MEXICAN BOUNDARY.

LINE IS MARKED BY MONUMENTS OF IRON.

Incidents of the International Survey Recently Completed—Difficulties Experienced by the Boundary Commission.

Line Fixed at Last.

The official geographical boundary between the United States of America and the Republic of Mexico has been established, and after many years of hard and dangerous work by Colonel J. W. Barlow, engineer-in-chief of the International Boundary Survey, and his men, the line has been marked by a series of boundary monuments, built of iron. Colonel Barlow's report has been sent to the Department of State at Washington, but will not be published for a year. Numerous fine illustrations are to be made to accompany the report, and when completed it will be one of the most interesting and attractive documents ever issued by the Government.

The war with Mexico, which closed with the treaty of Guadalupe Hidalgo, entered into at the village of that name in 1848, resulted in the cession to the United States of the States of New Mexico and California, as then constituted. The southern boundary of this territory was not clearly defined, and a commissioner was appointed to mark the line, but managed to spend all of the appropriation before he commenced the work. W. H. Emory was then appointed, who, with a commissioner from Mexico, went about the work in a business-like manner, commencing at the Pacific coast. When the gold excitement of California reached the men at work on the line they abandoned the work and went to the mines, seriously retarding its progress. Later the commission succeeded in filling the places of the workmen and proceeded with the survey, which was finished to the first natural mark, the junction of the Gila and Colorado Rivers. However, before this work was complete the Gadsden treaty of 1853 made it necessary to move that part of the line east of the Colorado farther south to where it yet remains. This new line was to begin at a point on the Rio Grande commencing at parallel 31.47 and to run west along said parallel 100 miles, thence south thirty miles to parallel 31.20, thence west to intersection of third meridian, thence northwest to a point on the Colorado about twenty miles south of its confluence with the Gila. At the time of the treaty of Guadalupe Hidalgo the diplomats were ignorant of the fact that the Colorado River from the junction of the Gila runs a little north of west for a distance of about six miles, and then resumes its general course southwest. This caused a line to be run on the south side of the river, where it was supposed when the treaty was made the river would form a natural boundary. Part of the town of Yuma and the territorial prison of Arizona have been built on this narrow strip of land, and a difference of opinion has arisen as to the true boundary between California and Arizona along this part of the line, and the matter has found its way into the courts. The question to be decided is whether the prisoners in the Arizona penitentiary are illegally confined in California when they should be in Arizona.

The Difficulties.

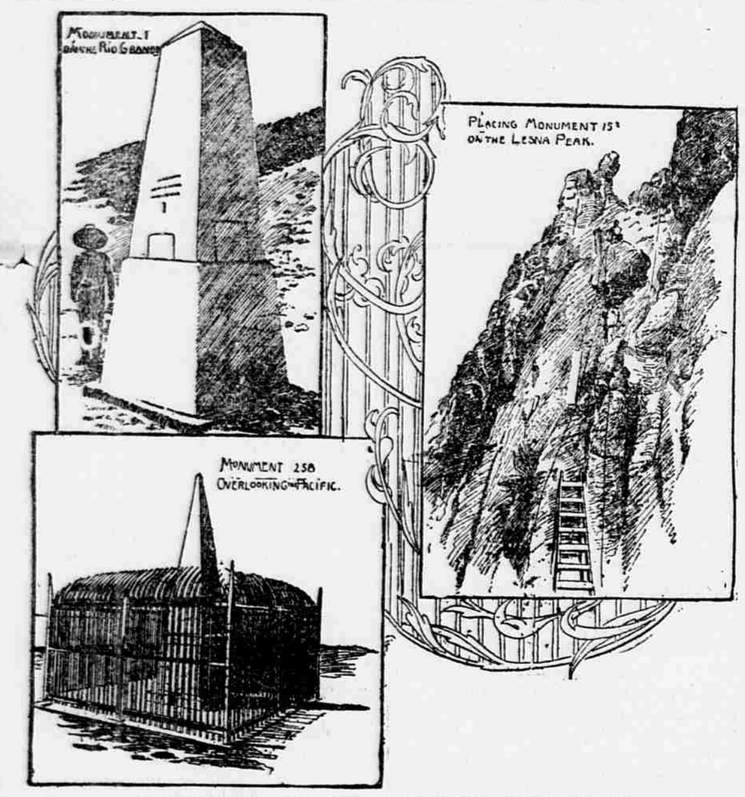
It is easy to understand the difficulties of surveying a line 700 miles in length without a supply point on the whole line. All supplies necessary to a large expedition, except a few articles of food, such as wheat, corn and fresh meat, and even those scarce and very dear, had to be conveyed either from the Pacific coast or the Gulf of Mexico. Railroads had not yet reached the wild and woolly West, and the few inhabitants were accustomed to the task of hauling freight with mules or oxen a distance which frequently reached 1,000 miles.

Although five years passed between the two treaties, only seven monuments, reaching from the Pacific coast to the confluence of the Gila and Colorado Rivers, had been set. These were of thin cast-iron, joined at the corners by rivets, except the one at the coast, which was of marble and very elaborate in design. After completing the western end of the line to the Colorado, the commissioners returned to the point where the Rio Grande forms the line, and worked in the opposite direction, transporting their supplies up the Rio Grande by freight teams. Working westward, they reached the Colorado River and marked the line with stone monuments at various distances apart. Three or four of these were substantial and yet remain, but the rest, about thirty-three in number, soon gave way to the hand of time. Some of them disappeared entirely, while a small pile of stones remained to mark the place where others were supposed to have been. This left the boundary between the two countries very poorly marked. Some new towns and ranches had sprung up along the line, and there was doubt as to which country they legally belonged. The tax collectors were frequently baffled and the revenue guards had some doubt about the line, although they knew by tradition approximately where they had a right to enforce the laws at the point of a gun. Some mines were discovered along the line, and in more than one place the mines were located on both sides of it. The United States import duty on lead and the Mexican export duty on gold and silver were of some importance, and the very high duties on liquors, all kinds of merchandise and live stock made the necessity for a well-defined line imperative.

The United States and Mexico finally agreed upon re-marking the boundary from the Rio Grande to the Pacific and upon the methods to be employed in the work. According to the stipulations monuments were to be erected not more than five miles apart, the weight of which should be not less than 500 pounds each, and the line should not be changed from where first located by previous treaties. Three years was allowed for making the line, and other minor details were left to the joint commission. The commissioners organized their respective expeditions and agreed to meet at El Paso, where the line begins, early in 1892.

The commissioners for the United States were J. W. Barlow, engineer-in-chief; A. T. Mossman, astronomer, and D. D. Gailliard, in charge of the field work. Mexico was represented by Jacobo Blanco, engineer-in-chief, an astronomical party and other assistants.

About seventy-five mules were purchased in Missouri by the United States commissioners, and an equal number of men was deemed necessary—engineers, astronomers, one computer, one photographer (the writer), one blacksmith, one carpenter, rodman, teamster, laborers, servants, and last, but not least important, cooks.



MONUMENTS ON THE MEXICAN BOUNDARY.

The Mexican Expedition.

The Mexican expedition was organized on the same plan, but not quite so extensive. They brought their mules from Mexico, but nearly everything else was of American manufacture—wagons, instruments, and, in fact, everything necessary for the expedition. Our appropriation for the work was $225,000, but the Mexican government allowed their commissioners a monthly allowance of $3,000 in Mexican silver. Fortunately for them, silver was almost at par when the work first began, but it dropped in price till they were compelled to sell their dollars for 50 cents and buy supplies at American prices.

The methods of running a long line on a parallel are different from ordinary surveying. It must run with the curve of the earth, and therefore a straight line runs off on a tangent from the true curve line, which at a distance of fifty miles, amounts to about 1,000 feet. As no telescope has yet been invented that will look around corners or long curve lines, it is necessary to calculate the distance at every monument station across to the true line. No compass is used in this kind of work, for various reasons, principally because it is not reliable, there being a continual as well as regular variation, which at San Diego amounts to 14 degrees. The heliotrope is used as a target for the transit, which, once started on the line, is sure to keep it. The longest distance at which this little instrument was used on this line was about ninety miles. The heliotrope is simply a combination of two mirrors that will reflect the sun in any direction, thus forming an artificial sun, as it were. The method of using it at a long range is to send a man ahead to a high elevation, when, by signals from the man in charge of the transit, he places it at a given point, where it must remain stationary until reached by the transit. The heliotroper must remain with it to keep the sun continually shining upon one of the mirrors, which are about three inches in diameter. There he must stay, it may be for days or it may be for months. For measuring the distance in this work the stadia method was adopted, which is simply calculating the space on an upright rod which comes between the cross-hairs of the transit. As the rod is moved away the space on the rod increases, and vice versa. This way of measuring the distance proved very satisfactory, and much more correct than the chain. It ranks next to the triangulation method for accuracy.

"When we reached Tiajuana, a little Mexican town twelve miles south of San Diego," wrote a member of the Barlow party recently, "we found the old cast-iron monument completely destroyed, nothing remaining but the base on which it formerly stood. We replaced the base with a very large one of concrete, in which we used six barrels of cement. On this we built a granite monument twelve feet high, with elaborate inscriptions, after which we placed a high steel fence around it for protection against relic hunters. But before our office work was finished at San Diego a terrible flood came down the Otai River, near which it stood, and undermined it, causing it to topple over into the roaring torrent, never again appearing in sight. The sand that washed down filling the bed of the river covered it so deep that it was never found, so that it was necessary to construct an entire new one at a more secure place. The final monument, No. 258, standing on the mesa overlooking the ocean, was originally a very fine one, but the relic hunters had continued to break off the corners until it was battered into a disgraceful condition. After recutting and re-engraving this beautiful piece of marble we placed a steel fence around it, which will probably protect it from the vandal hand of the relic hunter. This monument was shipped from Vermont around Cape Horn to San Diego in 1851, and from there conveyed on gun carriages belonging to the military post at San Diego to its destination, where it has ever since been an object of interest, especially to the Eastern tourist.

"It required about five months to finish the office work and print the photographs, after which the office was transferred to Washington, where the work is being prepared for the final report. An additional appropriation was necessary for making maps and finishing the report and paying a few other incidental expenses, so we find that the cost to each government will amount to $300,000, or $600,000 in the aggregate, which, with three years' work in the field, has given us a well-marked international boundary, with monuments intervisible from one to another at various distances from one-half to five miles apart, so that any part of the line may in the future be determined easily."

Manufacture of Wooden Boxes.

Among the thousands of industries whose headquarters are located in New York is the manufacture of wooden boxes. Over 90 per cent. of the business of the world in this particular line of goods is done through New York. It is not surprising, then, that the metropolis should boast of the largest and oldest box establishments in the world.

Fancy boxes of every description are made. They are all shapes, sizes and styles, and they are finished in a great variety of colors.

"It is not generally known, but it is a fact," said a prominent member of the trade, "that wooden boxes are cheaper than those made of paper glass or tin."

They are shipped to almost every country in the world, one large New York house having established agencies in all the European countries, Asia and Australia.

Patent automatic machinery is used in their manufacture, and over ten million feet of lumber a year is made into boxes by one large New York firm alone.

Pigmy Races.

There are several pigmy races varying very little in size, and ranging from three and a half feet to four and a half feet in height. Among others are the Itas of the Philippines, the Andaman islanders, and the Akkas of Central Africa. Of the African dwarf races Emin Pasha states that the tribes near Lake Akkas average four feet one inch. Dr. Parke, who in 1886 discovered the Batwa, gives their average height as four feet three inches, but places them intellectually above the Nubian negroes. These races are regarded by some anthropologists as survivors of a race that may have once occupied a much wider region, extending, it is suggested, over India, North Africa, the Pyrenees, Switzerland and Central America.

A Good Lawyer.

George Washington Sr.—George, did you cut down that cherry tree?

George Washington Jr.—Did you see me?

George Washington Sr.—Yes, sir, I did.

George Washington Jr.—Father, I cannot tell a lie. I did it with my little hatchet.—Judge.

Preliminary.

Larkins—You mean to tell me that that is a wedding procession on the way to the crematory?

Kilson—Yes; the bride is a Boston girl, and they are going to thaw her out.—New York Journal.

Everyone occasionally wishes that his friends would worry more about his condition.

SPAIN AND UNCLE SAM

NAVY STRENGTH OF TWO NATIONS COMPARED.

Our Chances on the Sea in Case of War with the Spaniards—The United States Navy Has Some Splendid Ships.

Comparison of Strength.

There has been considerable speculation rife of late as to what might happen at sea if the United States and Spain went to war. Possibly there are those who have an idea that the Spanish naval force is insignificant. Facts show quite a contrary view of the matter. Spain has at the present time 11 armored ships, with 322 guns; 63 unarmored ships, with 306 guns; 2 armored gunboats, with 12 guns; 40 unarmored gunboats, with 267 guns; 2 dispatch vessels, with 8 guns; 10 training and store ships, with 10 guns, and 79 torpedo boats. The total number of guns on board the vessels in the Spanish navy is 960. ten of which weigh from 40 to 80 tons, 110 from 20 to 40 tons, 286 from 4 to 20 tons, and 554 under 4 tons. Of the torpedo boats, 60 are over 100 feet in length, and are provided with torpedo catchers and every other valuable device known to modern naval equipment.

The most formidable ship in the Spanish navy is the Pelayo, of 10,000 tons burden, which was constructed by French shipbuilders about ten years ago. She represents the most formidable advancement along the line of naval warfare accomplished during the period that has elapsed since the American civil war. Her ram is of the most powerful variety, and her battery consists of two 12 5-10 inch rapid fire guns, which practically constitute her broadside. Then there is a secondary battery of a dozen smaller guns and six torpedo tubes. The Pelayo is more powerful than any vessel in the United States navy, so far as armament is concerned. She is provided with a steel waterline belt eighteen inches thick at the maximum, and has a speed of about sixteen knots an hour. Another superior craft is the armored cruiser, Emperator Carlus V., with a tonnage of 9,100. She carries two eleven-inch guns in barbettes ten inches thick, eight 5½-inch rapid fire guns, and four four-inch rapid firers, together with a powerful secondary battery of rapid fire six and three-pounder guns. Her protective deck is six inches thick and her sides are partially plated with two-inch steel. She is the newest of the Spanish fleet of any considerable size. There is in the Spanish navy also one of the finest types of the modern armored cruiser. It is the Infanta Maria Theresa. She represents a fleet of eight cruisers of her own sort which fly the Spanish flag. Her armament consists of two 9 45-00 guns in barbettes and ten 5-10-inch rapid firers. For protection she has a belt at the water line twelve inches thick along the central body of the ship. Twelve inches is the thickness of the barbette armor.

As opposed to the Pelayo, our navy has wonderful battleships in the Iowa, the Indiana and the Massachusetts. These two latter warships have each an armament of four 13-inch and four 6-inch guns, and are of 11,000 tons displacement, as compared with the Pelayo's 10,000. The Oregon, another monster, has a very thick plate of side armor, which constitutes its superiority. The cruiser New York is a prototype of the Carlos, while its companion warship, the Brooklyn, is a little more than equal to either. This vessel carries eight 8-inch and twelve 5-inch guns, and is infinitely more modern than even the famous New York. In a sea fight, it is the opinion of experts, counting in the Maine and the Texas, with their twelve 6-inch guns, their foot-thick turrets, and over 13,000 tons displacement, we should be able to put up a hard naval fight under all circumstances.

There is one point of advantage we have over Spain, and that it is our rams and monitors. While every modern warship is possessed of a ram, we have in the Katahdin a vessel built for nothing else but sinking her prow into an unlucky foe. The Katahdin is not a very big vessel as warships go, for her tonnage is only 2,200, but she could knock the spots off the best warship that was ever constructed, armored or unarmored, if only given half a chance. Then there are our five double-turreted monitors, of which the most powerful is the Puritan, of 6,000 tons. About half her size, are the Terror, the Amphitrite, the Monadnock and the Miantonomah. Their armor is 11 inches thick and their guns are 10-inch pieces. Of course the monitor is pre-eminently a coast defender. In smooth water and for harbor work this craft is unsurpassed.

As opposed to Spain in general naval equipment, we have 33 armored ships, with 681 guns; 33 unarmored ships, with 551 guns; 28 unarmored gunboats, with 262 guns, 1 dispatch vessel, with 10 guns; 36 training and store ships, with 112 guns, and 27 torpedo boats. As against the 960 guns on board of vessels in the Spanish navy, the United States has 1,640 guns, of which 64 are from 40 to 80 tons, 188 from 20 to 40 tons, 317 from 4 to 20 tons, and 1,080 under four tons.

If worst comes to worst and our warships were inadequate in point of numbers, we could call on our big liners for aid. Of course it would not take much time to make unarmored cruisers out of them, and so far as speed is concerned, there is nothing in the Spanish navy or our own, either, for that matter, which could touch them. Spain has one big liner upon which it could draw—the Compania Trans-Atlantic, whose thirty-two steamers have a gross tonnage of more than 100,000.

To defeat Spain in a sea contest would, it will be seen from the facts given, be a task that differs widely from child's play. If Uncle Sam and Don Spaniard really come to blows it will be a duel each of the combatants in which will have a foeman worthy of his steel.

DARK—SPANISH FLEET. WHITE—UNITED STATES FLEET.

THE WARSHIPS OF SPAIN AND THE UNITED STATES.

A GRANT MEDAL.

It Commemorates the Completion of the New York Monument.

The American Numismatic and Archeological Society has issued a medal to commemorate the completion of the Grand monument. The medal is in bronze, is two and one-half inches in diameter and bears on the obverse, the bust of Gen. Grant and the seal of the society. The portrait committee of the society, after careful deliberation and research, selected for the medal design, the portrait which appeared in the Century Magazine for December, 1884, accompanying that publication's series of war articles. It is also the one which Gen. Grant accepted as a correct representation of himself as he was when in his prime about the time of the battle of Shiloh. On the reverse of the medal appears a true picture of the completed monument.

In issuing the Grant medal, the society follows its custom in commemorating noteworthy events, among the medals it has heretofore used being the Lincoln medal in 1866, the Washington medal in 1883, the Columbus medal in 1893, and the Muhlemberg medal in 1896. Gen. Horace Porter, who was a member of Gen. Grant's staff during the war and intimately associated with him in after years, has

OBSERVE. REVERSE.

pronounced the portrait on the medal an excellent likeness of the great commander, and the Grand monument committee, represented by Mayor Strong, Gen. Porter and Elihu Root, have given their approval of the medal and have adopted it as the official medal of the occasion.

A Monopoly.

"I've got a great mind," said the young man, "to go West and grow up with the country."

"But you don't know anything about agriculture."

"I know that. But there are one or two sections where there seem to be so many politicians that I believe an energetic man could come pretty near getting a monopoly of the farming."—Washington Star.

The Way to Do It.

"What I want is to achieve fame at a single bound."

"Then go to Cuba and lose yourself."—Cleveland Plain Dealer.

BIRTHPLACE OF SPIRIT RAPPING.

Country Home in New York State Where the Fox Sisters Won Fame.

Prominent believers in spiritualism recently held a convention at Rochester, N. Y., in honor of the forty-ninth anniversary of the birth of modern spiritualism. Many people believe that

WHERE SPIRITS FIRST RAPPED.

Rochester is the birthplace of spirit rappings, but this is an error. The real birthplace was Hydeville, Wayne County, a few miles from Newark. The "spirit rapping" phenomenon began in March, 1848, in the family of John D. Fox at that place. After a while the raps occurred only in the presence of the two sisters, Margaret and Kate. The family having removed to Rochester, the raps accompanied them, and new phenomena, including clairvoyance and the movement of ponderable bodies without appreciable agency were developed.

In November, 1849, the Fox girls appeared in a public hall, and the phenomena were freely manifested and subjected to many tests. In May, 1850, the Fox girls arrived in New York, the alleged spiritual manifestations became the subject of extensive newspaper and conversational discussion. Their faces were published far and wide. "Mediums," through whom they were said to occur, sprang up in different parts of the country, and were multiplied by hundreds and almost by thousands.

Blackboard Spelling.

The revival of the old-fashioned spelling school has been tried in some localities, but only to prove that it does not, as a rule, reach the poor spellers; they stay away from it—they are not wanted in a spelling match, says the North American Review. The spelling school was for the glorification of the good spellers. It did something, no doubt, for depraved brain cells before such mysteries were ever heard of in connection with spelling books—before physical inertia could be charged to weak valvular heart action, and temper to microbes, and all the rest. The spelling school belongs to a past dispensation, says my friend, but it suggests what might do much for orthography, if the blackboard were made a conspicuous feature, and the attention concentrated upon the reading and writing of sentences, of which the following might be an example: "Mr. Wright, the wheelwright, does not write rite rightly," with helpful stories, occasionally, like that of the teacher who wrote upon the board the three words, "Boys, Bees, Bear," asking the children to construct and write a sentence in which these words would be used intelligently, one boy giving at once: "Boys bees bear when they goes in swimming."

The Home of Dyspepsia.

San Francisco seems to be the natural home of dyspepsia. Physicians there say that ten out of twelve of the inhabitants suffer from indigestion. The only explanation suggested is the fact that the climate allows fruit and vegetables to be had almost the year around, so that there is not the enforced change of diet that residents of other regions have.

Unduly Exciting.

Editor—This fellow is littering the office with miserable poetry. We'll have to put a check on him.

Poet (who has heard the word check, rushing in)—I'll be obliged if you'll let me have the check right away, sir.—Philadelphia North American.

Babies Like Light Colors.

Anything black will produce more disturbance in your baby's mind than anything white. A child refusing to go to a relative in dark clothes would not hesitate if the suit were changed to a light color.