

TENNESSEE RIVER IMPROVEMENTS.

In the early part of last September my eye hit upon a paragraph in the morning papers which made me thoughtful. Strange how a little thing at one time will start a train of thought when a whole university faculty could not inspire one at another. The paragraph contained the information that the River and Harbor bill had not been returned by President Cleveland, and hence had become a law without his signature. The question at once arose in my mind, why did not the President sign that bill? Could it have been carelessness or a rush of more important duties? I emptied my pipe over the veranda rail of the summer hotel where I had been spending the season, and sought a copy of the bill, expecting to find the amount of the appropriation quite trifling. The bill was longer than I expected, but having had some difficulty in obtaining the copy, I felt called upon to read it through. I learned much about American geography and something about figures, for I made a copy of the various items upon the margin of my daily paper. I ran down over the figures; they footed up \$10,694,480—no trifling amount. Mr. Cleveland could never have attained his present position, thought I, if he is a man who overlooks items of that magnitude in his daily transactions. There must be some intent behind this apparent neglect.

I passed on through the list of appropriations to the list of recommendations for new work. Here I came upon a paragraph recommending that the War Department cause a preliminary examination to be made of the Okanogan River, in the State of Washington, "from mouth to head of navigation." Head of navigation? Okanogan River? What can this mean? I looked again to assure myself that it was not a joke. Why, I have walked across that stream within a mile of its mouth and scarcely wet my shoes. I have crossed it and recrossed it at a hundred places; I have ridden my pony from its mouth to its source, and will take my oath that there are not a dozen white families living along its banks, a distance of perhaps seventy-five miles. I have photographed them all from Okanogan Smith, at Sooyos Lake, to Tenass George, who lives "where the trail comes over from Loomis's," and on down to Wild-Goose Bill's, "where the rope ferry crossed the Columbia."

Is this the way our national representatives are spending the hard-earned money of our forefathers? thought I. True, all that country needs, like the place mentioned by Hoyt, is a "little rain and good society," but the rain-makers have failed, and the good society would be run out if it tried to get a hold there. It is a good place to get up a boom in city lots and mining stock, because moneyed people cannot get in there to investigate their purchases; but as for raising anything—well, that is out of the question.

Being a Republican, my mind quickly hit upon a solution of this ten-million-dollar appropriation. It is another case of Democratic thieving, said I, aloud, and with much partisan indignation, as I brought my fist down on the arm of the chair; but on turning back a few pages in the document I was reading, I found that the last Republican Congress appropriated \$21,042,718, and the one preceding passed a bill giving \$24,312,265 for the same purpose. My eyes opened with surprise as I undertook to count the millions upon which this nation has expended and is expending to expend on its inland waterways, but I returned to the subject of Democratic stealing.

I returned to the long column of figures I had made on the margin of the newspaper, and came to this item: "Improving the Tennessee River below Chattanooga, \$400,000." I let my finger rest there while my eye ran down the balance of the column. This was the largest single item in the appropriations for 1894, so I decided to commence my investigation here. The next item was \$50,000 for the same river above Chattanooga, and still other items for the various branches of this river.

Four hundred thousand dollars! I sought the library of a friend to learn more about this Tennessee River. There I read from other government reports that this river with its branches has twelve hundred and fifty-five miles of navigable water, six hundred and twenty-three of which are of the river proper. Twelve hundred and fifty-five miles! Why, that would be from New York to St. Louis. Can it be possible? I found others equally ignorant about this great navigable waterway which was consuming so much of our government's attention and money. I looked further. Figures began to pile upon figures until I had checked off a total of over \$5,000,000 that had already been expended upon this stream and its branches. As I read further amid the dry documents of the War Department, I learned that the work had scarcely been begun, for engineers sent out by the government had estimated that about \$9,000,000 more could be advantageously expended on this same stream, a part of which was to be used for investigating as to the advisability of a still larger appropriation. The figures became bewildering. Fourteen million dollars for improving a river I knew so little about! It was evident my camera and I would have to take at least one more trip at home before looking for great rivers abroad.

I started out, fully determined to avail myself of the great expenditure on the part of a generous government, by taking a steamer ride the whole twelve hundred and fifty-five miles. Chattanooga seemed to be the point above and below which these expenditures had been made. I had heard of the famous inn on Lookout Mountain near Chattanooga, and immediately purchased a ticket. I arrived at the summit of the mountain in the night, and the next morning being misty, I decided it would be better to buy (a scandalous thought I know my brother Knights of the Camera will say) rather than take a photograph of the great "Moccasin Bend," which was my first view of the river that was to be the subject of my inquiry.

It was beautiful October weather, and I lost no time in seeking a steamer dock preparatory to a trip up or down the river, it was immaterial which.

What! No boats running? All aground? Dry season, I suppose; but I should think they would construct the boats so as to draw less water. I was informed that the largest boats on the river drew less than five feet, and some of them not over a foot and a half. I could make no further suggestions on this line, for a steamer that drew less than a foot and a half would hardly be up to the dignity of a fourteen-million-dollar appropriation. Disappointed but not discouraged, I went to the office of the *Tradesman*, and began to look up old files in search of light upon the

subject. I obtained much interesting information bearing upon the history of the government's expenditures in the channel of the river. I learned that it was not some sudden fancy that had recently struck our government, but that the question first arose in 1824, when Mr. Calhoun was Secretary of War under President Monroe. That gentleman called attention to the fact that this great river was navigable in high water from its source to its mouth, except at Muscle Shoals, in Alabama, about 195 miles below Chattanooga.

I read everything I could find on the subject, but perhaps the thing that was the most in the line of my investigation was the prophecies held out by various speakers and writers as to what would happen were this one obstacle removed. My enthusiasm was aroused by such extracts as these: "The benefits that will result to the States of Alabama and Tennessee are incalculable." "Through the new outlet, the timber of the Blue Ridge Mountains, the marble of Knoxville, the iron, coal, and coke of the Chattanooga district, and the agricultural

An annual traffic of 8391 tons, or one good load for an ocean steamer. Let us see what this costs the government. The total expenditure at the shoals up to September 3, 1890, was \$2,817,341 18, which at three per cent. makes an annual interest charge of \$84,520.23, and maintaining the canal costs \$65,000 annually, making a total annual expense of \$149,520.23 at this one point, which, divided by the number of tons of freight annually passing through the canal, gives a cost to the government of \$17 81 per ton, which far exceeds the gross value of the freight; and were we to consider the total expenditures above this point of the river, it would bring the cost up to \$25 per ton. We evidently must look elsewhere if we would find any adequate return for the government's appropriations.

The prophets said that this canal would cause the railway companies to reduce their freight rates, and thus give the country drained by this great river an indirect advantage. This may be so. Uncle Sam has been pictured in many attitudes, but this is the first time I ever saw him

Location of Improvements.	Navigation at High Water, Miles.	Amount Expended and Contracted for to June 30, 1893.	Additional Amount Estimated.	Tons of Freight Carried Year ending June, 1890.*
<i>Tennessee River.</i>				
Above Chattanooga.....	188	\$292,090.08	\$3,000,000.00	91,187
From Chattanooga to Bee Tree Shoals.....	260	3,662,029.09 (502,902.68 then under contract.)	5,837,939.81	77,325
From Bee Tree Shoals to Ohio River.....	225		{ Survey recommended to ascertain amount. }	344,553
<i>Branches.</i>				
Holston River.....			Not yet surveyed.	
French Broad River.....	90	\$52,523.48	\$83,000.00	12,500
Little Tennessee River.....			Not yet surveyed.	
Clinch River.....	145	85,806.26	\$11,000.00	25,000
Emery River.....	8		{ Survey recommended to ascertain amount. }	
Hiwassee River.....	43	33,338.78		10,129
Elk River.....			{ Survey recommended to ascertain amount. }	
Duck River.....	68	13,000.00	\$22,000.00	
Sequatchie River.....	50	5,000.00	{ Survey recommended to ascertain amount. }	

* The same freight passed over several divisions, hence the heavy duplication in this column.

products of 56,000 square miles of territory will find their way to the great markets of the South and West." "The Tennessee River will be to Chattanooga what the Ohio River is to Pittsburg." "It will reduce freight rates by rail, create new industries, infuse new life into old communities." The prophecies were strong, and written in a language that carried conviction.

Perhaps my investigation would have been limited to the libraries, had I not met with the following paragraph admirably adapted to fire the blood of an amateur photographer: "The route of the proposed Muscle Shoals Canal is exceedingly picturesque, and presents many attractive features to the tourist traveller. On one side rises a succession of limestone cliffs worn into an infinity of curious forms by the action of water, and draped with mosses, vines, and wild flowers; on the other the river, a mile in width, studded with wooded islands, roars and foams over the barriers of rock that constitute its famous shoals."

That paragraph was too much for me. I decided to go down the river, and accordingly consulted the register of water-levels which the government posts daily. It read thus, "0. F.," the first character indicating that the depth of the water is less than a foot, the second that it is still falling. I did not wait for high water, but took my camera and went down as I fear others will often be compelled to go even after the whole fourteen million dollars shall have been expended. I went down in a dugout. The trip of 195 miles was beautiful and wild, the canal all it was represented to be, and I felt new vigor with which to continue my investigation. I found its history interesting. The first survey was made in 1828, and submitted in 1830, Congress having voted four hundred thousand acres of land to the State of Alabama to be applied principally to the improvement of the Muscle and Colbert shoals. In 1831 the State of Alabama took up the work, and in 1836 opened to navigation a canal 14 1/2 miles long, 60 feet wide, and 6 feet deep, with 17 locks 120 feet between mitre sills, 32 feet wide, with an average lift of 6 feet. This canal cost \$700,000, but proved of little use, as other obstructions still prevented practical navigation above and below, and the following year the canal was abandoned for lack of funds with which to maintain it. For forty years the canal lay a ruin. Good-sized trees grew up in its channel, and others forced its masonry apart.

In 1867 a new examination was made of the river from Chattanooga to the Ohio, and extensive improvements recommended. December, 1875, saw the first dirt broken in the second Muscle Shoals Canal, the most extensive improvement of its kind ever undertaken by our government. It consists of sixteen miles of open channel improvement, with the necessary permanent dams and bridges over the several creeks and ravines. The canal trunk is from 70 to 120 feet wide at the water's surface, 6 feet deep, and contains 11 locks with an average lift of 10 feet. The canal is carried over the mouth of Shoal Creek in an aqueduct constructed of steel plates and supported by 546 18-inch iron girders. This structure is 860 feet long, 60 feet wide, 5 feet deep on the mitre sills, and rests on 27 cut-stone piers and abutments. The work has evidently been well done, and our nation should be proud of her engineers; but if it is to serve only as a monument, then it has been a costly one and is rather remotely placed to justify the annual expenditure of \$65,000 for maintenance and operation. But let us trust that it was not merely as a monument that this great outlay was incurred. Let us inquire as to the benefits of the canal, and this may lead us to give the project our full approval.

The canal was opened to navigation November 10, 1890, and its first two years of business practically ended June 30, 1893, with the following showing in freight tonnage:

YEARS ENDING JUNE 30, 1892 AND 1893.	1892.	1893.
Lumber.....	730	2556
Cotton.....	199	122
Grain.....	1585	332
Flour.....		598
Oak extract.....	1000	490
General merchandise.....	1056	1778
Logs.....	900	2301
Iron.....	1130
Coal.....	315	4
Total number of tons.....	6915	8391

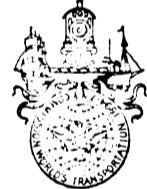
represented with a fourteen-million-dollar whip in his hand trying to drive the great railway companies to give low tariff rates. No statistics can be had that will give any accurate returns upon this item, but its results will certainly show in the development of the industries along the country drained by this great river, so let us look away from the river to the city that the prophets told us would soon become a second Pittsburg, and the hamlets that were to become cities. Alas! their population in 1894 is not as great as when the canal opened in 1890. Where, then, lie the benefits of this constantly recurring item in the River and Harbor bill, Improvements in the upper Tennessee?

It has been said that the French government is sustained by internal improvements in the city of Paris; the English by her foreign policy and appointments; the city of New York by her police appointments, and our own great national questions are passed or defeated according to the geographical distribution of the funds in our River and Harbor bill. Perhaps this is where the solution lies. I merely ask the question, and leave it for others to answer.

C. W. ROBINSON.

AROUND THE WORLD

WITH THE
TRANSPORTATION
COMMISSION



OF THE
FIELD COLUMBIAN
MUSEUM

CEYLON AND ITS CAPITAL.

THE approach to Ceylon in general, and to the town and harbor of Colombo in particular, is much more pleasing than striking. As the steamer draws in towards the land, indeed, the view presents a certain sameness of effect.

The long line of the coast lies low, and slopes with a very gentle curve upwards towards broken-looking ranges of mountains that seem to be thirty or forty miles away, and are a good deal obscured by white mists that cling around their tops. The city and harbor of Colombo must be almost reached before they can be seen. Originally only an open bay exposed to the full sweep of the southwest monsoon, nothing but the scarcity of good harbors in the island can render the fact intelligible that it has been an important centre of commerce for at least six hundred years. The southwest monsoon, it is true, only prevails at one season, a circumstance which was, no doubt, of importance at a time when the requirements of commerce did not include the regular despatch of mails every day or two to some part of the globe. Colombo is now the official capital of Ceylon. The name is a corruption of "Kalambu," an Arabic, and not a native, name for the port. It was the post originally taken and fortified by the Portuguese in 1520, and held by them in defiance of the repeated efforts of the native princes, until in the year 1656 it was taken from them by the Dutch, who in their turn surrendered it to Great Britain in 1796.

As the steamer approaches the shore, which looks like a dense forest of not very brilliantly colored trees, the first sign of human occupation that catches the eye is a light-house perched on a rock perhaps a hundred feet high, which forms a kind of point at the southern end of the bay. As we clear the longer and lower point at the northern end we suddenly find ourselves almost within the harbor. Before us, stretching nearly a mile, is the great breakwater which has transformed the bay of Colombo from an open roadstead into a secure harbor. Begun in 1875, this great work extends from the southern point of the bay almost directly across the entrance. The massive construction of the work is well illustrated by our picture, which shows a piece of the masonry and one of the large travelling-cranes used in making repairs.



COLOMBO—IN THE HARBOR



NATIVE WATERING-PLACE IN THE LAKE

The breakwater is built of huge blocks of concrete, and has a seaward wall and a broad carriage drive on the top, which is used as a sea-parade by the European inhabitants.

As our steamer rounds the end of the breakwater we at once exchange the long swell of the Indian Ocean, which breaks sullenly on the dazzling face of the breakwater, for the glassy smoothness of the harbor within. Our illustration, while it gives a fair idea of the harbor itself, can give none at all of the exuberant and curious life which, as if by magic, seems instantly to surround the newly arrived steamer. Sailing-boats, rowing-boats, canoes, catamarans, and even shapeless logs of wood paddled by the hands of laughing coffee-colored boys surround the vessel amidst a perfect pandemonium of yells, shouts, and screams with which the occupants of each vessel call attention to their own particular wares, which are held up to public view and criticism. Our picture, which represents the view from the beach nearly opposite the custom-house, shows the long dark line of the breakwater, inside of which the larger steamers lie at anchor. There are no wharves running out to deep water, so that all landing of passengers is done, by means of small boats, upon the beach. On the left of our illustration are the coal wharves, with a number of the flat barges used for supplying coal to the steamers; similar barges are used for loading and unloading merchandise.

Colombo itself, which contains a population of fully 120,000 souls, is rather a pretty and romantic than an imposing city. There is no really fine street and but few fine buildings in the town. From the anchorage in the harbor it presents the appearance of a confusion of tiled roofs of a dull red color following the circle of the bay, and more than half hidden by the tall swaying palms and trees of lower growth but brighter color that almost encroach upon the beach. Here and there the spire of a church or the minarets of a mosque soar above the trees, and in one place the strangely shaped tower of a Buddhist

temple shows itself in the background. A walk through the town confirms the general impression formed at a distance. The streets are for the most part wide and well kept. They are shaded by trees, some of which are very beautiful, especially a species of hibiscus, which grows to a large size.

At a short distance inland the visitor reaches the shore of the fresh-water lake—a feature at once highly ornamental and of the greatest practical value to the city. Our three illustrations serve to indicate its value in as many directions. The sheet of water is a fine one, and its margin, shaded by palms and other Oriental-looking shrubs and trees, harmonizes well with the noisy crowds of natives who are engaged, *en déshabillé*, in laundry work for the shipping, or in obtaining water for use in the city. Here and there a bungalow, like that given in our picture, fronts the margin of the lake, and in the evenings the water is enlivened by the presence of boats in which linen-clad Europeans enjoy the comparative coolness of the air after sunset.

The population of Colombo, like that, indeed, of all Ceylon, is a very mixed one. The Singhalese, or original inhabitants, are in a large majority, it is true, but Tamils, Mohammedan settlers, burghers, recalling the hundred and fifty years of the Dutch occupation, are present in considerable numbers, while the Parsee merchant may be recognized in his spotless robes, and the British military officer or official civilian may be at once distinguished by his leisurely gait and his air of assured superiority.

COLOMBO.

BY MAJOR J. G. PANGBORN.

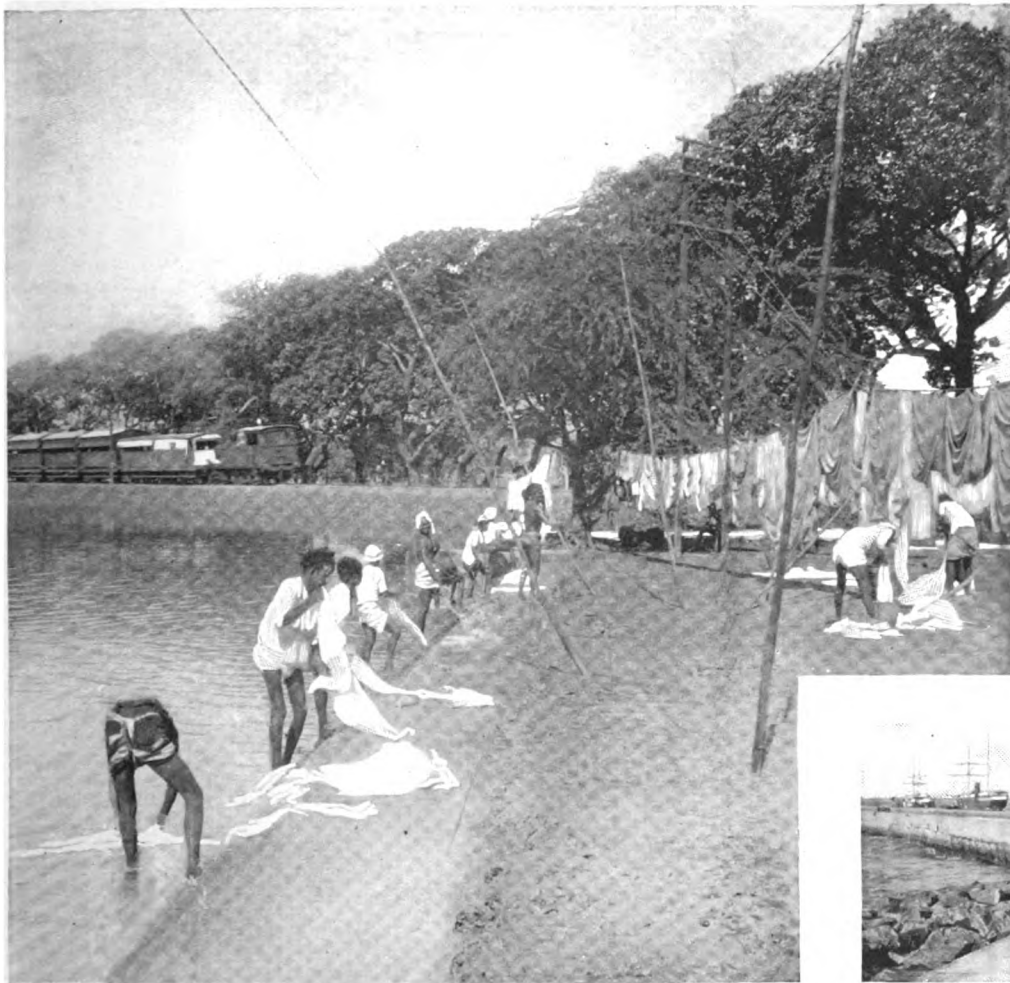
COLOMBO, Ceylon's chief seaport, lying as it does directly in the track of the English, French, German, Austrian, and Italian steamship lines to and from China and Japan, as well as those to and from Australia, is rapidly

assuming an aspect which in the near future will render it one of the most important cities of the East.

The harbor of Colombo, through the construction of the great stone breakwater, extending nearly a mile outward into the ocean, was made a fairly good one, better by far than many of those at the much older ports of the Mediterranean. Plans are, however, now practically completed for an additional breakwater of an even greater extent than the original, which is to be so constructed as to insure the protection of vessels coming in and going to anchor at all seasons of the year and in any weather. The British India, Peninsular and Oriental, Orient, Holt, Clan, and other English steamship lines, as well as the North German Lloyd, the Messageries, Austrian Lloyd, and others, now make Colombo a regular port of call, and there is scarcely a day that two or three ships do not come to anchor within the harbor.

The railway system of India now extends to Tuticorin south, but it is proposed to construct a line from Madura, on the South Indian Railway, southeast to a point of connection with the contemplated crossing from Ceylon, a line in the latter-named country having already been surveyed from Kandy to Manaar, and a second survey also run from Colombo, following the west coast to the same point. The construction at the crossing, it has been found, will not be particularly difficult, the bridging proper being confined to something like three miles. There will have to be a draw over the deeper part of the channel, which at the best only permits of the passage of light-draught craft, and is principally used by sailing-vessels conducting a minor native trade.

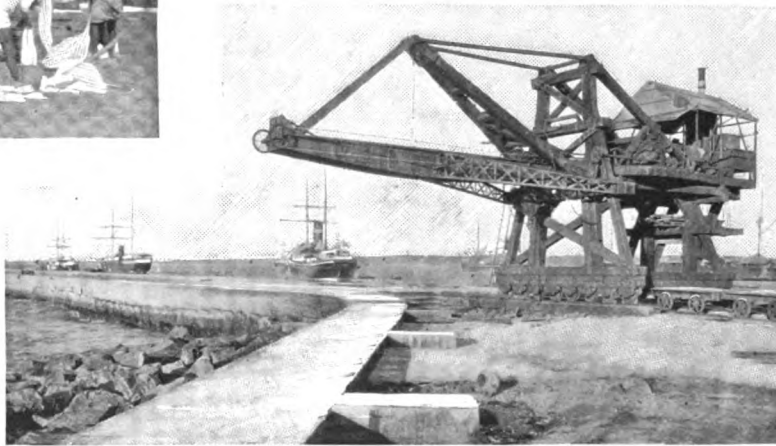
With the Ceylon railway system connected with that of India, which has reached a mileage exceeding that of twenty thousand, Colombo would become the principal seaport of so vast a territory as to be spoken of as a continent, and the large aggregated expenditure upon the railway system south of Bombay would be turned to the advantage of the entire country.



WASH-DAY.



A BUNGALOW BY THE LAKE.



THE BREAKWATER.

WITH THE WORLD'S TRANSPORTATION COMMISSION IN COLOMBO.—PHOTOGRAPHS BY W. H. JACKSON.