J. Ainsworth. Captain, will you please state, in your own fashion, the manner of landing the vessels there, and the moorage?

Mr. Ainsworth.—The vessels formerly used their own anchors in landing, in coming to a stop before they approached the pier. But afterwards we supplied the harbor with very heavy mooring, so as to insure any vessel against going ashore in any storm that might occur. Those moorings were placed in under the supervision of Captain Bruce, the Marine Surveyor of the Fireman's Insurance Fund of San Francisco;

and when a vessel is attached to those moorings their insurance is just as light as when lying in the harbor.

Major Handbury.—Can you tell us, Captain, about the weight of those anchors?

Mr. Ainsworth.—The heavy mooring placed down by Captain Bruce, they have two anchors fixed in a bridle arrangement, in a fork.

Major Handbury.—Are they anchors, or, are they—

Mr. Ainsworth.—They are anchors. One weighs 8000 pounds, and the other weighs 6000 pounds. The chain is two-inch chain. Links are two inches in diameter; and 190 fathoms of that chain attached to a boiler-iron buoy.

Mr. Stephens.—What is the holding ground there, Captain?

Mr. Ainsworth.—It is a very good holding ground. I have never known the anchor of any vessel to drag. It is a sand and clay.

Mr. Stephens.—What vessels stop at your port now, at your wharf?

Mr. Ainsworth.—All steamers coming south of Goodall, Perkins & Co., and Willamette supply, the Willamette's Lumber Yard, and Clark & Humphreys, in the interior.

Mr. Stephens.—That is the Pacific Coast Steamship Company?

Mr. Ainsworth.—Yes, sir.

Mr. Stephens.—Navigating the southern coast?

Mr. Ainsworth.—Yes, sir.

Mr. Wells.—Are there any questions which the Board desires to ask?

Major Raymond.—Is there any rock in the vicinity of the anchorage of Redondo?

Mr. Ainsworth.—No, sir; it is all open and clear. There are no hidden obstructions of any nature.

Mr. Stephens.—I think that is all, gentlemen. We desire to be brief.

Mr. Wells.—The Board desires to know whether there are other localities which would like to be heard, embraced within the limits of the investigation which they are making. If so, an opportunity will be given for them to be heard. There does not seem to be any

Col. Craighill.—Now, gentlemen, we have heard from the advocates of each of these three places, San Pedro, Santa Monica and Redondo, the details of the claims of each for the location of the breakwater; that is to say, the merits of each have been discussed. We will begin now with San Pedro, and if those who represent San Pedro have anything further to say in that direction, we are ready to hear it, and we should be very glad to hear them. And if they have anything to say with reference to the demerits of Santa Monica or Redondo, we want them to say it now.

Mr. Wells.—Will some person representing San Pedro call out and introduce the speakers?

Mr. Shorb.—I prefer having Captain Johnson called for the present.

Mr. Wells.—Captain Johnson, you have the floor to proceed as you wish.

Mr. H. C. Johnson.—Well, I will say the little facts I know about the harbor. I came here in '52, in December, forty years ago, in the bark America. I went to anchor in the Bay of San Pedro; rode out two heavy southeasters with safety; two anchors, one with forty-five and the other with fifty fathoms of chain. Then from that time until '54 I lived at San Pedro on the point which they call now Timms' Point—in that neighborhood. Saw vessels coming there, few, as a matter of course, and two little steamers that were running there then, the only steamers on the coast—the Seabright and the Ohio. And they got there in all kind of waters; and, with the exception of one losing her anchor once without having their chain shackled, there was never any trouble about riding out the gale, so far as the holding ground was concerned, within a couple of miles of the bluff. Southeast, from there to here, there is more or less loose sand. Of course in the southeast wind, the only wind that is liable to do any damage, the vessels would natur-

ally drift in shore toward the water where the anchorage will hold better. In '54 I was engaged by John Ord, the United States Surveyor at the time, to run him about the coast, surveying—him and his party. I was engaged—the vessel and myself. And I got in the Bay of San Pedro there in all kinds of weather during the winter months, in '53, '4, '5 and part of '56; got to anchor there in the night and day, and all kinds of waters, and I never had any trouble of laying there safe, as far as the anchorage is concerned, to hold, as long as the moorage and tackles are good. Since that time, fourteen years, I was running in and out the bay, night and day, any kind of weather, summer and winter; anchored in every place and any place within the anchorage as laid down in our official chart; and never had any trouble. And from that time I stopped following the sea and having anything to do with the vessels. But I resided in the neighborhood and saw every vessel there. And no vessels ever dragged their anchorage who had their anchors clear. Those who dragged their anchorage either parted their chain or they had a fouled anchor which they neglected to clear before the storm come up.

Now, with regard to the inner harbor, we all know there is about eighteen feet of water there to go over at high tide. Vessels go in there and they are well secured. They are like in a pond when they are in there. And the outer harbor is protected from all winds, with the exception of the east and southeast. The southwest wind that is prevailing here during the months of February and March, and sometimes a part of April, they are the strongest gales we have on this coast, which every seafaring man knows, because they blow more towards shore than any other wind; raise a heavier sea. San Pedro there is protected by Point Fermin. It is only the wind from the east and southeast. Catalina Island protects part of the harbor, but not sufficient for vessels to lie perfectly smooth in smooth water.

Now, with the money that has been expended in that harbor there, with very little breakwater in sufficient water there to build it on a solid foundation, which is not to be found in every other place, a small breakwater would inclose there a couple of thousand acres for their deep-sea harbor. The inside harbor is nearly as good as finished. And we would have plenty of facilities for all the railroad companies, for all the community that would ever live in that neighborhood, for warehouses and everything else; lots of fine level soil, and the facilities would be great. I heard a gentleman this morning speaking about ships going up to the Columbia river to get to Santa Monica. I have followed the sea since 1841, and I couldn't think even Columbus himself would have traveled so far to find the port of San Pedro or Santa Monica, as to go to the Columbia river. Any vessel, or in fact, to make it short, allow me to state that we must in the future look to our trade by water. We expect to have communication from South America, West Indies—or at least Central America and Mexico. To have that trade, we are nearest to Los Angeles of any of the towns.

In regard to making harbors, what does a seaman want? A good lighthouse? We have got it in San Pedro. We have got Catalina laying out there for a point of land to navigate by. We have a Government Reservation at San Pedro, if the government wants to build any fortification or anything. They have five hundred square varas of land there, and, in fact, any facility anybody wants to have for the sake of a harbor.

Now, in regard to the time between San Francisco and here, the freight and the passenger traffic that has been carried in former years is nearly done away with. Everything goes by railroad that comes from there. We must not look to San Francisco for our trade. We must look to the East by water to have cheap transportation. Consequently, if we get it by water we are nearest to Los Angeles of any port. Any little freight or passengers that come from San Francisco to Santa Mon-

ica, they gain a little time, that is true. But, outside of that, what is there in Santa Monica to protect shipping? It is open to the south, and we know we have heavy gales from the south and southwest. They speak about water being smooth there. I have been there hundreds of times, and always found plenty of surf for the bathers to bathe in, and heavy swells. I have known vessels to drag there; and they had to send steamers there in the month of May, 1878, to pull them out, keep them from going ashore; heavy swell, undertow and one thing and another. Anchors didn't hold up laying alongside of the wharf. They were destroyed there.

In regard to the anchorage outside in Santa Monica, I can't tell, for the reason I never sounded much, other than the point Dumas. I was up there with John Ord, and he sounded there and put some signals ashore.

In regard to Redondo, my friend here has said all that could be said in regard to it. There is deep water, plenty of it; protected from the southeast, it is true, but it is open to the westward. If the gentlemen wish to inquire in regard to anything else I would like to state. I don't like to take up all your time.

Lieut.-Col. Robert.—Captain, which do you consider as more protected from the worst storms, Santa Monica or San Pedro?

Mr. Johnson.—Well, San Pedro is more protected, because from the heavy northwesterns, and particularly the heavy southwesterns, San Pedro is protected. You can simply lay safe there.

Lieut.-Col. Robert.—Now, take the southeasters. Are they not the worst storms when they do come?

Mr. Johnson.—No, sir. They always come with rainy weather, and when it rains the sea is patted down by the rain. The harder it blows the harder it rains, and the smoother the water is. But a southwester often blows without any rain, and there is a heavy sea. The whole ocean is open from the southwest to come in, while from the southeast winds, the wind generally starts from the north-northeast, or east, and goes around to the southeast or southward. As soon as the wind hauls to the south, San Pedro is protected more or less by Catalina Island. That is only twenty miles off. And, consequently, the next day, inside of thirty-six hours, the wind hauls to the southwest and westward, and goes to the northwest somewhere. But as soon as it hauls beyond south, we are protected in San Pedro by the island; and then southwest, Point Fermin cuts off the sea. The southwest winds don't affect the bay of San Pedro at all.

Mr. Wells.—The Board desires to give an opportunity to Santa Monica or Redondo, Santa Monica first, to ask any questions of the gentleman who is now making statements; and, in order that there may be no confusion, I will ask that anyone who wishes to ask a question first obtains the floor for that purpose, and then we will have no confusion whatever. Santa Monica will have the right to ask any questions first through any representative they may select.

Mr. Carpenter.—With regard to the gentleman on the stand, we have no questions.

Mr. Wells.—Then Redondo will have an opportunity.

Mr. Stephens.—Redondo has none.

Mr. Wells.—Then that is all, Captain.

Mr. Reynolds.—I have a report from the San Pedro people, which can be handed in, or—

Col. Craighill.—I will say, generally, that anything that can be given to us in writing we would prefer to have it.

Mr. Reynolds.—Shall I read it, or not?

Col. Craighill.—Just as you prefer.

Mr. Reynolds.—The only question is there might be facts here which the other side might desire to dispute. It will take about ten minutes.

Col. Craighill.—I think you had better read it, then.

Mr. Reynolds.—“To the Board of Government Engineers in the matter of the location of a deep-water harbor for Southern California. Gentlemen: In considering the question of the location of a deep-water harbor in the vicinity of Los Angeles, would beg leave to respectfully ask your consideration of the following points in favor of the port of San Pedro:

“1st. It is centrally located for the territory to be accommodated, and for the various railroad lines of the country.

“2nd. It is of all available points within the limits indicated for survey, the one with the best natural shelter, having Catalina island directly south, the jutting point of San Pedro mountain upon the west and curving coast line eastward.

“3rd. It is the nearest point to the quarries upon Catalina island from which the stone to build the sea-walls probably will be obtained.

“4th. The roadstead at this point has a firm bottom upon which to rest the weight of the rock in the walls, as shown by the fact that kelp, which is a sure indication of a rocky bottom, exists in a line parallel with the proposed breakwaters.

“5th. A submerged reef, extending from point Fermin in a southerly direction three-quarters of a mile, affords considerable shelter for vessels anchored in the harbor now, by breaking the force of the heavy southwest swells before they reach present anchorage, and would be a natural foundation for a sea-wall protecting the entire harbor from the southwest swell.

“6th. It is, by reason of its bold headland and the proximity of Catalina island, well situated for harbor defense, which fact has been recognized by military engineers in the location of the Government Reserve on the bluff.

“7th. Lying, as it does, at the extremity of a prominent headland, with its shore line dropping away upon either side, it affords ample sea room for sailing vessels approaching and leaving with the wind from any quarter: an advantage possessed by no other point within the limits set for the location of the proposed harbor. This feature in a commercial point of view is of exceeding importance.

“8th. It would not be necessary to await the completion of the whole work before reaping the benefits, as the building of the first thousand feet of the west wall would afford shelter for the basin to be inclosed, except during southeast storms, which are of rare occurrence.

“9th. Situated, as it is, to the eastward of a high promontory, it is protected from the prevailing northwest winds, and in part from the southwest swells.

“10th. At San Pedro the strong set of the return current from the southeast against the headland and the deep water immediately beyond, keep the bottom scoured, so the filling up, which is the greatest danger to all artificial harbors, is rendered impossible. This is proved by all government charts issued between 1859 and 1890. The lines of the sea-wall planned in the recent Government survey were designed expressly to take advantage of this feature.

“11th. The submerged plain, while deepening within a short distance from the shore line to twenty-five or thirty feet at low tide, then becomes so nearly horizontal that, at a distance of a mile further out, the sea is only from fifty to sixty feet in depth. This feature renders possible the enclosure of a large area of deep water, without having to build the walls in such a depth as to make the cost excessive.

“12th. A deep-water harbor constructed at this point has the advantage of utilizing, for all vessels not drawing over twenty feet, the ample water frontage of the inner harbor of San Pedro, now nearly completed, thus leaving the deeper water without clear for the deeper draught vessels. When it is remembered that the greater proportion of vessels seeking a seaport are of this lighter draught, the economic advantage of thus being able to save the deeper wharfage for the larger

vessels and avoiding overcrowding becomes apparent, as it renders possible the accommodation of a much more extensive commerce without adding to the cost.

“13th. Respecting the holding ground at the present anchorage at San Pedro (said anchorage will be enclosed by the already proposed breakwaters), we assert that it is the best, and has been so conceded by all vessels which have anchored there for the past thirty years; the formation being clay and sand, with no great depth of sand. We refer you to the past record of the proposed inclosure as being the safest anchorage ground on the coast.

“14th. The construction of a deep-water harbor at this point thus economizes and utilizes the heavy expenditure which the government has already made upon the present harbor of San Pedro, which then becomes, as just shown, the inner harbor of the new work.

“15th. The already large water frontage and the branching channels of the inner harbor admit of much greater development than is yet found necessary. These sheltered waters, besides the facilities for handling freight, affords ample space for the building and repairing of ships, which must be carried on at every important seaport.

“16th. Before the work of improving San Pedro harbor was inaugurated by the Government, three separate surveys by different Government engineers were made at intervals of several years. These surveys included the coast line both north and south of San Pedro.

“All three reports concurred in designating San Pedro as the most suitable point for such work. These three separate and distinct reports have been further confirmed by a re-survey, made by a full board of Government engineers, less than two years ago, who again decided that the port of San Pedro was the proper point for the construction of a deep-water harbor, possessing advantages not found at any other place.

“Respectfully submitted,

“MERICK REYNOLDS, Chairman Citizens' Committee.”

Mr. Carpenter.—If the Board please, we will ask leave to reply to that document, in writing. We will look over it, and such parts as we think have not already been met by our evidence, we will ask leave to reply to specifically in writing, and file it with the Board.

Col. Craighill.—There is no objection to that.

Mr. Wells.—Now, has Redondo any question that they wish to ask the gentlemen?

Mr. Stephens.—I suppose not, sir.

Mr. Wells.—Has San Pedro any other gentleman who wishes to be heard?

Mr. Shorb.—I would like to put Captain Polhemus on the stand again. The Captain has already given his evidence to you gentlemen as to his knowledge of San Pedro. I believe now it is in order, Mr. Chairman, to give you his ideas of Santa Monica bay. It is in order, is it not, sir?

Col. Craighill.—I suppose there is no objection to it. Go on.

Mr. Polhemus.—The General-in-chief of the Santa Monica forces remarked there had been no marine disaster at Santa Monica. I would like to state what befell the bark Frank Austin, the only deep-water ship that ever attempted to land at the Santa Monica wharf. She went in there full laden, under the assurance of the watermen; struck bottom. And the steamer Santa Cruz happened to be there, and he paid the steamer Santa Cruz \$2000 to tow her to San Pedro. There was a gang of men put aboard of her and she was discharged; and men working on there night and day until the coal was discharged. And hadn't there been a steamer there I think there would have been a marine disaster there, and also a small-sized coal mine.

He also speaks of vessels sailing out there. The wind, he says, prevails there during the summer from the west, which is true. He

then says that vessels can stand either north or south. This chart doesn't show it as well as the large one.

Major Handbury.—Here is one over here.

Mr. Polhemus.—This is from the west. Now, I have been on salt water a little, and I would like to know how a vessel laying in here can sail either north or south and get out of there, with a westerly wind. I believe that was the statement this morning.

Captain Stoddard, an old acquaintance of a good many years, said this morning that he could discharge a cargo there in a southeast gale; and, a few moments after, remarked that in calm weather he dropped his anchor there to hold on on account of the great undertow.

Captain Ingalls, who was afterward captain of the same steamer Captain Stoddard was in, one time, in coming in to the end of that wharf, a breaker boarded him outside of the end of that wharf, and he told me very nearly wrecked his vessel. He didn't get near the end of the wharf. A sea got in and broke his stern, and he got away from there. I ask Captain Stoddard if he remembers that.

Mr. Stoddard.—No, sir; I never had such an experience.

Mr. Polhemus.—I say do you remember that?

Mr. Stoddard.—No, I don't remember that.

Mr. Polhemus.—When the Santa Monica first started, a ship was laying at San Pedro, an English iron ship, loading with wheat, and one of the first wheat cargoes that left San Pedro. As is the case always when an English ship is laying near a new place, the English insurance companies always sends out orders to their masters to go to that place and investigate the port and report to them. Captain Evans told me, after he came back, that his report was that Santa Monica, that bight, laid in a bight of ninety degrees; so a deep-water ship—while a fore and aft vessel might work out, a square-rigged vessel couldn't get out; a deep-water ship only had eight points to work, and with a ground swell on it was utterly impossible to do it in a head wind.

Before she left a French bark came in there, and the captain of the vessel got a letter to go there and look. And I always remember what the French Captain said. I said: "Captain, how do you like Santa Monica?" He shrugged his shoulders, and said: "Well, if you please, it is a very nice piece of water; very nice for the bath; very good for the ladies; very pretty ladies; but no place for a sea-going ship." I have nothing more to say, gentlemen.

Mr. Cornelius Cole.—Has there been any wrecks of vessels in the Santa Monica bay?

Mr. Polhemus.—None to my knowledge. The only vessel that ever went in there was the Frank Austin—deep-sea ship, and she was towed out.

Mr. Cole.—How many vessels have been wrecked in San Pedro bay?

Mr. Polhemus.—In my memory, since I have been there, there has been several. There has been the bark Annie, the Adelaide Cooper, the brig Calor—well there has been several there lost.

Mr. Cole.—The America?

Mr. Polhemus.—The America was not lost, but she dragged over the bar and went to sea. And the ship Kennedy.

Mr. Widnev.—Captain, how many deep square-rigged vessels was ever at Santa Monica?

Mr. Polhemus.—There has been a few coasters there; what you might call square; briggantines and barks; but only one foreign vessel, the Frank Austin, that towed out of there.

Mr. Cole.—I had statistics of a great many vessels that landed at a certain place on that bay and had discharged cargo there in that bay, the bay of Santa Monica; a great many vessels; within the last three years.

Someone.—That was Redondo.

Mr. Polhemus.—There have been, sir, and they have been either

steamers or fore and aft vessels. Now, they can work their way out of a shore where a square rigged vessel can't, as any man knows.

Mr. Cole.—The statement was there was never any vessels in that bay. Well, the fact is there have been a great many in there, and they have not been lost.

Mr. Polhemus.—I never made that statement.

Mr. Fisher.—I would like to answer with regard to the Austin. I was there when she came in, and saw the whole thing. I would like to ask Captain Polhemus if he knows how that vessel went ashore, or how she touched the bottom?

Mr. Polhemus.—Only from the Captain's evidence. I know she was on the bottom by the amount of water that she was pumping out of her when I got there.

Mr. Fisher.—The vessel came up alongside that wharf drawing about eighteen feet of water, wasn't she?

Mr. Polhemus.—I don't remember that.

Mr. Fisher.—The captain, in his awkwardness, allowed his vessel to go in where the water was no deeper than the vessel; and I ask you if any vessel on earth wouldn't go ashore if she got in water that was more shallow than the draft of the vessel. I was there at the wharf, and know all about it.

Mr. Wells.—Are there other questions to ask the Captain?

Mr. Carpenter.—No other questions.

Mr. Wells.—Any other questions from Redondo?

Mr. Stephens.—None.

Someone.—I would like to ask the Captain a question, with all due respect to him. He said: How would a vessel get out of Santa Monica with a westerly wind, didn't you?

Mr. Polhemus.—No, sir.

Someone.—I thought you did.

Mr. Polhemus.—No, sir, I did not say that question. I said that that English Captain, Evans, said that there was only ninety degrees in deep water, or eight points of the compass; and a deep ship, a dull sailor, would run great risk of running on shore.

Someone.—I would like to have the stenographer's report regarding that statement. I think it was said that it was on a west wind.

Mr. Polhemus.—I said either east or west.

Mr. Carpenter.—It don't matter.

Mr. Wells.—The correction of the Captain will make it all right in the notes, probably.

Someone else.—What is the reason there were more ships lost in San Pedro than have been in Santa Monica?

Mr. Polhemus.—There was a great many more went there. And when we have a breakwater, which you will probably some day give us, you wont have any more.

Mr. Shorb.—Mr. Chairman, there is a gentlemen here from Long Beach that has a petition we would like to have presented to the Board, in relation to San Pedro harbor.

TO THE COMMISSION FOR THE LOCATION OF A DEEP-WATER HARBOR.

"Gentlemen: We, a Committee appointed by the citizens of Long Beach to furnish data for your consideration, respectfully submit a few facts for your inspection:

"First. On account of the "Palos Verdes" hills to the west, the Island of Santa Catalina to the south, and the long stretch of shoal water to the southeast, a much better natural protection from winds and heavy seas is afforded in San Pedro bay than at any point in Santa Monica bay.

"Second. A depth of water of thirty feet is had at a distance from shore of 1700 to 1800 feet at extreme low tide, and yet the ten fathom curve is from three to three and one-half miles distant from shore line, thereby giving double the area of water inside the sixty-foot line than

can be obtained at any other point between Points "Dume" on San Juan Capistrano. For correctness of this statement, see United States Coast and Government Survey Chart No. 671.

"Third. The bottom affords good holding ground for anchorage, which is attested by a number of old sea captains now present.

"Fourth. On account of nearness of good stone, viz.: at Santa Catalina Island, and water transportation therefor, as well as that a larger area of water can be enclosed within breakwater, at a less depth of water than at any other point under consideration, we believe that the harbor can be made at much less cost in San Pedro bay than in Santa Monica bay.

"Fifth. There are two railroads now on the ground, both roads coming to the ocean, at Long Beach, as well as at San Pedro, and room for all other roads that may wish to come in, and a traffic arrangement already exists between the Los Angeles Terminal and Southern California Roads. Also, almost an unlimited frontage exists for constructing piers and wharves.

"Sixth. A line of breakwater off San Pedro on Long Beach, following, say the nine fathom line, could be extended from time to time, as fast as increasing commerce would demand, in an easterly direction until enough water would be enclosed to afford safe anchorage for an unlimited number of vessels.

"We herewith submit a map of soundings taken at Long Beach in May, 1892, and would further state that a contract is now let for building a pier at that point to extend into the bay a distance of 1631 feet.

"Respectfully submitted,

"G. M. WALKER,
"KENYON COX,
"W. W. LOWE."

Mr. Wells.—It is now in order for anyone who wishes to ask a question of the gentleman on the point presented. From Santa Monica first.

Mr. Carpenter.—We don't wish to ask him.

Mr. Wells.—From Redondo? There are none.

Mr. Dodson.—Gentlemen, I wish to state on behalf of San Pedro that Mr. Hood has shown that the Southern Pacific owns all the water front, which is not so. We had a suit, which was settled last week, which was decided by Judge McKinley, that the Southern Pacific didn't own 2000 feet that we were at law with them about. And he also said they owned all the land from Timms' Point to the Government Reservation, which is not so, either. It is a part of the town of San Pedro, is under the control of the town of San Pedro, and is private property.

Mr. Carpenter.—Mr. Hood didn't make any such statement as that. He showed the map, and excepted the property that are town lots in San Pedro.

Mr. Wells.—His statement is on record.

Mr. Gibbon.—I would like to state that Mr. Dodson is one of the Board of Trustees in San Pedro.

Lieut.-Col. Robert.—He so stated.

Mr. Shorb.—I would like to call Dr. Widney.

Mr. Widney.—I don't propose, gentlemen, to make a review of all that has been said. I would like to ask the especial attention of my friend Judge Carpenter and Mr. Hood. I have heard an old saying that there are none so deaf as those that will not hear. I think if the gentlemen will listen this time carefully they will understand what I said. I said this: A harbor that is to handle our commerce must have a water front of from six to eight miles. It means not alone shelter for deep-sea vessels, but it means shelter for all the schooners and light draught vessels, and the dockyards, and so forth. I said we are now using about one mile of water front at San Pedro. I said the proposed breakwater at Santa Monica would shelter possibly one mile of water front—no

more than we are now using. The time will come when we will need at least one mile of deep-water front for deep-water vessels. What are you going to do then with your light draught ships and docks, and so on? You may ask the Government to build another mile, at a cost of four millions more. By the time you get your six or seven miles of water front it will cost from twenty-four to twenty-eight millions of dollars, because every mile of water front will cost four millions. You will have to build your mile of breakwater to shelter schooners the same as to shelter deep-water vessels. Now, I said the result would be this: You might possibly get the Government to build one mile, but no more. That would go to your deep-water vessels; and your light draught vessels and dock yards are compelled to go to some other point, and then you have two harbors instead of one. Now, I think you understand me. I have been in the harbor business for years; probably before you, Mr. Hood. It was in my office that the plans were laid for the first subsidy that was given to the Southern Pacific to occupy this country a great many years ago, and I know all about it. I knew all of their engineers, for years and years. I went with Governor Stanford over the harbor several times. For about twelve or fifteen years they simply said one thing: "There is no other point on this coast where we have even thought of going"; and they examined it all carefully. And Governor Stanford said: "I expect to live to see the day when our commerce, instead of San Francisco, goes to San Pedro." And they stayed there for years; in the winter, when there were vessels there; year after year. And that was the only point, when they tore their wharf down at Santa Monica, and said it was worthless. Now they want to change front, and say "We will go to Santa Monica." I am sorry to say, gentlemen, we have realized one thing in this country. The Southern Pacific came here and had everybody for its friend; but we have learned that when they want anything very badly our interest lies the other way. They have whirled front, after about fifteen years' use and advocacy of San Pedro, and gone to Santa Monica, and are building a wharf there. And I would advise our citizens to ask who owns the land right back. I don't know. I know some of my acquaintances were endeavoring to buy a certain tract of land down about Santa Monica Cañon, involving a great many hundred acres. The man said it was bid in for the Southern Pacific. It is gone. We have lost it. It is not in their name, but it is bought for them, and we have lost it. Here is a narrow strip of land in front of a bluff about a hundred feet high, and the Southern Pacific has a right of way all along that; and that is where the breakwater is to go; and what chance has anybody else? At San Pedro we have two railroads in already. We have a large private ownership on the interior harbor, and the city retains part ownership.

Now, coming to the point in question, it is not a matter about which point is most exposed. As I said this morning, in the beginning of a storm San Pedro is more exposed, and at the end Santa Monica is more exposed; and a breakwater will protect either. The point is: Where is the place that we can get the Government to build a breakwater that will be large enough to do any good for the money they will give us? Now, if you go to Santa Monica, we simply have, at an expense of four millions, one mile of breakwater, sheltering one mile of frontage on one side. That is all. And the Government is not going to give us twenty millions of dollars. It won't do it. At San Pedro, however, we have the possibility of unlimited water frontage, up to twenty feet, inside, which is already partly made, and we only have to ask four millions of dollars to shelter all the deep-water vessels on the outside, and that is all; and we have a harbor that will shelter all the commerce that is to come. We ought not to allow our selfish interest to come between us. The Government will only do so much. The breakwater shelter isn't the only point; but at San Pedro, with the assistance the Government has already been, we have miles of inside shelter already,

and we only need enough additional to shelter a few deep-water vessels, and we have the harbor completed. At the other point we have to build miles of deep-water breakwater to shelter small craft, or else have some at one port and some at the other.

There have been three shipwrecks at San Pedro; the statistics show for 1887, 887 vessels arriving there; in 1888, 1092. Now, for thirty years they have been coming there, and they have aggregated thousands of arrivals. And, even in its unsheltered condition, they lost but three vessels. At Santa Monica there have simply been light vessels, and it has not been tested. I believe I have covered every point.

Mr. Wells.—Has Santa Monica any questions they wish to ask of Dr. Widney?

Mr. Carpenter.—How many vessels do you say, Doctor, have gone ashore at San Pedro?

Mr. Widney.—I understood the statement to be three.

Mr. Carpenter.—Well, what were their names?

Mr. Widney.—Captain Polhemus, you are the authority upon that.

Mr. Carpenter.—Well, do you know anything about the bark Nick Biddle going ashore, in '76; the bark Calor, February 8,—

Mr. Polhemus.—I mentioned her name.

Mr. Carpenter.—The bark Adelaide Cooper, December 20, 1879. Do you know anything about that?

Mr. Polhemus.—I mentioned her name.

Mr. Carpenter.—I am not now talking to you.

Mr. Wells.—I would suggest that this be confined to the Doctor.

Mr. Carpenter.—I am questioning the Doctor. The Doctor asserted that but three vessels—

Mr. Widney.—Excuse me, sir. I said about three vessels. I have taken them as my authority, and I simply showed the small per cent. It may run three or four or five, but Captain said about three.

Mr. Carpenter.—I have a list of nine here, running all the way from April 8, 1876, until September 26, 1888.

Mr. Widney.—As I said, however, these are unimportant points, because at either point a breakwater shelters, and so there will be no further loss of that kind.

Mr. Carpenter.—All right.

Mr. Cole.—Can a breakwater be constructed in the harbor of San Pedro that will protect a vessel against the southeasters?

Mr. Widney.—That is what the harbor is for, simply.

Mr. Cole.—Will it shelter the vessel against those violent winds, any harbor that can be made there?

Mr. Widney.—The line of the sea-wall is directly between the vessel and the southeast. The statement of the engineers, made to me in San Francisco and also here, was that, with that breakwater built, there was as absolute protection from a southeaster, for about a mile of water front, as the most sheltered part of San Francisco bay.

Mr. Cole.—The question is, can a breakwater be built so as to shelter the vessel from the violent southeast winds? Wouldn't the harm be the same?

Mr. Widney.—The harm, certainly, to the rigging of the vessel, but it would afford protection from the swell of the sea that comes in. You never expect to shelter the rigging of the vessel.

Mr. Cole.—Do they haul around with a greater degree of violence to the west than they have when it comes from the southeast?

Mr. Widney.—Our heaviest winds come from the west. It comes with a vicious snap we never get from the southeast.

Mr. Cole.—Did you ever know of any vessel being driven on the shore from a westerly wind at San Pedro?

Mr. Widney.—Sir?

Mr. Cole.—Did you ever know any vessel of the nine that have been driven ashore to be driven ashore by a westerly wind?

Mr. Widney.—I don't suppose it would be possible, because they are lying in the shelter of the land. When it gets to the west they have the reef and the Santa Monica mountains.

Mr. Cole.—Don't you know the violent and dangerous winds are the southeast?

Mr. Widney.—Yes. At Santa Monica the dangerous wind is from the west.

Mr. Cole.—Did you ever know any violent wind from the west coming into the bay of Santa Monica or Redondo?

Mr. Widney.—I have heard of a great many. I have never been down there myself, personally; but I have had the newspaper reports and the persons who were down there at the time.

Mr. Cole.—So as to do any damage?

Mr. Widney.—There were no vessels to do any damage to. They told me one time they had to run the train off the wharf for fear the wharf would, and the warehouse and all would go; and they took the train away on the land for fear it would get away with the whole thing one time when the wind was from the west.

Mr. Wells.—I think that is all, Doctor.

Mr. Shorb.—Mr. Chairman, as far as Wilmington and San Pedro is concerned, we will rest our case. We will leave the case just exactly where we felt inclined to at first—in the hands of these gentlemen. I have, with the permission of the Board, some statistics of San Pedro harbor; and, as a part of our proof, we submit the report of the last Board of Engineers.

Mr. Wells.—Santa Monica now has the floor. Mr. Reynolds.

Mr. Reynolds.—There is one thing we would like to have, and that is a copy of the answer to our report.

Mr. Wells.—I have no doubt Judge Carpenter will furnish you with a copy of that answer. Have you anything to present, Judge Carpenter, in the matter of Santa Monica?

Mr. Carpenter.—We will give it to him when we get it. Mr. President and gentlemen of the Board. We have no testimony to introduce, but I think, perhaps, it may be not amiss to make a few remarks upon the testimony that has been introduced and the statements that have been made by the gentlemen from San Pedro.

They seem to rest their case chiefly upon abuse of and distrust and denunciation of the Southern Pacific Railroad. What that has to do with the question before this commission I do not comprehend. I am perfectly aware that the gentlemen and their colleagues, and in the political circles, are making abundant use of it; but I do not understand what it has to do before this tribunal. If the Southern Pacific was on trial it could show that its iron horse came over the sierras when this was a dense forest of wilderness, and a sheep pasture, and developed almost the entire interest. All the progress of the State was owing to that very development. And this is the gratitude that Republics give to their savior. But the Southern Pacific has nothing particularly to do with this question.

Again, the gentlemen contend that they don't want a harbor at Santa Monica because the Southern Pacific has gobbled up everything there, or will gobble up everything. Well now, from their standpoint, the Southern Pacific has gobbled up everything at San Pedro, and yet they don't want a harbor at Santa Monica because the Southern Pacific may hereafter gobble up everything there. They have got you down to the water's edge.

Several.—No, no.

Mr. Carpenter.—You can't get over a foot of their road or their track, unless you condemn it. Now, how is it in Santa Monica? This gentleman, my distinguished friend, my high-toned and moral friend, after the testimony was upon the stand that the only right that the Southern Pacific Company had was a right of way along the beach fifty feet wide,

still threw out the intimation that a lot of land there fronting the sea has been bought by the Southern Pacific, without a particle of proof, and there is no proof, to sustain it. It is absolutely untrue. Now, I appear for Santa Monica as well. We say that is one reason why we should have a harbor—because Jones & Baker and others own the frontage, and the railroad company does not; that other roads have a right to come in there. There is room for them to come, and the attorney of Messrs. Jones & Baker has stated here upon this stand that it was a part of the condition of granting a right of way to the Southern Pacific, to confine that line so that other roads should have a free passage along that beach. And yet the Doctor intimates that the Southern Pacific has the land. Other roads can go there, is the truth; and there is not a cintilla of proof to the contrary. A wagon road does run along the beach, parallel with the railroad, past the wharf the Southern Pacific are constructing. That anybody can see, unless they are blind, if they are upon the ground; and that is a fact that is in proof before this Board.

Now, who has proved that Santa Monica is not a good bay? Anybody? No. Who has proved that the soundings are bad? Anybody? No. It is not necessary for me, and it is not necessary for the cause I represent, and the parties I represent do not wish that any attack should be made upon San Pedro. We have no attack to make upon Redondo. The people of Southern California, and the people of Los Angeles especially, want a safe deep-sea harbor for the commerce of this beautiful country. We had rather have it at San Pedro than nowhere. We would rather have it at Redondo than nowhere. We prefer Santa Monica, because as Mr. Hood said in his testimony, in the judgment of the Company, nature had directed that as the point of arrival and departure. The railroads have no option about it. If that is a nearer point by land, if it is nearer by sea, if you must pass Santa Monica with ships coming from the north or coming from Nicaragua to go to San Pedro, then the distance in time and distance in miles drives the shipping and the commerce to Santa Monica. This is an age of steam, of rapid thought, of rapid action; and if there is but a few miles different, but a few minutes—and here the proof is at the lowest calculation it is between two and three hours—no gentlemen on that Board need be told that the business will go to the point on the coast where Los Angeles can be reached the most speedily and safely. This is not a time when men go five hundred miles around, or fifty miles around, when they can save the distance. There are six miles difference between San Pedro and Los Angeles and Santa Monica and Los Angeles. That is enough to settle the question of itself. But, besides that, vessels that come down the coast stop to unload at Santa Monica, and then go on to San Pedro; making hours of difference in the time that passengers and freight would arrive here; making it as the gentleman so well said, nature's point. And the road was driven there.

Why, do you suppose the Southern Pacific Railroad that has been accused of being so bad, accused of being a robber, but never of being a fool that I have heard of—do you suppose they pulled up their tracks in San Pedro, a dozen lines of road there, and all their buildings, and all their expenditures, and have gone off to put them down in Santa Monica, in a new place, unless they were driven to it by the stress of commerce and necessity? Why should they have done it for any other purpose?

But, after all, gentlemen of the Board, the question comes down to a matter of engineering, a matter of figures; and that you will determine from the proof that has been and will be laid before you. We want what is fair. We want no aspersions cast upon anybody, without some proof. We have cast none upon the other side. We have abused nobody; we have denounced nobody; we have questioned nobody's motives, and we humbly submit that nobody has a right, in the name

of morality or conscience or any other thing, to question ours, until there is some proof that they are wrong. We stand upon our manhood and our rights. We can defend Santa Monica without aspersing or lying about or abusing San Pedro or Redondo or any railroad under heaven. We stand upon the bottom of truth and of justice and of commercial economy, and the best interests of the people of Southern California. And that is a platform, sir, that will stand when all these miserable insinuations, with their authors, are buried in eternal oblivion.

Mr. Gibbon.—I would like to ask a question of Judge Carpenter. You have just spoken of the importance of saving two or three hours in the business coming from San Francisco. Wouldn't exactly that same rule apply to the business which will come from Nicaragua canal to San Pedro?

Mr. Carpenter.—Yes, if it came that way. But the proof is, if you paid any attention to it, that it would have to come by Santa Monica to go to San Pedro. That is the proof, that that would be the line of sailing vessels; that it would come there and go by Santa Monica.

Mr. Dodson.—If a steam vessel was coming from Nicaragua would she have to go above the islands to come down?

Mr. Carpenter.—No, I think not; but I think they generally do make that point, because it is the best view. But when Santa Monica has a harbor and a lighthouse, they would steer precisely that way. Any more questions, gentlemen?

Someone.—Did I understand you to say, Judge, this was the age of steam?

Mr. Carpenter.—Yes.

Someone.—Does the steamer generally take a roundabout way to get a certain point?

Mr. Carpenter.—No. Nobody has been talking about a steamer.

Someone.—You said it was an age of steam.

Mr. Carpenter.—I do. There is steam from Redondo here, and Santa Monica here, and one is about eighteen minutes, or twenty, sooner than the other.

Someone.—Supposing we get steamers from Nicaragua. What then?

Mr. Carpenter.—My dear friend, nobody has this testimony—none of it applies to steamers. Everybody, I think, knows that a steamship can go against the wind, against the tide.

Someone.—Yes, sir. They don't go round about to get anything.

Mr. Carpenter.—Nobody has been talking about steamers but you.

Mr. Wells.—We want to get through with it as soon as we can.

Mr. Carpenter.—That is right. I am here to do so.

Mr. Wells.—Are there other questions for information which it is desired to ask Judge Carpenter from San Pedro? If it is not, Redondo will have a chance.

Mr. Stephens.—We have none.

Mr. Wells.—Are there any gentlemen to hear from on the part of Santa Monica?

Mr. Carpenter.—I think that is all.

Mr. Wells.—Redondo will come next in the wishes of the Board. Has Redondo anything further to present?

Mr. Stephens.—Nothing.

Col. Craighill.—I think, gentlemen, we may thank you all for the very full discussion of the subject we have had from every point of view, I think; and, if there is anyone who wishes to say anything more, we will sit to hear him, although I think we have had enough. But I will say this; that if there are any written communications that are to be made to the Board, we would wish to have them as soon as possible. And I think it likely the best channel they could come would be through the President of the Chamber of Commerce, with whom we will leave

our address. And we would be glad to have any further information as to facts. Those are what we want; facts.

Mr. Walton.—Mr. Chairman, I dislike taking up the time of the Board, and especially on the first subject that was alluded to at the meeting this morning, and that was the commercial necessities for a harbor. Our friend Dr. Widney and the Honorable J. de Barth Shorb both made some statements in regard to the subject as it applied to sailing vessels, and to the Nicaragua canal, and other possibilities. And I would like to take just one minute in which to make a statement as regards the way it applies to present conditions. I wish to call the attention to this steamship line that has been running from New York to the Pacific Coast, carrying over 50,000,000 pounds of merchandise in the past year from the Atlantic seaboard to the Pacific Coast; great steel steamships that come by way of the Straits of Magellan to the Pacific Coast, something like 14,000 miles, with but one stop. What condition are they in when they arrive here? They have steamed for twenty-two days from Coronel, Chile, which is the only stopping point where they coal. They arrive here. The first thing, almost, that is a necessity from an engineering standpoint is to draw their fires and blow off their steam, and to begin to generally overhaul the vessel while she is lying idle. What condition are those vessels in then? They have two or three iron masts that are used for the purpose of hoisting out the cargo; possibly, in case of great necessity, for hoisting sails upon; but they are not available. Those vessels, when they are in a harbor in Southern California, are as helpless, and more so, than the worst hulks that run up and down the coast. They have no steam and no motive power. They have nothing but their anchors to hold them. And while, during that 360 days our friends have spoken about wherein there is no necessity for more than a piece of darning cotton to hold these vessels right where they should be, there are five or six days when it is a vital necessity that they should have protection. I am speaking of present conditions; not of future conditions. These same vessels, that don't come around by way of Santa Monica to get into San Pedro any more than they go by way of the Hawaiian Islands to get into Redondo—they have been coming straight, and are coming. And I say the present necessities are that we should have something in the way of a breakwater protection, somewhere, for these vessels. Although our commerce is from the south, the three points contesting are but a few hours apart, and it don't make much difference to us which is selected; but I simply speak of the commercial necessity and the immediate necessity of a breakwater somewhere, and where our cargoes when they arrive may be delivered in Los Angeles to the merchants at a reasonable rate. And, in order that they may have a reasonable rate, it seems to me eminently necessary that there should be more than one line of railroad from that harbor to Los Angeles to haul it.

Mr. Shorb.—I move, sir, that the thanks of this assembly be tendered to the honorable Board for the kindly and courteous manner in which they have received all the information which has been given today, sometimes, and possibly by myself, in a way that might have been different.

Seconded.

Mr. Wells.—It is moved and seconded that a vote of thanks be tendered to the Board of Engineering Officers for the kind and courteous manner in which they have received all the information which has been given them. Are you ready for the question?

The motion was put and unanimously carried.

Mr. Carpenter.—Mr. Chairman, I wish to ask the gentleman if he will permit me to ask him a question.

Mr. Walton.—At your disposal.

Mr. Carpenter.—Who is the agent here of that line of steamers that you have been describing?

Mr. Walton.—I am.

Mr. Carpenter.—Well, I thought it was your little advertisement. It is all right.

Col. Craighill.—Of course we are very much obliged to you gentlemen for the kind resolution which has been passed, and we have done nothing more than our duty; and, if it were necessary, we would stay here several days; but we think we have it all now. There is one thing one of my colleagues is desirous of asking, and that is a question that has been omitted, thus far.

Lieut.-Col. Robert.—I just wish to have clearly in my mind one point. I think I understand it, but I would like to know whether there is any person in this room that knows of any case at any one of these three harbors where a vessel—where the anchor has failed to hold, where the tackle was good, and everything, but where the trouble has been—these disasters that have been spoken of—where the trouble has arisen from the lack of good holding ground; where that has been the case; where there is any case on record, at any one of the three harbors referred to. If there is, I should like for you to say so right here, and mention the case, so that if there is none mentioned we will understand there has been no case where the disaster was due to the failure of the holding ground.

Mr. Wells.—Is there any gentleman that knows of such a case?

Someone.—Mr. Chairman, I believe it is a question, if you will allow me, that nobody can answer, for the reason Santa Monica never had no vessels in that port, if you call it a port, with the exception of small—some schooners, and small schooners that went to anchor there—

Mr. Wells.—The Board will understand and take that into account. The question is, does anyone know of any particular case to refer to the Board?

Major Raymond.—At any one of the points?

Col. Craighill.—The whole area covered by this investigation, Santa Monica bay and San Pedro bay, without any reference to any particular locality. Has there ever been known a vessel to drag her anchor and be wrecked? If there is one that anybody can tell us of, we would be glad to know it; and, if it is a matter of record, let us have it in writing. And in this connection, Judge, I would be very glad if you will furnish us a list of those wrecks of which you spoke, with the dates, and the draft of the ships, and their general location in the positions in which the disasters took place.

Mr. Carpenter.—Very well. As soon as possible. I cannot do it today.

Col. Craighill.—Yes. With thanks again to the gentlemen, the Board will retire and leave the assembly in the hands of the chairman.

TO THE BOARD OF GOVERNMENT ENGINEERS APPOINTED TO INVESTIGATE WITH REGARD TO THE CONSTRUCTION OF A DEEP-WATER HARBOR IN THE BAYS OF SAN PEDRO OR SANTA MONICA.

Gentlemen: The Los Angeles Chamber of Commerce in the matter of the proposed deep-water harbor in the vicinity of Los Angeles, California, beg leave respectfully to ask your attention to the following reasons why such harbor should be constructed:

1st. Between the ports of San Diego and San Francisco there is a coast line of some five hundred miles exposed to the full force of the south and west gales of winter, which are on-shore winds, without a single harbor of shelter or refuge. A large coast and foreign commerce passes along this unsheltered coast line exposed to its dangers. With the completion of the Nicaragua canal, and with the constantly increas-

ing population of Southern California, this traffic, both coastwise and foreign, must rapidly increase; and with each year of growth the need of a harbor of refuge for shelter and repairs, becomes greater.

2nd. While a large population now seeks the sea as its outlet at this point, a vastly increased population must do so in the future. It is estimated that the lands of Southern California which naturally drain to the sea at this point will support a population of several millions. Back of these, however, lie the large, fertile valleys of Arizona. These valleys will support a population of a number of millions. They are already rapidly filling with population. Two outlets; and only two, to the open sea are possible to these people; one westward by the San Geronio pass back of Los Angeles, the other southward by the Gulf of California. The 700 miles of narrow gulf navigation southward, with the calms and tropic heat are a bar which must force this traffic westward by the shorter and cooler line, to the open sea at this point.

3rd. The great interior plateau which stretches from the Sierra to the Rocky Mountains, and which embraces northern Arizona, Utah and Nevada, and the territories north, finds its natural grade to the sea southward through Southern California, rather than westward across the Sierra. Before the building of the Central Pacific across the Sierra, the traffic of all this region came by wagon trains southward by three natural grades to the sea, at the roadstead of San Pedro bay. The Central Pacific has to cross the Sierra at an elevation of 7017 feet on its way to San Francisco. The Southern Pacific crosses the same range by the Soledad pass southward from this interior plateau to Los Angeles, at an elevation of only 2822 feet. The Santa Fé by the Cajon pass, at an elevation of only 3819 feet, and the Southern Pacific crosses the mountains at San Geronio, at the extraordinarily low elevation of 2560 feet, on its way from Los Angeles to deep water at Galveston. It is this law of grades which is forcing the newer roads southward to flank the high mid Sierra, for that range has its highest crest opposite San Francisco, and drops as it comes southward. With the construction of a deep-water harbor in the bay of San Pedro or of Santa Monica, and the completion of the Inyo and the Salt Lake roads southward, this whole plateau, because of the easier grade, will again seek to do its shipping southward as it did in the days before the building of the Central Pacific through the port of San Pedro.

4th. The completion of the Nicaragua canal will materially help to effect this changing of trade lines to the southern ports, as the traffic from the Atlantic coast and from Europe, which now goes by sail vessels via Cape Horn, and which after rounding the Horn strikes well out to the mid Pacific to catch the trade winds, and then more easily makes the port of San Francisco, will be transferred to propellers via the canal, which will hug the shore on the way north as its shortest line, and will reach the southern ports first. This will give the short sea carriage and the low land grades to the interior of the continent by the southern ports as against the longer sea voyage, and the high grades of the northern routes.

5th. The Government is now expending large sums of money to make a deep-water harbor at Galveston upon the Gulf coast. To make that expenditure productive of its fullest results, it must have its complement upon the Pacific, as this will be the shortest line with the easiest grades from sea to sea over American territory.

6th. San Diego, the only deep-water harbor of Southern California, lies a hundred miles south of the present and future population, and the same distance south of the mountain passes which give outlet to the sea for the interior territories before mentioned. With all the inconvenience and expense incident to lighterage in open roadsteads, the traffic both local and from the interior, as mentioned in this article, is handled here at the proposed sites of the deep-water harbor, rather

than go south to San Diego and away from population, capital and the direct lines of trade.

The Chamber would ask your attention to the annexed tables of trade statistics, railroad lines, population, etc.

THE VINEYARD INDUSTRY.

The vineyard industry of the southern counties is fairly shown by the following conservative estimate of the acreage in vines at the beginning of the present season :

	Acreage in Vines.
Fresno	49,500
Tulare	9,919
Los Angeles.....	4,695
San Bernardino.....	3,615
Kern	2,173
Ventura	320
Santa Barbara	270
	<hr/>
Total	70,492

The above acreage is set out to wine, raisin and table grapes, the greater portion being in raisin varieties.

The acreage in table grapes need hardly be taken into consideration, the area to those varieties alone being comparatively small ; moreover, a considerable part of the supply of table fruit comes from the raisin vineyards. There are at least 50,000 acres in raisin grapes, and about 19,000 acres in wine grapes, but these figures do not give a true idea of the amount which finds its way to the wineries, as a large proportion of the second crop of the raisin vineyards will be absorbed by the distillers. The output from the above acreage will be increased largely within the next three years, as there is a considerable area not yet in full bearing.

Past experience has shown that an amount of four tons per acre is a fair estimate for the average yield of wine grapes ; on this basis, the above figures of 19,000 acres would give 76,000 tons of wine grapes proper ; in addition to this there must be taken into account the second crop from the raisin vineyards, which at one ton per acre would give 50,000 tons more, or a total of 126,000 tons to be handled in the wineries, and there converted into wine and brandy.

As the weight of the cask is reckoned to equal the weight of the refuse (stems, skins and seeds) in wine making, the above total of 126,000 tons may be taken as a fair estimate of the tonnage of wine and brandy produced from the 70,000 acres, the bulk of which would find its way to a deep-sea harbor, as a natural means of exit on its road to the Eastern States and to Europe.

At the late meeting of enquiry held in Los Angeles, the reporters quoted a prominent wine-maker as saying that, "This country has imported during the last year two hundred and eighty millions (280,000,000) of gallons of wine." This, of course, was a great error ; what he did say was that, "France imported this amount of wine which came from Italy, Algeria and Spain." This wine was nearly all sold at public auction, and the prices realized were recorded and published in certain papers devoted to the wine industry ; these reports are as correct as the reports of the stock markets at New York or London ; the average price realized for this wine was from thirty to thirty-three cents per gallon. There is no reason for doubting that, if the various matters relating to our wine trade were properly regulated, and adjusted to those of France, we could obtain a large proportion of the above mentioned trade and if we could obtain an equal price, then all the good grapes grown in this southern country would be worth from \$25.00 to \$50.00 per ton, as they are in France, Italy and Spain, which would

make a handsome return on the capital invested in the business, and would soon turn all the uncultivated and barren looking hillsides into handsome vineyards, and fill our country with a happy, conservative and prosperous people.

Fresno county and the adjoining districts have been included in this estimate of the acreage under vines, because we take it for granted that when the Nicaragua or Panama, or possibly both canals are completed, Fresno will ship by way of our harbor here, rather than by San Francisco, and as undoubtedly Los Angeles would be the center of this trade for Southern California, possibly even the produce of Orange and San Diego counties would also reach this point.

ORE DEPOSITS.

Inmense and valuable deposits of magnetic and hematite iron ores are found about twenty-five miles easterly from Victor on the southerly slope of the Lava Bed range of mountains. One of the most remarkable deposits of magnetic iron ore yet discovered on this Continent is found about twenty miles southeasterly from Newbery station, on the Atlantic & Pacific Railroad. The quantity is practically unlimited, and the quality unsurpassed, and has been pronounced by expert and practical iron and steel manufacturers from Pennsylvania to be equal to, if not better than the ore of any mine in the world for the manufacture of steel. The quantity and quality is such as to justify the erection of enormous plants here for the manufacture of iron and steel as soon as cheap fuel can be obtained.

I am informed by one of the leading iron and steel manufacturers of Reading, Pa., that a very large business could be done in shipping this ore to Reading and Pittsburgh if we had a good harbor where a large amount of tonnage could be secured. He stated in explanation that there was very little first class iron ore, suitable for the manufacture of steel, to be had now in Pennsylvania, and that the manufacturers there were getting it from all parts of the world where ships could obtain first-class ore for freight or ballast.

There is enough salt in Southern California to supply this Continent for all time if transportation for it could be had. There is a mountain of it near Resting Springs in San Bernardino county, where it can be quarried like rock, and a few miles south of Cadiz, on the Atlantic & Pacific Railroad, there is a deposit covering more than 250 acres, and of unknown depth, from which pieces of pure crystals of salt can be obtained, that are several inches in thickness and so clear and transparent that a newspaper could be read through them. There is also immense quantities of it to be had at Salton, on the Southern Pacific Railroad.

Valuable copper mines are found in the near vicinity of the iron mines mentioned above. Many valuable gold mines are found in the San Jacinto mountains near Perris, also on the northerly slope of the San Bernardino mountains, and many very valuable silver-lead mines are found in Southern California. Sand suitable for the manufacture of the better grades of glass, is found in large quantities in Los Angeles county. The deposits are heavy and the quality as good as any ever discovered elsewhere. Some of the finest deposits of bituminous lime rock known are found in Southern California. In Ventura county are found some of the largest asphaltum mines on the continent. Deposits of graphite, sulphur, manganese, gypsum, asbestos, soda, nitre, and in short almost every mineral substance found in nature occurs in Southern California.

Of fine building stone we have an almost infinite variety. In Ventura county we find deposits of red and brown sand stone in unlimited quantities. In one place the exposure shows a thickness of about two thousand feet. Enormous quantities of this beautiful stone have already

been quarried and shipped for building purposes. Experts report it to be equal to any brown sand stone in the United States. In Los Angeles county, near Lordsburg, on the Santa Fé Railroad, is a large deposit of brown sand stone that is extensively used for building purposes.

There are many extensive marble quarries furnishing a superior quality of marble for building and other purposes, also many granite quarries furnishing a superior quality of granite for all uses. In fact, Southern California is as well supplied with choice building stone as any section of the United States.

INCREASE IN ASSESSED VALUATIONS OF LANDS.

Los Angeles.			
1892.	\$82,860,322		
1882.	20,916,835		
	<hr/>		
	61,943,487	Increase,	\$61,943,487
Santa Barbara.			
1892.	\$16,679,900		
1882.	5,076,643		
	<hr/>		
	11,603,259	Increase,	\$11,603,259
San Bernardino.			
1892.	\$25,647,315		
1882.	3,925,343		
	<hr/>		
	21,172,972	Increase,	\$21,172,972
Fresno.			
1892.	\$40,919,010		
1882.	7,071,198		
	<hr/>		
	33,847,812	Increase,	\$33,847,812
			<hr/>
		Total.	\$128,567,530

Showing the increase in assessed valuation of San Luis Obispo, Kern, Tulare and Ventura counties from 1885 to 1891 :

San Luis Obispo.			
1891.	\$14,090,675		
1885.	9,719,154		
	<hr/>		
	4,371,521	Increase,	\$ 4,371,521
Kern.			
1891.	\$12,870,691		
1885.	8,587,400		
	<hr/>		
	4,283,291	Increase,	\$ 4,283,291
Tulare.			
1891.	\$24,467,407		
1885.	11,983,925		
	<hr/>		
	12,483,482	Increase,	\$12,483,483
Ventura.			
1891.	\$7,861,975		
1885.	4,574,208		
	<hr/>		
	3,287,767	Increase,	\$ 3,287,767
			<hr/>
		Total,	\$24,426,061

Showing increase in assessed valuation of Orange county from 1889 to 1892:

Orange.

1892.	\$9,458,528	
1889.	8,646,024	
	<hr/>	
	812,504	Total increase, \$812,504

Increase in assessed valuation of improvements:

Los Angeles.

1892.	\$15,834,390	
1882.	3,779,276	
	<hr/>	
	12,055,114	Increase, \$12,055,114

Santa Barbara.

1892.	\$ 2,342,285	
1882.	943,580	
	<hr/>	
	1,398,705	Increase, \$ 1,398,705

San Bernardino.

1892	\$ 5,181,430	
1882.	711,111	
	<hr/>	
	4,470,319	Increase, \$ 4,470,319

Total, \$17,924,138

Showing the increase from 1885 to 1891 in the assessed valuation of improvements on property in San Luis Obispo, Tulare and Ventura counties:

San Luis Obispo.

1891.	\$ 1,539,110	
1885.	1,147,146	
	<hr/>	
	391,964	Increase, \$ 391,964

Tulare.

1891.	\$ 2,319,480	
1885.	244,258	
	<hr/>	
	2,075,222	Increase, \$ 2,075,222

Ventura.

1891.	\$ 816,599	
1885.	473,322	
	<hr/>	
	343,277	Increase, \$ 343,277

Total. \$ 2,810,463

ACREAGE OF GRAIN, VINES, AND FRUIT TREES.

Acreage sown to grain for 1892 in Los Angeles, Santa Barbara, Orange, San Bernardino, Kern and San Luis Obispo counties, 598,220 acres.

Acreage in vines, 1892, in Los Angeles, Ventura, Santa Barbara, Orange, San Bernardino, Kern, Fresno and San Luis Obispo counties, 68,339 acres.

Number of bearing fruit trees in Los Angeles, Ventura, Santa Barbara, Orange, San Bernardino, Tulare, Kern, Fresno and San Luis Obispo counties, 4,571,516 bearing fruit trees.

VALUE OF PRODUCTS.

1891.	Cwt. of Wheat.	Cwt. of Barley.	Cwt. of Corn.
Los Angeles and Orange Co.....	486,000	1,216,890	200,000
Total value..\$2,122,300			
San Bernardino and northern San Diego Counties, wheat and barley, cwt.....			750,000
Value.....\$1,000,000			
Ventura and So. Santa Barbara Counties, wheat and barley, cwt.....			500,000
Value.....\$ 600,000			
Sacks of corn.....			100,000
Value.....\$ 150,000			
Beans—pounds.....			37,732,154

MANUFACTURES.

In the line of manufactures Southern California is somewhat backward. The utilization of our many valuable natural products has not received the attention which it deserves. This has been largely due to the cost of fuel, labor and transportation and the high rates paid for money. But these obstacles are rapidly being removed.

While this is not a manufacturing section as generally understood, there are many manufacturing establishments in Southern California, and their number is being continually increased. Among the most important articles that are made here may be mentioned iron castings, iron and cement pipe, machinery, brick, canned and dried fruit, boxes, flour, crackers, soap, doors and sashes, mineral water, beer, wine and brandy, furniture, candy, pickles, ice and sugar.

Several potato starch factories have been established during the past year near Los Angeles.

Within the city limits of Los Angeles are hundreds of thousands of tons of fine glass sand from which, at an experimental test, excellent glass has been made. Fifty thousand dollars would liberally equip such a factory, yet we import all our glass from the East.

Immense quantities of raw hides are shipped East and reimported as shoes, saddles and harness. There is only one small tannery in this section. We should prepare here calf skins and kip skins, also sole and harness leather. The expense for tallow and neat's-foot oil in the manufacture would be less than in the East. There is some tan-bark oak here and large quantities in Lower California. The extract can also be imported from the Pennsylvania and West Virginia forests, where it is prepared. A shrub also grows from which a good substitute for tan-bark is made.

A little ordinary wrapping-paper only is made here. There is a good opening for one or more paper mills, to make manilla and other papers. A vast quantity of paper-cuttings are destroyed, also large quantities of rags, while hemp can be grown here profitably. Fine tissue-paper, for wrapping fruit, should be made, and fine wrapping-paper from flax. There are a couple of small potteries, but most of our milk and butter crocks, jam jars, fruit jars, and flower-pots are still imported, in spite of the fact that we have deposits of excellent clay here. There are extensive deposits of mineral paint in several places, which might be profitably worked up. From the residue of petroleum, which is produced abundantly here, might be manufactured a great variety of products, such as coal-tar colors, lubricating oils (made now on a small scale), water-proofing, printing ink (which is now manufactured in Ventura county), vaseline, benzine and naptha, and washes for insect pests; also fuel gas, which is largely made from petroleum in the East.

Parties are about to erect in this city, smelting and refining works, under the name of the Southern California Smelting & Refining Company. The company is organized under the laws of the State of Minnesota, being composed principally of gentlemen residing in that State,

associated with other gentlemen residing in the State of New York. It is intended to arrange for power for a two hundred ton per day plant, but the first furnace erected will be of sixty ton capacity daily. It will be followed by others of sixty or forty tons each, as business requires, until the full complement of 200 tons capacity, daily, is reached. The City Council promptly granted the right, for twenty-five years, to tunnel under the river bed for water, should it be found necessary to do so. The works are to be erected on the lands immediately south of the track of the Terminal Railway, where that road curves to the east, just north of the patent boundary line, on the southern limits of the city. These works will give employment to a number of men and will doubtless also be the means of giving employment to many more in mines of low grade ore in this vicinity, now idle. It is confidently believed that it will be successful beyond the expectation of its projectors, and be the harbinger of that era of manufacturing which we believe this city will attain in the not far distant future.

THE BEET SUGAR INDUSTRY.

The manufacture of sugar from beets in Southern California is still in its infancy, but the results of the initial factory at Chino, San Bernardino county, have been of such an encouraging nature that one new factory at Anaheim, Orange county, will be constructed at once, and preliminary steps have been taken for the construction of others in Southern California. At Chino about 3000 acres were planted to sugar beets in 1891, and some 5000 acres in 1892. The yield per acre has been about fifteen tons, as against twelve tons, the average European yield. The total output of sugar from beet sugar factories in the United States, during 1891, was 6000 tons, of which nearly one-third was produced by the Chino factory. It is estimated that 700 factories the size of the plant at Chino would be required, working to their full capacity, to supply the demand for sugar in the United States.

Southern California is especially adapted to the production of the sugar beet on account of its peculiar climate, the beet requiring not so much a high temperature as a high average temperature, and this it secures through the long and dry summer weather prevalent here. The sugar beet is not a gross feeder, chemical analysis showing that it absorbs only the slightest traces from the soil, the sugar being developed in the form of carbo-hydrate from the sun and air through the leaves. An alkali soil, of which Southern California has many thousand acres, has been found peculiarly adapted to the sugar beet.

It is estimated by a competent authority that there are fully 500,000 acres of land in the six counties of Southern California lying south of the Tehachepi range, which will produce sugar beets better than anything else, and at a very small cost. This quantity of land, using the actual results at Chino as a basis, will produce 300,000 tons of prime sugar, being one-fifth of the total consumption of the United States. These lands range from dry semi-mesa soils, to semi-moist lands, now barren or used as sheep pastures, yielding little for export and requiring nothing in the form of imports. Under the stimulus of the success already achieved in the direction of beet sugar manufacture, the quick hand of American genius and enterprise will in a short time transform these barren fields into beet plantations and not only granulate the sugar for market, but increase the freight bulk an hundred fold by canning and crystallizing thousands of tons of fruits with the product of the sugar mill.

SAN PEDRO SHIPPING.

Some interesting statistics have been compiled of the shipping business at San Pedro, from the records of the custom house and railroads. The compilation extends over the period from the establish-

ment of the Wilmington customs district, November 11, 1882, to June 30, 1892.

During the period mentioned, over nine and one-half years, the amount of duties collected was \$694,670.62; the tonnage, \$36,753.87; total, \$731,424.49.

The number of vessels which arrived at San Pedro from January 1, 1887 to June 30, 1892, was as follows: In 1887, 887; in 1888, 1092; in 1889, 588; in 1890, 492; in 1891, 585; in 1892, to June 30th, 307. Of these, 283 were foreign vessels.

During the period from January 1, 1884, to June 30, 1892, there were received in imports at San Pedro, 757,633 tons of bituminous coal, 702,634,190 feet of lumber, and 235,033 tons general merchandise. In 1888 and 1891 there were received 28,402 casks of cement.

During the years 1885 to 1891, inclusive, there were of foreign exports, 16,076 tons of wheat. Of domestic exports in 1890, embracing a large number of articles, there were shipped 15,289 tons; in 1891, 16,963 tons, and in 1892, up to June 30th, 3,841 tons.

AREA AND POPULATION,

That portion of this State which is included under the distinctive appellation of Southern California comprises the counties of Los Angeles, Orange, San Bernardino, San Diego, Ventura and Santa Barbara, and has a total area of about 45,000 square miles. The population of these southern counties by the census of 1880 was 64,371, and by the census of 1890 was 201,352, being exactly one-sixth of the population of the entire State. The States of Connecticut, Delaware, Massachusetts, New Hampshire, New Jersey, Rhode Island and Vermont could all be placed within the boundaries of Southern California and still leave 1,154 square miles to spare.

OIL AND ASPHALTUM.

The development of the oil industry dates back some twenty-five years, oil at that time being a high priced article in any form, and promising great profit in its production to the promoters who then, or a little later, included Senator Stanford, Thos. A. Scott and associates of the Pennsylvania Railroad, Senator Felton, Floyd Tevis and others. The districts of Ventura county, Pico cañon and Puente in Los Angeles county, are now permanently producing fields and the prominent ones of California.

A fair estimate of the production for the year 1891 is 350,000 barrels, valued at \$700,000.00; and the value of the entire production since its inception no doubt reaches ten millions of dollars. The development of both old and new fields goes on and production is increasing. The value of crude oil as fuel is apparent in the city of Los Angeles and neighboring towns—though the recent wonderful exhibit by the Union Oil Company, of refined oil and products of petroleum, vaseline, avilines, printing inks and varnishes, at your Los Angeles county Fair, point to the future greater value of the industry from advance in that direction than from the fuel-petroleum business.

The oils found a large market, originally, at San Francisco, and the proximity of wells to the sea with pipe lines and oil steamers were an important factor in establishing the lower freight charges by rail, which now exist, and have in turn stimulated the production and made it profitable. The sea still exists as a potent regulator of the rates. Notwithstanding the extensive use of oil for fuel, its economy commending it, and its price having been held steadily and uniformly at one figure for years, large quantities of coal, as may be seen by port statistics, are still imported and the price kept at its ordinary standard by oil as a regulator, both together acting as an inducement and stimulus to manufacturing industries, now representing a large production and giving

employment to labor—which industries would not exist but for the oil production.

The improvement of the harbors of Southern California would no doubt affect favorably the production, consumption and cheapness of crude petroleum and its refinery products. The probable demand in years to come beyond the supply induced, as may be remembered, a company in Los Angeles, of which the writer was a member, to look to other and foreign oil producing territories for such supply, and the entry upon negotiations to that end, including the building of bulk ships for transportation of the oil, one serious obstacle presented itself in the shallow depth of available harbors, or the access to them or docks, for heavy draft bulk oil vessels.

ASPHALT.

The asphalt industry is younger but each year California's prominence becomes greater as practically the only State whose supply may become a competitor in the United States with the foreign article—now reaching our shores in amounts of over one hundred thousand tons per annum—for paving, roofing, paints, varnish, electric insulation, pipe coating, the lining of dams, reservoirs and irrigation canals, etc.

Asphalt proper takes three forms in its production and in which shipments now find their way to the eastern or foreign markets—first, as a refinery product and residuum of California, petroleum standing alone practically in respect to its origin, character and quality for the coating of iron pipe for water conduits and irrigation, the manufacture of paint, printing ink and other kindred uses. Second, as a semi-liquid asphaltum or naphtha, used as a flux for the harder asphalts, or reduced to fine grades of varnish asphalt. Third, found as a hard deposit in combination with and having saturated the clay, limestone, gravels and vegetable matter, and refined by simple heating and melting which deposits and separates the dross existing and leaving an article found equal to any for paving and other purposes. The deposits, experts have declared, reach tens of thousands of tons in the counties from San Luis Obispo and Kern south. Several thousand tons were shipped last season by sea and rail, and the present amount would be largely increased by cheaper transportation to eastern and foreign ports.

Bituminous rock, sometimes classified with asphalt, is chiefly mined in San Luis Obispo and Monterey counties, but much used in Southern California and finds its way to our cities by sea and the connecting rail lines. Whatever cheapening of transportation or handling would be effected by harbor improvement would likewise affect favorably bituminous rock and its use for the pavement of cities in mild climates.

RAILROADS.

There are now constructed and in operation in Southern California more than 1400 miles of railway. In 1882 there were less than 700 miles. In 1876 the first mile was constructed.

The East and West traffic of North America has only three outlets on the Pacific Coast. One on the Puget Sound country, one at the Golden Gate, and the third by Santa Monica, San Pedro or San Diego. The lowest mountain passes for the use of trans-continental railway lines front directly on Southern California, the elevations being from 4000 to 5000 feet less than by way of the northern routes.

The next great trans-continental line to the Pacific Coast will be constructed from Salt Lake City to Los Angeles, connecting at the latter city with one of the lines already running to Santa Monica or to San Pedro. It only requires the construction of 350 miles of road to close the gap now existing between Salt Lake and Los Angeles, and prominent capitalists are now interesting themselves in arranging details for the consummation of this project. The completion of this line will throw Southern California into close connection with some of the larg-

est and finest coal and iron ore deposits in the United States, and will make the city of Los Angeles and the proposed deep-water harbor the natural outlet for thousands of tons of this valuable product.

The Southern Pacific Company's main line, from San Francisco to New Orleans and the East, extends through Southern California 369 miles; 120 miles from Tehachapi to Los Angeles, and 249 miles from Los Angeles to Yuma. At Saugus is a branch, extending through Ventura and Santa Barbara counties to Elwood, ninety-two miles, where there only remains a small gap to be filled to complete the coast line to San Francisco, work which will probably be accomplished within a year. There are short lines of the Southern Pacific Company from Los Angeles to Santa Monica Cañon, twenty miles; to San Pedro, twenty-two miles, with branch to Long Beach, four miles; to Santa Ana, thirty-two; with branches to Tustin, eleven, and Whittier, six. Total length of Southern Pacific lines in Southern California, 475 miles, divided among the counties as follows: Santa Barbara, twenty-seven miles; Ventura, fifty; San Bernardino, forty-eight; San Diego, 156; Los Angeles, 170; Orange, twenty-four.

The Santa Fé system is here known as the Southern California Railway. It connects with the Atlantic & Pacific at Barstow, in San Bernardino County, whence a branch runs to Mojave, on the Southern Pacific, north of Los Angeles.

From Mojave to Needles, on the Colorado River, is 241 miles; Barstow to National City, 210 miles; Los Angeles to San Bernardino, sixty miles; East Riverside to Orange, forty miles; Los Angeles to Junction, near Oceanside, eighty-three miles. There are short branch lines from Perris to San Jacinto, nineteen miles; San Bernardino to Mentone and back, known as the small loop of the "kite shaped track," twenty-five; Escondido branch, twenty-one; Los Angeles to Redondo, twenty-two; Ballona branch, fifteen. Total length of Southern California Company's system in Southern California, 746 miles. The Santa Fé has just completed a branch from Inglewood, on the Redondo line, to Santa Monica.

The Los Angeles Terminal Railway Company, which was incorporated in Los Angeles a year ago, with a capital stock of \$3,000,000, several of the stockholders being St. Louis capitalists, is intended as the terminus of some transcontinental railway not yet built. Overtures have recently been made to the representatives of Eastern roads. The company has acquired the Los Angeles, Pasadena & Glendale line, has built a line to Long Beach and San Pedro, and has acquired excellent wharf facilities by the purchase of Rattlesnake Island, at the latter place. The total length of the company's lines is about sixty-five miles.

THE ADVANTAGES OF A DEEP-WATER HARBOR AT LOS ANGELES.

The port of Los Angeles lies forty-eight hours nearer to Sidney, Melbourne, Adelaide and Brisbane by direct steaming, and forty hours nearer via Honolulu, than San Francisco. It is forty-eight to fifty-four hours nearer Colombo, in the Island of Ceylon, whence large cargoes of tea are exported to Australia and England. Just at present all our teas are imported from Japan and China, but, should a diversion in favor of Ceylon ever take place, the saving in interest upon ordinary cargoes of tea would amount to \$2500 to \$3200 per diem, making a saving of \$5000 at least, in favor of the Los Angeles route on any ordinary cargo. Nor is this all. The Santa Fé and Southern Pacific routes, both starting out of Los Angeles, are at certain times in winter the only roads open to the East, owing to detention by snow in the high Sierras on the Central, and in the Cascade mountains on the Northern and Union Pacific roads.

The trade of Australia should seek this port, also, more naturally than that of San Francisco, as the port of Los Angeles is at least forty hours nearer Australian ports than San Francisco, so long as vessels

coming this way are obliged to call at Auckland, Samoa and Honolulu for the mails.

The imports of Australian wool, so valuable in the manufacture of carpets and the higher grades of blankets and rugs, have fallen off greatly since the McKinley tariff went into effect, but with a moderate tariff, such as prevailed before the civil war, there would be business enough for a semi-monthly line of steamers; and even then, much larger vessels than are now employed in the traffic, would carry full cargoes of this staple for eight months in the year. As most of this staple is carried across the continent by rail, the advantage of a port whose communications are never affected by snow, become the more apparent as the case is subjected to intelligent scrutiny.

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