ed through it, and, so far as I could learn, none had flowed there for years. I can, however, readily believe that in an extremely wet season a small quantity may find its way through this channel, and over the falls. It is, nevertheless, very evident that no considerable body of water ever passed here. There is an arm of the lake which projects down the old bed for three or four hundred yards, but the water is only two or three feet deep, with an equal depth of soft gray mud, the dwelling-place of numerous alligators, with reedy shores thronged with every variety of water-birds. The water of Lake Managua, near the so-called outlet, is not deep, and the channel, in order to admit of the passage of large vessels, would probably require to be well dredged, if not protected by parallel piers. At the distance of about three-fourths of a mile from the shore I found, by actual measurement, that the water did not exceed two fathoms in depth. No great obstruction to building the proposed canal exists in the section between the two lakes. The rock is so soft and friable that a channel can easily be opened from Lake Managua to the falls. Beyond this the banks are high for four miles, forming a natural canal, which only needs to be properly dammed at its lower extremity to furnish a body of water adequate to every purpose of navigation. Locks would then be required to reach the estuary from the lake of Nicaragua at Pasquiel. From this point to the lake I conceive may prove the most difficult part of this section, although apparently the easiest. Where the bottom is earth or mud, the desirable depth of water may be secured by dredging; but where it is rock, as it certainly is near its upper extremity, some difficult excavation will be required. The banks downward are so low as to prohibit assistance from dams, except by diking the shores.

The Tipitapa is bordered by low and slightly undulating, but very rich and beautiful lands, interspered with glades, and chiefly occupied for cattle estates. Abundance of Brazil wood grows here, and large quantities are annually shipped in bungos from Pasquiel for the port of San Juan, passing thence to all parts of the world, but chiefly to the United States.

Lake Managua may thus be said virtually to have no outlet. The streams which come in from the Pacific side are insignificant; and though, as already stated, the Rio Grande and other streams of considerable size flow into it from the direction of Segovia, yet they vary much with the season of the year, and seldom furnish a greater quantity of water than is requisite to supply the evaporation from so large a surface in a tropical climate. The lake sometimes rises a few feet from the influx of water, but according to the concurrent testimony of the inhabitants on its shores, its average level is considerably less than it was some fifteen or twenty years ago, before the terrible eruption of Conseguina. Nevertheless, a reservoir like that of Managua, with 1,200 square miles of surface, would be adequate to supply all the water required for a ship canal at this point, without any sensible diminution of its volume. The winds on the lake blow freshly from the NE. during the afternoon and evening, and subside toward morning, causing an ebb and flow in its results corresponding with that produced by the tides of the ocean: hence the vulgar error of a subterranean communication with the sea. The same is true of Lake Nicaragua.

Lake Nicaragua.—Lake Nicaragua is unquestionably, in all respects, one of the finest bodies of water on the continent, and needs only to be made easy of access to become as famous a resort of the grand and beautiful in nature as any now known in the Old or New World. In common with Lake Managua, its size has been rather under than over-estimated. Mr. Bailey calculated its greatest length at 100 miles, and its greatest width at 40 or 45 miles. It is probably nearer 120 miles in length, by 50 or 60 in breadth. Upon its southern shore, near the head of the lake, is the ancient city of Grenada, the most important commercial point in the republic. It has a considerable trade, which is carried on through the port of San Juan on the Atlantic by means of small boats of peculiar construction, and capable of carrying from four to ten tuns, called *bungos*. These make the trip to San Juan and back in about three weeks time. A few miles below Grenada, and projecting boldly into the lake, is the extinct volcano of Momobacho, not far from 5,000 feet in hight. At its base in the lake is a group of innumerable small islands of volcanic origin, rising in the form of cones from 20 to 100 feet, and covered with verdure. Some of them, upon which the soil has accumulated, are inhabited by Indians, and their thatched cottages shadowed over by tall palms, and with a dense background of broad-leaved plantains, form the most picturesque objects which can be conceived. Upon the same shore with Grenada, but 40 miles distant, is the city of Nicaragua or Rivas, the capital of a very large, fertile, and comparatively well-cultivated district. The remaining section of the southern shore of the lake has scarcely any inhabitants, except a few wild Indians called "Bravos," who alternate between the mountainous district toward Costa Rica and the shore. The northern shore, called Chontales, is undulating, and well adapted to grazing. There are a great number of cattle estates, some embracing many thousand head of cattle and mules. There a number of considerable islands in the lake, the largest of which is Madeira or Ometepec, which is almost wholly inhabited by Indians. It abounds in numerous traces of aboriginal occupation and art, and is distinguished by two immense cones, visible from every point of the lake and from the Pacific. These are called respectively Ometepec and Madeira. The cone of Ometepec is the most regular in outline of any which I have seen, and is, I think, the highest in the country. Its summit is generally enveloped in clouds. The water of the lake, in most places, shoals gradually, but at some points vessels of the largest class may approach close to the shore.—The depth, except in the immediate vicinity of its outlet, is for all purposes of navigation ample, ranging from 8 to 20, and even 47 fathoms. The prevailing winds are from the NE. (the direction of the summer trades on the coast,) and when the breeze is considerable the waves of the lake roll with all the regularity and with much of the majesty of those of the sea. At such times, the surf upon the shore at Grenada is nearly as high as that upon the beach at Newport and Cape May.

River of San Juan.—The river of San Juan, concerning which so much has been written, is certainly a magnificent stream, but its capabilities have been greatly exaggerated. It is the only outlet, as is well known, of the two large lakes just described. It flows from the southeastern extremity of Lake Nicaragua, nearly due east, to the Atlantic. Its length has been variously estimated from 79 to 104 miles. The first estimate is obviously too little. Mr. Bailey calculated it at 90 miles, and he is probably not far from correct.

The body of water which flows through this stream is at all times considerable, but it varies greatly in amount at different seasons of the year. It is greatest during what is termed the "rainy season" in the interior, that is to say, from May to October, at which period the volume of water is nearly doubled. To this circumstance in a great degree may be ascribed the wide difference in the statements of the depths and capacity of the river made by different individuals.

Several considerable streams enter the San Juan, the principal of which are the San Carlos and the Serapique, both rising towards the south in the highlands of Costa Rica. The streams flowing in from the north are comparatively small, indicating that the mountains are not far distant in this direction, and that upon this side the valley is comparatively narrow. The Serapique is ascended by boats to a point where the Costa Rica road (trail) commences. This is the route by which Costa Rica keeps up communication with the San Juan, and to the point here named she is now endeavoring to construct a road for mules starting from San Jose, her capital. The banks of the San Juan, from the fort of San Carlos, at the outlet of the lake, to the *Rapides del Toro*, a distance of twenty miles, are generally low, and covered with palms, canes, and a species of high, coarse grass called *gamalote*. The river here sometimes overflows its shores, which for a considerable distance back seem to be flat and swampy. From the port of San Juan upwards to the point of the divergence of the Colorado, a distance of eighteen miles, the banks of the river present a corresponding appearance. In fact, the entire country from this point to the sea is flat, as is shown by the divergence of the Colorado, the Juanillo, and Tauro, and by the occurrence of numerous *lagunas*. It is nevertheless fertile, and capable of producing in the utmost luxuriance rice, sugar, and those other articles which require moist and fertile soils. From the Colorado to the Rapides del Tora, a distance of more than fifty miles, the banks of the river vary from six to twenty feet in hight and are densely wooded; the forests coming down to the water's edge, forming an almost impenetrable wall of verdure. The passenger in the boats is so completely shut in by vegetation, that it is impossible to discover what is the character of the back country. At intervals hills and high grounds are to be discerned; and sometimes these come down to the edge of the river. At the mouth of the San Carlos there are hills 2,000 feet high, and the river is much contracted. The entrance of the passage between them, from the west, somewhat resembles the opening of the highlands of the Hudson from the north.

The banks of the river are in some places rocky; elsewhere they are far from being as crumbling as those of the Ohio and Mississippi and other rivers of the western States of the Union. This is, perhaps, due, in some extent, to the roots of trees and plants which penetrate and bind the earth in all directions. The bed of the river may be regarded as essentially permanent; it nevertheless abounds in islands, of which there are hundreds. Some of these are low and covered with *gamalote*, or with canes; but most are as high as the banks of the river, and wooded in like manner.

The width of the river varies from one hundred to four hundred yards, and its depth from two to twenty feet. I should estimate the average volume of water at about that of Hudson below its confluence with the Mohawk. The bottom seems generally to be gravel. There are four considerable rapids, where the bed is rocky and the water shallow; these will be noticed hereafter in detail. The current from the mouth of the river to the Del Toro is very rapid. With the water at a medium stage, in a light bungo, and with a stout crew of ten men, I was six days in passing from San Juan to San Carlos. The men labored hard at the oars and setting-poles from long before daylight until after dark each day. We passed other bungos which had left three days before us, and our trip was regarded as one of extraordinary rapidity. From these facts, some idea may be formed of the strength of the current. Bulow calculates the fall of the stream at twenty inches per mile, except at the various rapids, where it is more."

The banks of the river are totally uninhabited, nor is it known that any one has penetrated the country in either direction. A small garrison is stationed at *Castillo Viego*, about twenty-five miles below the lake, at the Rapids Del Castillo. There is no doubt that the entire region is eminently fertile, and capable of producing all the fruits and staples in the greatest abundance.

The accompanying map (No. 2, of the San Juan) is corrected from that constructed by Baron Bulow in 1847 upon the basis of a MS. map made Messrs. Rouchaud and Dumartray. Bulow descended the river in July, when the water was at its highest stage: his bungo was fifty feet long by nine broad, and had a freight of five tons and thirteen persons, the boat drawing about four feet of water. His notes, as far as they were confirmed by my own observations, are imbodied in the subjoined explanations of the map.

The fort of San Carlos, at the head of the river, is a collection of some fifteen or twenty cane-built houses, occupied by perhaps one hundred people. The defenses were formerly considerable, but have of late years been allowed to fall into decay. The position is a strong one, and the old works might soon be put in a condition to control the entrance of the lake. A small of body troops is maintained here, and here also, since the seizure of the San Juan by the English, are the officers of the customs for this department.

The water of the lake opposite the fort and fronting the opening of the San Juan is very shallow, not exceeding six or seven feet in depth for the distance of a mile and upward from the shore. Near this point the Rio Frio (Cold River) comes in from the south. It is a large stream, and is represented to have two fathoms water for a distance of forty miles from its mouth. A tribe of Indians called the *Guatosos* live upon its banks, who refuse all intercourse with the whites, and permit no ingress into their territories. Some explorations were undertaken up this river by Don Trinidad Salezar, Comandante of San Carlos, in the early part of the year 1849, but he was attacked by these Indians, severely wounded, and compelled to return.

The opening of the San Juan is probably two or three hundred yards broad, which width the stream maintains with great uniformity to the Rio Savalos, a distance of twenty miles; for this extent the current is slight—according to Baron Bulow, not exceeding *one and a half miles the hour*. The channel is wide, and the depth of the water from two to four fathoms. The banks are low and the back country flat and swampy. Some sluggish streams come in from both north and south, but they are almost hidden by the overhanging trees.

At the Rio Savalos commences the *Rapides del Toro*, which are about three fourths of a mile long. The water, of course, varies in depth with the different seasons of the year. At the time of my passage, it was, certainly for most of its extent, less than a fathom in depth. The banks upon both sides are firm and high, and the palm gives place to other and larger trees. Bulow gives the current at 180 to 200 yards per minute, but I esteem it something more. From this point to the *Rapides del Castillo* is six miles. The intervening banks are high, and the land well adapted for settlements. At the rapids considerable ridges come down to the river on both sides. Upon the extreme point of that upon the south bank is situated the ruins of the old castle of San Juan, now called the "*Castillo Viejo*." The eminence upon which it stands resembles that of Chepultepec, and the ruins are still massive and imposing. At the base of the hill are the remains of the water batteries; the works completely commanded the river. This position was captured by the English in 1780; Lieutenant (afterward Lord) Nelson participated in the attack. The rapids here are short, but swift—better deserving the name of falls than rapids. Bungos cannot ascend loaded; when they have cargoes, part of the same has to be removed and carried past the falls. The boats are then *tracked*, or pushed up against the current, by main force. My bungo was upward of three hours getting as many hundred yards. This rapid, without artificial modifications, would present nearly an insuperable obstacle to all kinds of navigation deserving the name. It might be made practicable, with little trouble, for small steamers of light draught, such as are used upon some of the small western rivers. Three or four miles below the Rapides del Castillo are the *Rapides los Valos* and *Mico*, which may, however, be regarded as one. The current here is 200 or 300 yards per minute; the bottom rough and rocky, and navigation in bungos difficult. The water does not appear to be more than five or six feet deep for any considerable distance; the banks correspond with those above the castle.

To the *Rapides of the Machuca*, (the present limits of the English claim), the last, largest and worst, the river is deep and free from obstructions. "These rapids," says Bulow, who is disposed to represent the capabilities of the river in the most favorable light, "are worst of all; the water is more broken from running over a rocky bed; stones and rocks project above the surface for a distance of 600 yards; and great attention is necessary in passing the channel." It may, nevertheless, be passed by small steamers. From this point to the San Carlos the river is very fine, the banks high and studded with beautiful trees. The current is regular, but the depth of water variable. Bulow states the depth at from two to six fathoms. The San Carlos is a large stream, and may be ascended by bungos to the distance of 15 or 20 miles.

From the River San Carlos to the Serapique the banks are good, though not so elevated as they are higher up the stream. The current is strong, but even, and the depth from 4 to 20 feet in the channel. The Serapique is navigable for canoes to the distance of 25 or 30 miles.

To the divergence of the Colorado River is a distance of 13 miles, the banks preserving their elevation to the divergence of the Juanillo, from which point they become comparatively low. The current is regular, and the depth, according to Bulow, from 10 to 30 feet. The Colorado withdraws a large body of water from the river, which, however, continues to preserve very nearly its original width to the port of San Juan. The channel for the remaining distance is studded with low islands, covered generally with gamalote. The depth is very variable, ranging from 3 to 10 or 12 feet; the bottom gravely. In the dry season bungos can hardly pass with their loads.

It has been suggested that the channel of the Colorado was cut or enlarged by the Spaniards, under the Empire, to prevent the ascent of hostile vessels; but the suggestion is simply absurd. The delta has existed very nearly in its present form and condition, without doubt, for many centuries. The loss of water by the Colorado has been calculated at 28,000 cubic yards per minute in the dry and 86,000 in the rainy season.

I have no hesitation in asserting that the San Juan never can be made navigable for ships of any considerable size. Small steamers, with some improvements in the channel, might be run without much difficulty; and this is *all* that can be hoped for from this stream.

In case it should be determined to open communication for ships across the continent at this point, it would be necessary to cut a canal at the base of the hills parallel to the stream, which might be made to yield, at the necessary intervals, the requisite supply of water. It is possible that the river might be used from the lake to *Del Toro*, though even this is not certain. I am convinced that the ground rises not very far back from the river on the north, and that stone and all the materials necessary for the construction of a canal might be obtained without difficulty very nearly on the spot desired. These are things, however, which can only be determined from actual survey. A canal upon the southern bank, for reasons sufficiently obvious from what has been presented above, is impracticable.

It has been conjectured by some that formerly the volume of water in the San Juan was much more considerable than it now is. This conjecture was doubtless founded on the circumstance of strong defenses having been erected by the Spaniards many years since upon the banks both of the river and the lake, implying that it was an important channel of communication, and upon the known fact that vessels denominated in early times "frigates" were accustomed to pass from the ocean to the lake and from the lake to the ocean. Indeed, it would seem that vessels sometimes sailed direct from Grenada to the ports of Spain; but from the accounts of Gage, who visited Nicaragua about 1670, it appears that the task of passing "El Desaguadero," or the San Juan, was one of great difficulty and danger. He says: "For though while the vessels sail on the lake securely and without trouble, yet, when they fall from the lake to the sea, *hic labor, hoc opus est*—here is nothing but trouble, which sometimes makes that short voyage to last for *sixty days*; for such is the fall of the waters in many places among the rocks, that many times they are forced to unload the '*frigates*,' and load them again with the help of mules kept for that purpose by the few Indians who live about the river and have care of the lodges made to lay in the wares, while the frigate passed through dangerous places to another lodge, whither the wares are brought by mules and again placed in the frigate."* These vessels here called "frigates" were probably of small size, not exceeding eighty or a hundred tuns burden. Vessels of this size may still with extraordinary efforts be taken up during high water in the river, as was shown in 1826 by Capt. Peter Shepherd, of San Juan, who took a schooner of fifty-two tuns through the river by removing her keel and warping the whole distance. In this condition the vessel drew three feet six inches. The task was accomplished in thirty-two days. It may be observed here, upon the authority of Captaid Shepherd, that this vessel, with her keel replaced and loaded, drew seven feet of water, and that *then*, in the dry season, she could not approach within two miles of San Carlos, or the point of debouchure of the San Juan. Such being the fact, extensive works would be necessary to enable ships to pass from the lake into any canal which might be constructed.

Harbor of San Juan.—The harbor of San Juan is altogether more spacious and a better one than is generally supposed. The entrance is easy, and vessels of the largest draught find no difficulty in passing the mouth, and obtaining within a safe and commodious anchorage. It has been represented that, in consequence of the peculiar make of the land, it is extremely difficult for ships to find the harbor. This is true to a certain extent; but although the coast in the immediate vicinity is low, yet a short distance back the land is high and characteristic, and cannot be mistaken. With proper charts, correct sketches of the coasts, and with a light house on Point Arenas, every difficulty would be obviated. This is evident, even to the unprofessional observer. The harbor is fully adequate to every purpose connected with the proposed canal.

RECAPITULATION.

The length of the proposed line of communication between the two oceans, from San Juan to Realejo, is variously stated, but is estimated by Napoleon at 278 miles, as follows: Length of the San Juan, 104 miles; of Lake Nicaragua, 90 miles; river Tipitapa, 20 miles; Lake Leon or Managua, 35 miles; and distance from the lake to Realejo, 29 miles. This is positively erroneous in some particulars; as, for instance, the distance from Lake Managua to Realejo, so far from being only 29 miles, is actually 40 to 45 miles. That the calculation is generally erroneous will appear from the following facts: The port of San Juan is in 10° 56' N. latitude, and 83° 42' W. longitude; the port of Realejo is in 12° 27' N. latitude, 87° 9' W. longitude; consequently the distance *in a right line* between the two points is 265 standard miles, or only 13 miles less than the distance computed by Napoeon's authorities—a margin altogether too small for the augmentation of length consequent upon the variations of the route from a right line. The actual distances can only be determined by actual measurement; but I nevertheless venture to submit the following calculations:

Length of the river San Juan	90 miles.
Length of the port of Lake Nicaragua necessary to be traversed	110 miles.
Length of river Tipitapa	18 miles.
Length of Managua	55 miles.
Distance from lake to Realejo	40 miles.
Total	313 miles.

From this must be deducted 25 miles, in case the line is terminated at the port of Tamarinda; in case it should terminate in the Gulf of Fonseca, it is not probable it would be many miles longer than the Realejo line. The extent of actual canalization would therefore be, to Realejo 148 miles; to Tamarinda 123 miles; and to the Gulf of Fonseca, probably, 135 miles.

The hight of the various lakes to be passed, and the elevations of land to be overcome, I have employed no means of ascertaining with accuracy. From my observations, however, I am disposed to regard the following statement as very nearly correct:

	Above the Atlantic
Hight of the lake of Nicaragua	147 ft. 9 in.*
Hight of the lake of Managua	176 ft. 5 in.
Highest point of land to be passed	231 ft. 11 in.

The accompanying section, No. 3, is on the horizontal scale of 15 miles, and the vertical elevation of 500 feet to the inch; that is to say, a vertical scale proportionably 160 *times greater* than the horizontal.

It is useless to enter into calculations respecting the proper size and respecting the cost of such a work as the proposed canal. Its dimensions, in order to make it fully answer the purpose of its construction, must be sufficiently great to admit the easy passage of the largest vessels. Its cost, until there is a detailed survey of the entire line, must be entirely a matter of conjecture. It has been variously estimated from six to twenty-five and thirty millions of dollars. Assume it to cost $100,000,000, which may be as near the truth as any other calculation, still it is enough to know that it is *feasible*, and that its benefits, immediate and prospective, will be sufficent to compensate for the expenditure of double that amount, startling as it may at first appear.

Louis Napoleon estimates the size required in the earth-cuttings as follows:

Width at water line	147 feet.
Width at bottom	95 ..
Width at level of towing-path	155 ..
Depth	23 ..

In the rock-cutting as follows:

Width at water-line	131 feet.
Width at bottom	126 ..
Width at level of towing-path	131 ..
Including paths	158 ..

The dimensions of the locks, to admit one ship of 1,200 tuns, or two merchantmen of 300 tuns, or two brigs of 16 guns, &c.:

Width	47 feet.
Length within gates	210 ..

These dimensions are one-fifth greater than those of the Caledonia Canal, calculated to admit frigates of the third rank.

The same authority calculates the cost as follows:

Works on the River San Juan	$4,304,000
Works on the River Tipitapa	1,907,100
Works between Lake Managua and Realejo	10,717,000
Works at the extreme ports	400,000
Purchase of tools, engines, etc	600,000
Total cost	$17,928,100
Casual expenses and reserved fund	2,071,900
Total	$20,000,000

The author here quoted observes that he has purposely exaggerated all parts of this estimate, supposing a great number of works to be necessary, which he is assured are not, and adopting the European rate of wages, with an increase of 50 per cent. But he proceeds upon the assumption that the River San Juan can be made navigable by means of locks, dams and excavations—an opinion from which I must differ. The balance of the calculation is probably not far from correct.

It is, of course, impossible to calculate with anything more than approximate accuracy the advantages which, upon the score of economy alone, would result to the world from the construction of the proposed Canal. Its general benefits to mankind, from the augmentation to Commerce, the opening of new markets, the creation of new sources of demand, and the cheapening of all articles of import, with the consequent increase of manufactures and agricultural supplies, cannot be calculated by the narrow standard of dollars and cents. The employment which would, under the new era, be given to the overgrown and starving populations of Europe, the new fields which it would open to enterprise, and the diffusion of light, knowledge and civilization which follows always upon any great improvement in the physical condition of mankind, and which increases with every saving of an hour's time, or a mile's distance in the communications between nations—all these are considerations which must lead the Statesman, the Philosopher, the Christian and the Philanthropist, to regard the proposed undertaking with deeper interest than any which has claimed the attention of mankind. The conjunction of time and circumstance is favorable for the work, and it now seems that the "star of empire," which, in its Westward progress, stood still for awhile upon the crown of the Cordilleras, is destined to pass onward to its culmination, while the giant arm of conjoined capital and labor smites through the barriers which nature has set up between the two hemispheres.

* Mr. Bailey estimated the elevation of Lake Nicaragua above the Atlantic at 149 feet.

* Gage's West Indies, p. 422.

HISTORICAL SKETCH OF THE VARIOUS NEGOTIATIONS WHICH HAVE BEEN MADE IN RESPECT TO OPENING THE CANAL.

It will not be uninteresting, now that the project of opening a Canal across the Isthmus of Nicaragua has assumed a practical form, and seems certain to be carried into execution, to notice briefly some of the measures which have heretofore been taken in respect to it. I have already mentioned, that early in the 16th century the practicability of such an undertaking was asserted, and its advantages put forward in a striking light; but nothing was practically attempted until late in the 18th century, when the attention of the Spanish Government was called to the subject once more by Godoy, "the Prince of Peace," and a survey of the route was made under his direction. The documents relating to it still exist in the archives of Guatemala. After the independence of Central America, another attempt toward the accomplishment of the same object was made by Señor Manuel Antonio de la Cerda, afterward Governor of the State of Nicaragua, who, in July, 1823, urged the matter upon the Federal Congress, but failed in accomplishing anything at that time. In the year 1825, different proposals were made from abroad upon the subject; and the National Congress, in June of that year passed the following decree:

"ARTICLE 1. Authorizes the opening of a Canal fitted for the passage of the largest vessels in the State of Nicaragua.

"ART. 2. The works to be of the most solid construction.

"ART. 3. The Government shall offer to the undertakers an indemnification equivalent to the cost and labor of the work.

"ART. 4. The Government shall take all means of facilitating the object; permitting the cutting of wood—assisting the Surveyors—forwarding the plans, and, generally, in every manner not injurious to public or private interests.

"ART. 5. No duty shall be charged on instruments and machinery imported for the works of the Canal.

"ART. 6. The expense of the work shall be acknowledged as a National Debt, and the tolls of the Canal shall be applied to its extinguishment, after deducting the necessary costs of maintenance and repairs, and the maintenance of a garrison for its defense.

"ART. 7. Any dispute regarding its liquidation or proofs of outlay, shall be determined according to the laws of the Republic.

"ART. 8. The Congress shall be entitled to establish, and at all times alter, the rates of toll as it may think proper.

"ART. 9. The navigation shall be open to all nations, friends or neutrals, without privilege or exclusion.

"ART. 10. The Government shall maintain on the Lake the necessary vessels for its defense.

"ART. 11. If invincible impediments, discovered in the course of the work, prevent its execution, the Republic shall not be liable to make any remuneration whatever.

"ART. 12. In case only a boat canal can be opened, the indemnification shall be proportioned to the smaller benefit which will then result to the Republic."

This decree was published jointly with another fixing six months for receiving proposals, but the term proposed was too short for any measures to be taken on the part of companies or individuals, and the Congress only received a repetition of a part of the proposals before made.

The principal of these were made by Mr. Bailey and Mr. Charles Beniski—the first as agent for the English house of Messrs. Barclay, Herring, Richardson & Co. and the second for Mr. Aaron H. Palmer of New-York. Mr. Bailey's offer was conditional, while Mr. Beniski's was positive, and was therefore accepted by the Republic. The contractors, under the name and style of the "Central American and United States Atlantic and Pacific Canal Company," were bound to open through Nicaragua a canal navigable for vessels of all sizes, and to deposit in the city of Grenada the sum of $200,000 for the preliminary expenses, within six months, to erect fortresses for the protection of the canal, and to have the works in progress within a period of twelve months. In compensation they were to have two-thirds of the profits of the tolls upon the canal until all the capital expended in the work was repaid, with interest at the rate of 10 per cent. beside afterward receiving one half of the proceeds of the canal for seven years, with certain privileges for introducing steam vessels. The Government was to put at their disposal all the documents relating to the subject existing in its archives, to permit the cutting of wood, and to furnish laborers at certain rates of wages. In case of non-completion, the works were to revert unconditionally to the Republic. This contract bore date June 14, 1826, and the contractors at once endeavored to secure the cooperation of the Government of the United States. A memorial was presented to Congress and referred to a Committee, which reported in due time, but here the matter stopped, although it appears to have received the sanction of De Witt Clinton and other distinguished men

Previous to this transaction, however, in 1825, the Envoy extraordinary from Central America, in the United States, called the attention of the Government to it in an officiol letter, requesting the cooperation of the United States in preference to any other nation, and proposing, by means of a treaty, "effectually to secure its advadantages to the two nations." The Chargé d'Affairs of the United States in Central America, Col. John Williams, was accordingly specially instructed to assure the Government of Central America of the deep interest taken by the United States in an undertaking "so highly calculated to diffuse a favorable influence on the affairs of mankind," and to investigate with the greatest care the facilities offered by the route, and to remit the information to the United States. But it appears no information of the character required ever reached the American Government.

The project seems to have been allowed to slumber from this period until October 28, when the work was proposed to be undertaken by an association of the Netherlands, under the special patronage of the King of Holland. The idea seems to have originated with General Verveer, Commissioner for the Netherlands to the Grand Diet of Bavaria, upon the representation of the Commissioners for Central America, Señors Larrizabel and Molina. In March, 1829, the Dutch General arrived in Guatemala, as Plenipotentiary of his Government, with instructions regarding the undertaking of the Canal. In consequence of civil distractions, the subject was not taken up until the succeeding October, when the Federal Congress passed new resolutions upon it.

The offers made by the Association were exceedingly liberal; the work was to be executed under the protection of the King, and as soon as the outlay, with 10 per cent. interest on the same, was repaid to the Company, the work was to revert to the Republic. Arrangements were made to send Envoys to the Netherlands, with full powers to perfect the plan, and for a time the work seemed in a fair way to a commencement, but the revolution of Belgium and the separation of Holland put an end to these hopes. In 1832 endeavors were made to renew the negotiations with Holland, and the State of Nicaragua passed resolutions agreeing to the propositions of the Dutch Envoy, but nothing was accomplished.

Upon the 3d of March, 1835, public attention having again been directed to the subject, a resolution passed the Senate of the United States, "that the President be requested to consider the expediency of opening negotiations with the Governments of other nations, and particularly with the Governments of Central America and New Grenada, for the purpose of effectually protecting, by suitable treaty stipulations with them, such individuals or companies as may undertake to open a communication from the Atlantic to the Pacific Ocean, by means of a ship canal across the isthmus which connects North and South America, and of securing forever, by means of such stipulations, the free and equal right of navigating such canal to all nations, on the payment of such reasonable tolls as may be established to compensate the capitalists who may engage in such undertaking and complete the work."

Under this resolution, (says Mr. Stephens,) a special agent was appointed by General Jackson, to proceed without delay, by the most direct route, to the port of San Juan de Nicaragua, ascend the river San Juan to the lake of Nicaragua, and thence proceed across the continent, by the contemplated route of the proposed canal or railroad, to the Pacific ocean; after which examination, he was directed to repair to Guatemala, the capital of the Republic, and, with the aid of Mr. De Witt, the Chargé d'Affaires of the United States, procure all such public documents connected with the subject as might be had, and especially copies of all such laws as had been passed, and contracts and conventions as had been made, to carry into effect the undertaking, and also all plans, surveys or estimates in relation to it. From Guatemala he was directed to proceed to Panama, and make observations and inquiries relative to the proposed connection of the two oceans at that point. Unfortunately, from the difficulties of procuring conveyances to San Juan, the agent went to Panama first; from adverse circumstances, never reached Nicaragua, and died soon after his return to the United States. He nevertheless made a partial report concerning the Isthmus of Panama, to the effect that it was not practicable for a canal.

In 1837, the subject was again taken up in Central America, by General Marazan, who resolved to have the proposed line of the canal exactly surveyed, intending to raise a loan in Europe for the execution of the work. Mr. John Bailey was employed for the former purpose, but his work was brought to a sudden close by the dissolution of the Government of the Republic.

In 1838 a convention was made between the States of Nicaragua and Honduras, under which Mr. Peter Rouchaud was authorised to conclude an agreement in France, for the formation of a company to make a canal, and for other objects, but he effected nothing. The same result attended the efforts of Señor Don George Viteri, Bishop of San Salvador, who was sent Ambassador to Rome.

In the same year Mr. George Holdship, representing a company composed chiefly of citizens of the United States, residing in New-Orleans and New-York, among whom was Mr. Soulé, of the former city, arrived in Central America, with a view of contracting for the opening of the canal with the General Government. Finding that Nicaragua had "pronounced" against Morazan, and assumed an independent position, he proceeded to that State, whence he at once entered into a contract which provided for opening the canal, for the establishment of a bank to assist the enterprise, and for colonization on an extensive scale. He returned to the United States, and the matter ended.

In 1844, Don Francisco Castellon, having been appointed Minister from Nicaragua to France, and failing to interest that Government, entered into a contract with a Belgian company, under the auspices of the Belgian King, for the construction of the work. The grant was for sixty years, at the end of which time it was to revert to the State without indemnity, the State receiving meantime an interest of ten per cent.

Still later, in April, 1846, a contract was made by Mr. Marcoleta, Nicaraguan Chargé d'Affaires to Belgium, with Prince Louis Napoleon Bonaparte, then a prisoner at Ham, which differed but little from the preceding one, except that the canal was to be called "*Canal Napoleon de Nicaragua*." Beyond the publication of a pamphlet upon the subject, under the initials of the Prince, this attempt also proved abortive.

So the matter rested until 1849, when the acquisition of California by the United States, and the discovery there of vast mineral wealth, again directed public attention to the subject, in a more serious manner than at any previous period. It now began to assume a practical form, and, as a consequence, there was a renewal of propositions to the Government of Nicaragua. The first of these, in the form of bases subject to future adjustment, came, under date of 16th of February, from Mr. William Wheelwright, the projector of the British line of steamers on the western coast of South America, upon behalf of an English company. It embodied, substantially, the provisions of the contract of 1844 with the Belgian company, but was never acted upon by the Nicaraguan Government.

The second was in the form of a detailed contract, and was entered into between Mr. D. T. Brown, representing certain citizens of New-York, and General Muñoz, Commissioner of the Nicaraguan Government, on the 14th of March. It, however, never received the sanction of the Executive, nor was it ratified by the company within the time stipulated by its terms.

Upon the 27th of August another and final contract was entered into by Mr. D. L. White, agent of an American company, which, together with a treaty negotiated by myself upon the part of the United States, guaranteeing the security of the same, I have already had the honor to transmit to the Department.

CLIMATE OF NICARAGUA, &c.

There are other circumstances beside the actual topographical features of the country necessary to be considered in estimating the practicability of a grand work like the proposed canal: the means of subsistence, climate, ability of procuring and applying labor, &c. must all be considered. Situated between latitude 10° and 13° North, the climate is essentially tropical, but is favorably modified by a variety of causes. Upon the Atlantic declivity it is unquestionably warmer than in the interior, or upon the borders of the Pacific—more humid and more subject to rain. The country, too, is low along the coast, with numerous lagoons and inlets, and consequently more infested with annoying insects, and more subject to fevers. The climate, however, is more salubrious than would be supposed under the circumstances. This is illustrated by the fact that in the months of March and April, 1849, a party of American emigrants—130 in number—spent upward of six months at this point; and notwithstanding the sudden transition from midwinter to tropical heats, not to mention inadequate shelter and indifferent food, not one was seriously affected by illness. The same party, it may also be mentioned, passed up the San Juan under the worst of circumstances, suffering great exposures, and remained in the interior and upon the northern coast until the middle of August, with scarcely any sickness among them, and that little generally the result of carelessness or excesses. But a single member, whose health had been shattered by dissipation at home, and whose habits would soon have proved fatal in any climate, died during this period. It cannot be doubted that the surveys, excavations, &c. on the San Juan, will not only prove the most difficult of any section of the proposed canal, but, from the nature of things, be attended with greater injury to the health of those engaged there. The forests which line that river are dense and dark; and the removal of the trees and other vegetation, and the consequent exposure of the rich earth—the accumulated vegetable deposit of ages—to the sun, would prove a prolific source of fevers and kindred diseases. The evil consequences could only be arrested by employing here, as elsewhere, the natives of this latitude, inured to labor and hardened to exposure. In fact, the principal reliance throughout must be upon this kind of laborers, who, for *two reals* (25 cents) per day, (the standard price,) would flock in all desirable numbers from all the States of Central America. For a *medio* (6) cents per day each man provides his own support, without further cost to his employer. The laboring population is eminently docile, and can soon be brought to perform any kind of simple labor, as excavating, clearing, quarrying, burning lime, &c, in a satisfactory manner. In a country where there are so many festival days, it would be necessary to keep them a little in arrears, or possess some means of forcing them to comply with their contracts, to secure their constant attention to their work. The valley of the San Juan once passed, the climate is unsurpassed for salubrity by an equal extent of territory under the tropics, or perhaps in the world. The year is divided, rather anomalously to the stranger, into two seasons—the wet and the dry; the first of which is called Winter, and the latter Summer. The wet season commences in May, and lasts until November; during which time, but usually near the commencement or close, rains of some days' duration are of occasional occurrence, and showers are common, but do not often happen, except late in the afternoon, (commencing about four o'clock,) or in the night. They are seldom of long duration; and often days and weeks elapse without a cloud obscuring the sky.* During this season, the verdure and the crops which, during the dry season, become sere and withered, appear in full luxuriance; the temperature is very equable, differing a little in different localities, but preserving great uniformity all over the country, except in the mountainous regions. The range of the thermometer is from 78° to 88°, in rare instances sinking to 70°, during the night, and rising to 90° in the afternoon. During the month of June, at Grenada, the average hight of the thermometer was 82° of Fah.; in Leon, during the months of July, August and September, 83°. Out of the sun this weather would prove agreeable to most persons. There is almost constantly a cool and pleasant breeze blowing, for the most part from the northeast. The nights are delicious, and sleep is seldom, if ever, interrupted by heat. For weeks together the thermometer has marked 79° at ten o'clock in the evening, and 78° at sunrise. During the dry season, in January, the temperature is less, the nights positively cool, and occasionally the winds are chilling. The sky is cloudless, and trifling showers fall at rare intervals. The fields become dry, cattle are driven to the hills and forests for pasturage, and the dust in the towns becomes almost insupportable. It penetrates everywhere, permeating even through the tiled roofs in showers, and sweeping in clouds through the unglazed windows. Were it not for this, the dry season would not be pronounced unpleasant. It is esteemed healthier than the wet season.*

* Probably not more than one-half the amount of rain falls during these six months in Nicaragua that falls in the latitude of New-York during the same period.

I have already said that the natural resources of Nicaragua are immense, but they have been very imperfectly developed. The portion of lands brought under cultivation is very small, but ample for the support of its population. There is no difficulty in increasing the amount to an indefinite extent, for the forests are easily removed, and genial nature needs no forcing to return rich harvests. There are many cattle estates, particularly in Chontales, Matagalpa, and Segovia, which cover wide tracts of country; some of these have not less than 10 or 15,000 head of cattle each. The cattle are generally fine, quite equal to those in the United States.

Among the staples of the State, and which are produced in great perfection, I may mention sugar, cotton, coffee, cocoa, indigo, tobacco, rice and maize or Indian corn.

Sugar.—The description of sugar cane used in Nicaragua is a native of the country, and very different from the Asiatic cane cultivated in the West Indies and the United States: it is said to be equally productive with the foreign species; the canes are slenderer and softer, and contain more and stronger juice, in proportion to their size, than the Asiatic variety. Two crops are taken annually, and the cane does not require replanting but once in 12 or 14 years. The best kind of sugar produced from the sugar estates is nearly as white as the refined sugar of commerce, the crystals being large and hard. A large part of the supply for ordinary consumption is what is called "*chancaca*," and is the juice of the cane merely, boiled till it crystalizes, without being cleaned of the molasses. A quantity of this is exported to Peru, and elsewhere in South America. It is stated that the "chancaca" may be produced ready for sale at $1 25 per quintal (101¼ lbs. English.) The most profitable part of the sugar establishment is the manufacture of "*agua ardiente*," a species of rum. It is impossible to say, in the absence of data, what is the amount of manufacture of sugar in Nicaragua; it is perhaps enough to know that it may be produced indefinitely. The export has been estimated at 200,000 lbs.

Cotton.—Cotton of a superior quality to that of Brazil may be produced in any quantity in Nicaragua. "As many as 50,000 bales, of 300 pounds each," says Dunlap, "of clean and pressed cotton, have been exported from this State in a single year; the cultivation is, however, at present (1846) at a very low ebb." Considerable quantities are nevertheless raised, which are manufactured by the natives, but chiefly by the Indians, into hammocks, sail-cloth and ordinary clothing. The domestic cloth is coarse, but compact, neat and durable.

Coffee.—Coffee of a superior quality, and probably equal to any in the world, may also be produced indefinitely in this Republic; but for some reason it is not very extensively cultivated. The plantations which I have seen are very flourishing, and the proprietors find them quite as profitable as any other. The limited cultivation is perhaps due to the circumstance that chocolate is the common beverage of the people, and coffee never having become an article of trade or export, has consequently been neglected. There is no reason why as good coffee should not be produced here as in Costa Rica; and the Costa Rica coffee, when offered in good condition in England, commands a higher price than any other. As, however, it is usually shipped by way of Cape Horn, it often suffers from the protracted voyage. It has, nevertheless, been the almost exclusive source of wealth in Costa Rica. The crop of 1847 amounted to 8,000,000 pounds, which, at $12 50 per cwt. (the average price in the English market,) gives $1,000,000 as the returns—a considerable sum for a State of less than 100,000 inhabitants, and where the culture has been introduced but 14 years. The cost of production per quintal (101¼ pounds,) at the present rate of wages (25 cents per day) is about $2 50. If the attention of the people of Nicaragua was seriously directed to the production of coffee, it would prove a source of great profit.

Cacao.—Cacao, only equaled by that of Soconosco, on the coast of Guatemala, (and which was once monopolized for the use of the royal establishment of Spain,) is cultivated in considerable quantities. It is, however, an article of general consumption among the inhabitants; and, consequently, commands so high a price that it would not bear exportation, even though it could be obtained in requisite quantities. About all that finds its way abroad goes in the form of presents from one friend to the other. There is no reason why this should not become an article of large trade and a source of great wealth. There is one cause why its production is not greater, and that is the length of time and great outlay required in getting a cacao plantation in paying operation. Few have now the capital to invest; and these few are in too feverish a state, in consequence of the distracted condition of public affairs, to venture upon any investment. Under a stable condition of things, and by the opening of a short and easy channel to market, the cultivation of cacao will rise to be of the first importance. The trees give two principal crops in the year. It is sold from $15 to $20 the quintal, while the Guayaquil is worth but $5 or $6.

Indigo.—Indigo was formerly cultivated to a considerable extent, but has of late years much fallen off; and there are a number of fine indigo estates in various parts of the Republic which have been quite given up, with all their appurtenances, by their respective proprietors. The plant cultivated for the manufacture of indigo is the *indigo fera*, a triennial plant, supposed to be a native of America. There is also an indigenous triennial plant abounding in many parts of Central America, which produces indigo of a very excellent quality, but gives less than half the weight which is produced by the cultivated species. The indigo of Nicaragua is of very superior quality, and its export once came up to 4,000 bales of 150 lbs. each. It is impossible to say what the export is at present—probably not more than 1,000 or 2,000 bales. Under the government of Spain, the State of San Salvador produced from 8,000 to 10,000 bales annually. A piece of ground equal to two acres generally produces about 100 to 120 pounds, at a cost of not far from $30 to $40, including clearing of the field and all other expenses.

[To be continued.]

* Upon the matters here adverted to, it will not be uninteresting to subjoin the following remarks of Mr. Bailey:—"In executing so stupendous an undertaking," says he, "salubrity of climate, and the means of feeding abundantly and economically so large a body of workman as would be collected, are subjects which cannot be passed over without notice. With regard to the first, the writer can aver that, during four months that he was occupied between the Pacific and the Lake of Grenada, with a party of forty individuals, there was not a man prevented by sickness from performing his daily labor, although continually sleeping at night in the open air. On the Lake and in the River San Juan, with a large party, the men maintained their health well, although exposed to frequent rains in the latter. But when at the port (del Norte,) or near to it, sickness got among them, which was mainly attributable to the use, or rather abuse, of ardent spirits, and other excesses so frequently indulged in at such places. This change, however, is not assignable solely to indulgence in excesses, because San Juan is exposed to all the dangerous influences of climate and temperature peculiar to the Mosquito shore, and all the coast from Cape Gracias à Dios to Carthagena beyond it.

"The population of the State of Nicaragua may be said not to extend south, only, much beyond the environs of the town of Nicaragua, so that the line of survey, approaching it in no part nearer than four leagues, passed over a comparative wilderness, and consequently all provisions were supplied from that place. These are always to be had in abundance; and should circumstances require it, they could be drawn from other parts of the State to almost any extent. The principal articles of consumption are meat, (beef,) maize, frijoles, rice, plantains and fruits, which can be furnished at moderate prices; as, for example, meat at 3½, 4 or 4½ reals the arroba of 25 pounds, (the real is equal to sixpence of English money;) maize varying, according to seasons, 6, 8 or 10, seldom 12 reals per fanega, which weighs about 300 pounds; frijoles and rice in similar proportions; plantains, which are universally used, especially by the laboring classes, are so plentiful that a mule load of them (two or three quintals) can be had throughout the year for 2 or 2½ reals; so that if a large number of workmen were to be collected in this direction, there would be found no difficulty in supplying them with all the ordinary necessaries of life.

"The price paid for labor during the survey was $7½ per man per month, beside provisions, which, on an average, amounted to half a real a day; but this was higher than what was usually given for general field work, in consideration of the men being taken to a distance from their families for an indefinite time. For work such as that in question, good native artisans would be scarce; but there would be no want of laboring hands, for the certainty and regularity of their pay would attract men not only from all parts of this, but from the adjoining States of Costa Rica, Honduras, and San Salvador also; while a judicious system of equitable regulations would insure their docility and submissiveness. The barbarism that has been attributed to this population in the writings before alluded to needs no other refutation than saying that the imputation is unfounded; nor is it, nor can it be, a supposable fact that the peasantry of the one country should differ very much from that of the other adjoining it—the same language, habits, and customs being common to both."

☞ The Yarmouth (Mass.) *Register* states that a boy about five years of age, son of Mr. Washburn Baker, of West Yarmouth, was murdered in a fit of rage by a young man named Chase.

FIRE.—On Saturday night the large cooper's shop and manufactory of flour barrels on Lombard's wharf, East Boston, was totally destroyed. Loss $2,000.