San Francisco

THE

BOARD OF TRADE

OF

San Francisco.

REPORT

OF

SPECIAL COMMITTEE

ON

Inter-Oceanic Canal.

"The Key of the Pacific."

WM. LAWRENCE MERRY, Chairman.
C. J. DEMPSTER, Secretary.

SAN FRANCISCO:
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1880.

THE

BOARD OF TRADE,

OF SAN FRANCISCO,

1880.

J. S. TABER, President.

James Duffy, 1st Vice-President.

Report of,

SPECIAL COMMITTEE ON THE

INTER-OCEANIC CANAL.

"The Key of the Pacific."

Wm. Lawrence Merry,		of Merry, Faull & Co., Chairman.
C. J. Dempster,	-	of Dempster & Keys, Secretary.
W. W. Dodge,	-	of W. W. Dodge & Co.
Louis Sachs,	-	of L. & M. Sachs & Co.
Levi Strauss,	-	of Levi Strauss & Co.

PREFACE.

At the Annual meeting of *The Board of Trade of San Francisco* held on the 2d of February 1880, President J. S. Taber made the following remarks:

"This brings to mind another important question of transportation involved in the idea of an inter-oceanic canal, connecting the Pacific and Atlantic oceans, which is now receiving so much attention from eminent engineers in various parts of the world and from our own government, which has already expended a large amount of money in surveys. Its special interest to San Francisco, and whether across the Isthmus of Panama or Nicaragua, seem to be proper subjects for our consideration. Its importance to this coast will be a matter of the near future, and it might be studied up with much profit. A committee for this purpose would find much interesting data to present, and I trust it will receive your earnest enquiry, and a committee be chosen."

In accordance with which suggestion Captain W. L. Merry offered the following resolution:

Resolved, That a committee of five members of this Board be appointed by the Chair to consider the question of an inter-oceanic canal in its bearings on the Pacific coast, and to investigate, from a commercial standpoint, which projected route should meet the approval of San Francisco merchants; said committee to report to the Board at a special meeting to be called for that purpose.

In support of his resolution, he spoke as follows:

I am pleased to act on the suggestion of our President that the subject of an inter-oceanic canal be taken up by the Board as a matter of paramount interest to the prosperity of our State and the Pacific Coast. This Board, representing millions paid annually for freights, and intimately connected with the commercial prosperity of this Commonwealth, will do itself honor by placing itself on record in favor of this great work. California, more than any other State in our country, and San Francisco more than any other city in the world, should do all they can to aid in this great enterprise. The day on which we can land the varied products of our soil at European ports in thirty days, and on our own Eastern seaboard in eighteen days, without breaking bulk, and at reasonable freights, will witness an immense advance in the prosperity of our Pacific States.

This association of merchants will fall short of its duty if it fails to assist this great work by its influence and encouragement. True, there may be no immediate profit resulting to us, but in the life of a commercial community, the few years necessary to construct this great highway will be a short period. Many of the gentlemen now present will live to see this great work completed, and recall with pride their approval of its inception. Our Government has already expended a large amount on surveys for this purpose, and at the proper time, I shall appreciate the privilege of calling the attention of the Committee to the results of the preliminary work already accomplished.

The resolution was carried, and Captain W. L. Merry, W. W. Dodge, C. J. Dempster, Levi Strauss and Louis Sachs appointed as the Committee ordered.

COMMITTEE REPORT.

San Francisco, April 7th, 1880.

Mr. President and Gentlemen of the Board of Trade of San Francisco:

Your Special Committee on the Inter-Oceanic Canal, appointed at your Annual meeting on February 2nd, 1880, have, since that date, heard all the oral testimony obtainable on this Coast, and examined all the official surveys of our Government appertaining to the subject, as well as the journals of the Inter-oceanic Canal Convention held at Paris in 1879. We have considered the matter from an impartial standpoint. We are deeply impressed by its great importance to the material interests of our Country and especially to the Pacific Coast, and we have publicly invited a free expression of opinion on the part of all concerned. Our conclusion, reached after much thought and mature consideration, is that *the projected Inter-Oceanic Canal via Nicaragua, as surveyed by the United States Naval Expedition of 1873 should receive our decided preference*, for the reasons stated herewith:

A. The Nicaragua Inter-Oceanic Canal can be constructed at *a cost which can be safely estimated as less than one-half* that of the Low-Tide Level Canal via Panama, and is *commercially practicable and available.*

B. Its *location is greatly preferable* on account of its adaptability to the use of vessels under canvass, (or using canvass as an auxiliary,) while it can be made equally practicable for the use of steamships of the largest tonnage.

C. It passes through a Country rich in resources, with two magnificent Lakes rendering the work accessible to a large territory, the commerce of which will greatly assist in paying the cost of maintaining the Canal after this region shall have received the development which must ensue from its construction.

D. The most competent Engineers in our country assert, and the careful surveys ordered by our Government prove, that the projected Nicaragua Inter-oceanic Canal offers no engineering problems which are not comparatively easy of solution at an expense within the limits by us assigned, and, as it can be demonstrated that it will be a paying investment, capitalists will not hesitate to furnish funds for its construction.

For more detailed information as to the points herein considered, we present the Memorandum appended hereto, to which we crave reference.

Wm. Lawrence Merry, Chairman.
C. J. Dempster, Sect'y.
Levi Strauss,
W. W. Dodge,
Louis Sachs.

MEMORANDUM.

EXHIBIT A.

Cost of Construction. We have paid particular attention to this vital question. We find the Nicaragua Survey by Commander Lull, U. S. Navy worthy of implicit confidence. Every foot of ground has been carefully and laboriously surveyed with instruments of precision, and a detailed estimate made of the cost of each division, the whole amounting to $52,577,718, to which, adding 25 per cent for contingencies we have $65,722,147. Desiring to make a conservative estimate, and inclined to allow the widest limit for error, as well as for the increased dimension of locks hereafter to be specified, we admit a *possible* cost of $100,000,000 or nearly double the original estimate.

We do not intend to question the accuracy of our official surveys by adopting nearly double the net estimate as our view of the possible cost. On the contrary the surveys have evidently been carefully and conscientiously made; probably as much so as if made for a contract. In fact, we have it in evidence, that Chief Engineer Menocal, who made these estimates, has subsequently done subaqueous blasting in the San Juan River, at a cost of $2.50 per cubic yard for which he had al-

lowed $5.00 per cubic yard in the Government Report. But we are estimating on a *Commercial basis*, and, having in view the increased size of locks recommended, and the apparently inevitable financial result, in respect to the cost of all works of this character heretofore completed, we must conclude from a cautious mercantile standpoint, that one hundred millions is not too high an estimate of *possible* cost. It is also proper to state that the same remarks as to cost apply with *greater force to the Panama Low Tide Level Canal.*

The estimate for the Panama Low Tide Level Canal has been publicly announced at 843,000,000 francs (approximately $169,000,000,) this including a contingency estimate of a little less than ten per cent. European and American engineers of the highest standing acknowledge that the peculiar features inevitable in excavation below the sea level prevent any accurate calculation of the outlay which may prove necessary. Considering the Engineering problems so difficult of solution on the Panama Low Tide Level Canal, notably the diversion of the Chagres where the *Canal crosses it 68 feet below its present bed*, and the construction of an artificial Lake to hold its immense flood waters, and admitting the same limit of error as in the Nicaragua Survey, we have a total cost so enormous that it cannot be considered commercially practicable. Indeed we confidently assert that an estimate of $300,000,000 which is as low

as a conservative judgment will accept, cannot be considered commercially practicable.

Excessive as this estimate of possible cost may appear to the advocates of the Panama Canal it will be noted that the ratio of increase is *less than we have applied to the Nicaragua Survey*, which has to deal with problems less difficult of solution. Considering that the estimate of cost fixed by the Technical Commission at Panama *does not include* interest during the period of construction, payment to the Panama Railroad, or to Lieut. Wyse for the Concession, we must regard the *ten per cent* allowed for contingencies as *totally inadequate.* It appears to us that the contingency estimate for building the Panama Canal *below* the sea level should be *greater* than in estimating for the Nicaragua Canal *above* the sea level, whereas it is estimated at *fifteen per cent* less. The cost of these works being essentially a technical question we approach the subject with much deference, and only because we are obliged to do so in order to settle the Commercial practicability which must be controlled thereby. We also note that Works of this character have seldom been constructed within estimates, contingencies included, while the cost has frequently been doubled. The Suez Canal estimated at *forty million dollars cost ninety-one and a half millions.* We also refer to the Croton Water Works as another instance of the inaccuracy of original

estimates on projects of this character. For the demonstration of this question in detail we beg reference to Exhibit D.

In this connection we may be allowed to quote the remarks of Commander Lull, U. S. Navy in his report of the U. S. Survey of the Panama Canal, 1875, page 24. They appear to us important and will be specially approved of by many old Californians who "*know how floods behave*" in the rainy season.

"One of the most vitally important questions to be considered in discussing the subject of the construction of a canal across the American Isthmus is that of *drainage*; and, singularly enough, among European writers on the subject, scarcely any attention has been given to it. Taking the Suez Canal as a standard for comparison, they almost without exception cling to the idea of a canal without locks; in other words, a cut below the level of the sea. Such a channel would be burdened, not only with the discharge of the springs developed in the cut, and whose number and force in a land so saturated with moisture would be beyond comparison with those of any hitherto-constructed work, but must also become the ultimate drain of the surface of a very considable portion of adjacent territory. It would, during the rainy season, if not indeed at all times, be a wild torrent, unfit for the passage of ships, and must speedily become filled with bars and

other obstructions from the detritus furnished by its own current."

EXHIBIT B.

Location. The location of this great work is a factor of vital importance. The Nicaragua Canal would be entitled to the preference of Americans because it would save about eight hundred miles on both oceans between our Northwest Coast and our Eastern Seaboard and Europe. But we are considering a Canal for the service of all the Maritime World, and, discarding our own preferences as Americans, we still recognize the Nicaragua Canal as the *most advantageously situated* for the World's Commerce. In the use of wind, Nature has given us a motive power too *cheap* and too *efficient* to be discarded. Even in screw steamships of *latest construction* this fact is recognized; all using it as a valuable auxiliary motive power, and even as aiding in the development of steam power by furnishing efficient draught for furnaces. For hundreds of miles oceanward from Panama almost unremitting calms prevail. Maury has written that were an earthquake to sever the continent at the Panama Isthmus, sailing ships would prefer going around the "Cape of Storms" to essaying a passage through the Gulf of Panama. It is a notable fact that notwithstanding the development of steam

power which has increased its economy fully one-third, sailing ships have increased in still greater ratio. To them the Panama Canal would be practically useless, and no project unadapted to their use can be entertained by the Commercial World, which requires a Canal *as much for the ships already constructed* as for those of the future.

The Nicaragua Canal offers no such disadvantage. With its Pacific terminus almost out of the region of tropical calms, it is accessible to sailing ships with comparatively limited delay, and would be extensively used by them. Iron sailing ships in passing through it would be cleansed by the action of fresh water, thereby increasing their subsequent speed, and steamships would leave it with boilers filled with fresh water without cost or detention.

EXHIBIT C.

Local Resources. The importance of this branch of the subject cannot be over estimated. The Panama Isthmus can have comparatively no resources. Even the material for construction is mostly lacking. Nicaragua is a country of great resources, and contains within its borders all the material for canal construction except iron, for which, however, no search has been made. Should our country and Nicaragua see fit to make a Treaty of Reciprocity

simultaneous with the commencement of the Canal, by the time it is completed, Nicaragua would herself pay a large portion of the cost of maintenance, and, in any event, when this magnificent country, becomes connected, by means of this work, with the Commercial World, a constantly increasing local commerce, would aid in making the project a profitable one. Valuable woods, the finest cacão in the world, coffee, cotton, cochineal, indigo, sugar and India rubber are among its native products—all articles that ourselves and all Europe need, and will gladly pay for, offering us in return a large field for the manufactured products of our country. Certainly this is an argument of the most forcible nature in the consideration of this question. If the Inter-oceanic Canal would be an advantage to Nicaragua, Nicaragua would even be more of an advantage to the capitalists investing in this great highway of Nations.

EXHIBIT D.

Facility of Construction. We enter upon this branch of the subject with some diffidence, because we are not engineers, but as the Projector of the Panama Low Tide Level Canal publicly admitted at the Paris Canal Convention of 1879, that he is not himself an engineer, we approach the discussion, feeling that, after using our best judgement, we can rely on eminent English and

American Engineers who have publicly and officially endorsed the Nicaragua Canal. We see no valid objection to the use of locks, since they are already in use in this country of a capacity large enough for largest class ships. We have, however to insist, as a necessity of the case that the locks of the Nicaragua Canal shall be lengthened to the dimensions of that recently built by Gen. Weitzel, of the U. S. Engineer Corps, at the St. Mary's Canal; 515 feet long, or even 550 feet long, with proportionate width. Locks of the length required by our recommendation would pass a large portion of the vessels using the Canal, *two at a time*, thereby economizing labor and increasing its capacity. While it is is true that the locks of 400 feet length estimated for, will accommodate most ships now in use, we give due weight to the fact that the largest ships are the cheapest freight carriers, and we would have canal locks large enough for all that are likely to be built hereafter. The increased cost will not be material, and the advantage will be great. The liability to earthquakes as an objection to the use of locks we do not consider important, although it is a danger both at Panama and Nicaragua; so remote that it need not be considered in either place.

It is proposed to construct the Locks of the Nicaragua Canal with concrete, which affords great facility for repairs and for which the best materials abound in that country. Numerous works in

Central America built of this material a century or more ago attest its durability. The Panama Canal with its enormous dam to control the floods of the Chagres, and its tidal lock at the Pacific terminus offers objections as regards earthquakes, equally or more serious than the locks of the Nicaragua Canal. We see no reason why the philosophy that Nature teaches, should not be made use of to conquer the obstacles that Nature places before us, and we claim that it is better and more reasonable, to carry a ship over a summit by means of lift locks, than to build a sea level cut at an incalculably increased cost, which must necessarily receive the drainage of a country with an average precipitation of 124 inches annually.

At Aspinwall the rain fall in 1872 was $170\frac{18}{100}$ inches.

At Suez the annual average is less than 2 inches.

Dismissing this branch of the Exhibit we come to the final test of all Commercial Problems. Will it pay? We can conscientiously answer with the lights before us; By *Nicaragua it will pay*—by *Panama it will not pay.*

Ten years since the estimated tonnage that would use the American Inter-oceanic Canal was placed by the best official authority in the country at 4,100-000 tons per annum. Careful estimates made by your Committee place it at 5,250,000 tons at this time. We are informed by Count De Lesseps that he calculates upon 6,000,000 tons, the

difference being perhaps caused by assigning the use of the Canal to ships that we place as likely to continue on previous routes. Thus, the English direct commerce with Australia would, in our opinion, only use the Canal on their *homeward voyage*, and would continue to go from England to Australia via the Cape of Good Hope or via Suez. The De Lesseps estimate of 6,000,000 tons appears the more excessive when it is considered that he claims steam as the *exclusive motive power* by sea hereafter, *discards sailing tonnage*, and then *includes this sailing tonnage in his estimate.*

Desiring, as we have done in all our conclusions, to estimate conservatively, we allow for a tonnage of 5,000,000 tons per annum. Five million tons annually represents about 2,780 vessels which would make 8 vessels daily, passing through the Canal—four each way. It will be readily seen that the capacity of the Nicaragua Canal would be fully four times the estimated tonnage, notwithstanding the use of locks. Admitting the cost at the extreme figure of $100,000,000, and with a toll of $2.00 per ton we have a yearly income equal to 10 per cent. on the cost. Allowing the very liberal estimate of $2,000,000 per annum for maintenance, we have a *net income* equal to 8 per cent. on the investment, independent of the *increasing local revenue*, as the interior of Nicaragua is developed; an important factor in our favor, to aid which we would include in the

general plan, the *connecting of Lake Managua with Lake Nicaragua* by a canal of 10 feet draught, which could be built at a very moderate cost, Nature having already done a considerable part of the work.

We would also recommend the construction of a *Dry Dock in Lake Nicaragua*, contiguous to the Canal, capable of admitting the largest ships that can pass through it, and with Dockage rates publicly fixed at as low figures as possible. This would encourage ships navigating toward the Canal and meeting with any mishap, to continue on their voyage, and thereby save the great expense frequently incurred by deviation. It would also afford facility for repairs of the *local tonnage* which would soon navigate Lakes Managua and Nicaragua.

Commerce should not be charged over $2.00 per ton for the use of the canal, if our Coast is to reap the benefit it is entitled to expect from such a work, and this is the maximum tonnage charge considered advisable by experts who have been examined by your Committee. After all, the insuperable objection to the Panama Low Tide Level Canal is the *toll* necessary to pay for its construction which has been announced at $3.00 per ton, while De Lesseps publicly stated at the Paris Convention of 1879 that he could, if necessary, make ships pay 20 francs per ton, which, allowing even a moderate contin-

gency in his estimates, he would have to charge, to declare any dividends.

We beg to call your attention to the following points in our statement. *First*, we admit a cost nearly double the net estimate made by our Government Engineers for the Nicaragua Canal. *Second*, we reduce the probable tonnage that would use it 250,000 tons below our own close estimate, and 1,000,000 tons below the estimate lately made public for the Panama scheme. *Third*, we ignore the income from the local commerce which would be rapidly developed. *Fourth*, on this basis we show 8 per cent. profit with a toll of $2.00 per ton, allowing $2,000,000 per annum for maintenance. We respectfully submit that we can present this financial problem to the world with prospects of success, and that the Nicaragua Inter-oceanic Canal *will pay*.

GENERAL REMARKS.

We would urge the absolute necessity of regulating the tonnage tax for the use of this Commercial Highway by means of an Inter-National Convention in which all the maritime nations of Europe and America shall be represented; the tonnage tax thus levied being unchangeable except by a majority of all the Signatory Powers, and intended to pay a *liberal percentage* on the *absolute cost* of construction only.

Inasmuch as Nicaragua will receive substantial and increasing benefit from the day this great enterprise is inaugurated, it being in effect, an extensive system of internal improvements without expense to its citizens, we do not consider that the Government of that Republic should claim any special privileges which would seriously decrease the revenues of the Company constructing it, but should restrict their requirements in this particular to the free use of the Canal for their Naval vessels, a reduction of 25 per cent on tolls payable by the Internal Commerce of the Republic, and the use of the Panaloya Canal, connecting Lake Nicaragua with Lake Managua, at a toll which will only pay the cost of maintenance.

We cannot too strongly commend to the attention of this Board the importance of the foregoing suggestions.

Ten different routes have been examined by able, disinterested and skillful officers in the service of our Government, and where they have been found practicable, close instrumental surveys have followed: the last of these being the Lull Survey for the Panama Canal in 1875. The result of all these laborious examinations, is the officially expressed preference given by the best engineering talent in the United States to the Nicaragua Route. The Commercial World is ripe for the execution of this great and beneficent work, and having every indication of pecuniary success, abundant capital, under proper guarantees,

will be forthcoming. Your Committee do not sympathise with those who would place impediments in the path of the illustrious Projector of the Panama Canal. Although, as far as they are able to judge, a work of stupendous magnitude, if the capitalists of Europe choose to place their means at his disposition for this purpose, we should wish him success, and we cannot but honor his energy and his confidence. If the spirit of American enterprise no longer finds exponents in the construction of what we conscientiously recommend as being, in our judgement, *a better route*, we have no moral right to prevent others, with more energy, from undertaking so beneficent an enterprise, and, if the Panama Canal costs, as we think it will, far more than at present estimated, once it is constructed, it *cannot lay idle*, and a tonnage charge must be made *which ships can pay*, even if it prove unremunerative to the investors. The same energy which Count De Lesseps displays, would probably, if applied to the Nicaragua Canal, result in its completion within five years, and, we are confident, at about one third the cost. It would be a source of lasting regret however, if the *commencement* of the Panama Canal should *prevent the construction of that in Nicaragua*, and, in the event of the abandonment of the former, indefinitely deprive the Commercial World of any Canal whatever. Both routes have now been surveyed with instruments of precision.

The time for action has arrived.

Our Commonwealth, our Pacific Coast, demand cheap transportation; both languish on their onward march for the want of it. During the year which sees our first grain laden ship leave our wharves for Europe via the Nicaragua Canal, the Farmer will find every acre that he tills largely enhanced in value; the Merchant will find himself two months nearer the great marts of Europe. European immigrants can reach us in less than 30 days time at a cost of about $35 and our material prosperity will receive such an impetus as we little dream of.

Let us not then dismiss this subject as an Utopian dream. Had the Gentlemen present examined it as have your Committee, you would no longer ask *cui-bono?* To the end that the labors of your Committee shall bear the fruit they should do, we have prepared a Memorial to Congress, now in session, urging them to place our State on record as crying aloud for this great work. Gentlemen, there is honor to this Board of Trade in the persistent urging of the construction of the Nicaragua Inter-oceanic Canal—there is prosperity in it for our Producers; there is profit in it for our Merchants! God speed the day when the Pacific shall be wedded to the Atlantic! It will be a happy day for us, for our children, for our Country, and for the World!

In conclusion your Committee have to thank

Senator Booth for valuable documents. Also to Count De Lesseps and Lieutenant Leutze, U. S. Navy for giving us their time and experience in the surveys under discussion, and the many gentlemen experts whom we have called upon for evidence in Committee. The subject has occupied much of our time and thoughts and its interest has so grown upon us that we could wish every merchant in this Board would inform himself fully on a matter of such vital interest to our country and the commercial world.

The documents appertaining thereto are now in the Library of the Board, and to them we invite the attention of all our Members.

DESCRIPTION OF ROUTE.

Capt. Merry, Chairman of the Committee, made the following remarks on a motion to adopt the foregoing report:

Mr. President and Gentlemen of the Board of Trade:

The importance of the Inter-oceanic Canal as a factor in the prosperity of this Commonwealth demands at our hands a rigid and impartial investigation of the merits of the route we have decided as alone commercially practicable. Certainly a canal without locks and on sea level is a great desideratum, but when we cannot attain this end in a commercially practicable manner, it appears proper to avail ourselves of the resources of Philosophy and Science to overcome the obstacles that Nature has placed in our path.

What portion of this great work Nature has already accomplished in Nicaragua is illustrated by the fact that, during the rainy season a steamer of 400 tons can enter the San Juan river at its Colorado branch and approach within 12½ miles of the Pacific. While standing on the upper deck of a steamer on Lake Nicaragua I have seen the setting sun almost until it dipped into Pacific waters.

The restoration of the Harbor of Greytown is probably the most difficult task in the construction of the Nicaragua Canal, but with the amount appropriated therefor and the contingency estimate added thereto, it can doubtless be accomplished.

The construction of the canal through the alluvial delta of the San Juan River offers no Engineering difficulties of note. After passing this delta, in following the river valley to the junction of the San Carlos River some heavier cutting must be done, but no engineering obstacles of importance present themselves. From the junction of the San Carlos the river is itself converted into a slack water navigation by the construction of four dams, after the river bottom has been improved and deepened where necessary. These dams are passed by three short canals fitted with a lift lock in each. The upper portion of the San Juan River has only 8 inches fall to the mile, and is essentially a natural canal above Castillo Rapids, to the Lake.

The navigation of the Lake offers no special peculiarities, but is free from hidden dangers, and deeper than is necessary except near the mouth of the river, where it has been shoaled by silt for about seven miles, an average of 8 feet, which can easily be removed by dredging. The general depth of the Lake is 5 to 16 fathoms, averaging about 9 fathoms on the line of the Canal Lake Navigation.

We have now arrived at the cut from the mouth of the little Rio del Medio, on the lake, to Brito on the Pacific, a distance of 16⅓ miles, with the maximum elevation of 134 feet above the Lake (a sharp peak) and an average cut of about 40 feet through a fixed soil and occasional rock, but all covered with vegetation. The Lake being 107¾ feet above the Pacific, 10 lift locks of 10¾ feet each are constructed, by which means the ship reaches the harbor of Brito on the Pacific. Here we have to increase the limited area of the harbor and fully protect it by a breakwater which will afford access to the Canal in smooth water. The appropriation for this purpose appears reasonable, but may need all the margin allowed to complete the work. These are the main features of the Nicaragua Canal and they offer no obstacles that cannot be overcome with comparative ease, in fact, as Lieut. Leutze has justly observed, "nothing is called for here that has not been done before."

Even the Nicaragua Ship Canal is doubtless a work of great magnitude, but it should be measured by the results it will produce. Dynamite and Dredging Machinery are also powerful agents, and American genius will furnish means to greatly reduce the manual labor otherwise necessary in such a work.

Let us now inquire why we should agitate this subject at all. This is a young Mercantile Community, and many here present will live to see the completion of this great work! The day when we can reach European Ports in 25 days and our Eastern Seaboard in 15 days, without breaking bulk, and at rates of freight as low as they now average to Hong Kong will witness an enormous impetus to our prosperity. It is plainly our duty as a Mercantile Association, representing the business interests of this Coast to do what lays in our power to encourage the prosecution of this great work! We shall do ourselves honor and our State service if we awake to the great advantages which are being placed within our grasp. Few such opportunities occur in the Mercantile experience of a life time. California beyond any state in the Union, and San Francisco beyond any city in the world should urge the commencement of this beneficent enterprise, and, as a representative mercantile body we should not wait until other kindred associations declare themselves. We are the *most interested*, why should we not be the *most active* in urging the attention of our Government and the Commercial World to this project, so rich in results to our Commonwealth, the Pacific Coast and our Country?

TO THE

CALIFORNIA DELEGATION

IN THE

U. S. Senate and House of Representatives.

The Board of Trade of San Francisco beg respectfully to call your attention to the Memorial which we have prepared for presentation to the Honorable Senate and House of Representatives on the subject of the *Nicaragua Inter-oceanic Canal* bespeaking therefor your cordial sympathy and active support. The Board feel assured of your interest in attaining a result so beneficent to all your constituents, and that, when the proper time arrives, your great influence will be found urging a work so essential to the prosperity of the producers as well as the merchants of our Commonwealth and the entire Pacific Coast.

With the assurance of our high esteem, we subscribe ourselves,

Your Fellow Citizens

THE BOARD OF TRADE OF SAN FRANCISCO.

by J. S. Taber, President.

James Duffy, 1st Vice-President.

C. F. Wyman, Secretary.

Committee, on Inter-oceanic Canal.

WM. LAWRENCE MERRY, Chairman
C. J. DEMPSTER, Secretary.
W. W. DODGE,
LEVI STRAUSS,
LOUIS SACHS

MEMORIAL.

TO THE HONORABLE

The Senate and House of Representatives

IN CONGRESS ASSEMBLED:

The Board of Trade of San Francisco representing over fifty millions of active capital controlled by two hundred and twenty-four business firms, respectfully call your attention to the great and urgent necessity existing for the construction of a Ship Canal to connect the Atlantic and Pacific oceans. Your Memorialists have attentively considered this great question in the interests of our Commonwealth, our Pacific Coast and the whole Commercial World. They have availed themselves of all the official information obtainable on the subject; they have examined professional experts on the surveys already made, as well as competent navigators respecting the practical benefits attainable thereby. After impartial and careful considera-

tion of the subject, and without any interests except as above stated, your Memorialists desire as a commercial body, deeply interested in the practical solution of this great enterprise, to place on record their firm conviction that, in point of *Economy of Construction, availability for Commercial purposes and certainty of returns for the capital invested, the Nicaragua Route for an Inter-oceanic Canal* as surveyed by Commander Lull, U. S. Navy, in 1873 offers the greatest advantages, and should therefore receive the unqualified endorsement of our Government and the Capitalists of the world.

Our Pacific Coast suffers, and is retarded in its onward march of Industrial and Commercial development, for the want of cheap transportation, and your Memorialists look upon the *Nicaragua Inter-oceanic Canal* as the only available project which holds out to our producers and our merchants the prospect of permanent relief—in the desideratum of cheap freights to the Great Nations inhabiting the shores of the Atlantic. The millions of Europe and our own Countrymen on our Eastern seaboard want the varied products of our soil, but we are debarred from the benefit which should thereby accrue to our Pacific Coast by the expanse of a continent and by the "Cape of Storms."

Your Memorialists therefore pray that, when an organization with proper guarantees, applies to you for recognition and official encouragement, the

Government of our country will assume the protection, and support with its moral influence, the execution of this great work, upon which so much depends. Your sanction and your encouragement will make this essentially an *American enterprise*, and afford such a guarantee of success as will attract the capital of Europe to complement our own. Our Coast, our Country and the World are ready for this great and beneficent enterprise. On the shores of the Pacific the sentiment of *American Nationality and Patriotism* appeals to you with the assurance of your cordial sympathy and support.

THE BOARD OF TRADE OF SAN FRANCISCO.
by J. S. Taber, President.
James Duffy, 1st Vice-President

C. F. Wyman, Secretary.

Committee. on Inter-oceanic Canal.

WM. LAWRENCE MERRY, Chairman
C. J. DEMPSTER, Secretary,
W. W. DODGE,
LEVI STRAUSS,
LOUIS SACHS.

NICARAGUA INTER-OCEANIC CANAL.

DISTANCES ON THE LINE.

	Miles.
Canal between Lake Nicaragua and Brito, on Pacific Ocean,	16^{33}
Canal between Lake Nicaragua and Greytown on Atlantic Ocean,	45^{41}
Slack water Navigation River San Juan,	63^{02}
Lake Nicaragua Navigation,	56^{00}
Total Length,	180.76

DISTANCES SAVED IN NAVIGATION

BY

NICARAGUA INTER-OCEANIC CANAL.

	Miles.
New York to San Francisco,	9800
England (Lizard) to San Francisco,	6953
New York to Callao, Peru,	6220
" " " Valparaiso, Chile,	3720
" " " Hong Kong, China,	8245
" " " Yokohama, Japan,	7905
" " " Melbourne, Australia,	3120
Liverpool to Gulf of Fonseca, C. A.	6500
" " Callao, Peru,	3200
" " Valparaiso, Chile,	1500

NICARAGUA.

1. Longer Canal and lift locks to attain lake level of $107\frac{3}{4}$ feet.

2. About half cost of Panama.

3. Passes through a country of great but only slightly developed resources.

4. Fresh water and splendid inland harbor.

5. Materials for construction and maintenance mostly in the country.

6. Accessible to sailing ships with slight delay.

7. Free from financial claims against the parties constructing it.

8. Route through a country with 58 inches average annual rainfall and, by reason of the lake receiving the drainage, not liable to floods.

9. Lift locks remotely liable to damage by earthquakes.

10. Two days to pass through.

11. Saving about 800 miles between East and West Coast United States Ports, and losing about 180 miles to and from South American West Coast Ports, for steamers. Loss to sailing ships in latter case, little or none.

PANAMA.

1. Short Low Tide Level cut, with tidal lock at Pacific terminus.

2. About double cost of Nicaragua comparatively.

3. Passes through a country of comparatively no resources.

4. Salt water and no harbors except at the termini.

5. Materials for construction and maintenance mostly to be imported.

6. Inaccessible to sailing ships without great delay by reason of calms.

7. Required to pay Lieut. Wyse 10,000,000 francs for concession and Panama R. R. Co., 100,000,000 francs for value of railroad.

8. Route through a country with 124 inches average annual rainfall, and liable to very high floods, endangering the Canal works thereby.

9. Chagres dam remotely liable to damage by earthquakes, and to destruction by floods in rainy season.

10. One day to pass through.

11. Losing about 800 miles between East and West Coast United States Ports, and saving about 180 miles to steamers to and from South American West Coast Ports. Gain to sailing ships in latter case little or none.