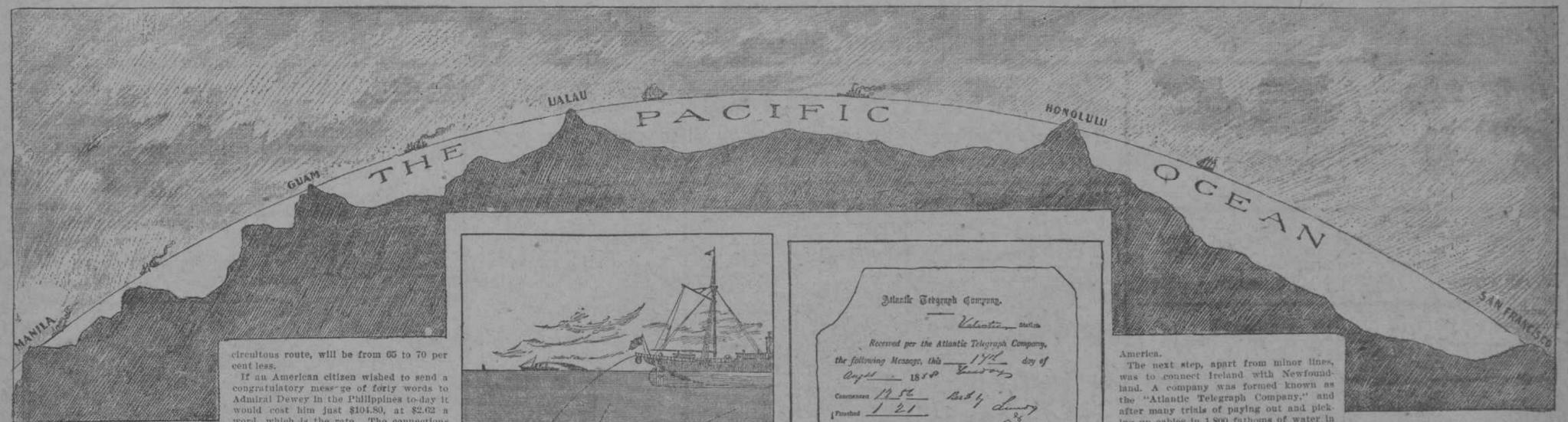


A NEW 10,000 MILE CABLE TO GUAM AND THE PHILIPPINES.

(Copyright, 1898, by W. R. Hearst.)



HE cable which is to connect the United States with the Philippine Islands is to be laid by the Pacific Cable Company of New York, and is to be 10,000 miles in length. It will touch en route at Honolulu, the Island of Ulau, among the Carolines; and thence will go to Guam, the southernmost island of the Ladrones; thence to Manila, crossing the island on the eastern side.

It will weigh about twenty-eight tons to the mile and 16 per cent will be allowed over the actual distance required, so that the cable can adapt itself to the sinuosities of the ocean bed. This is necessary so

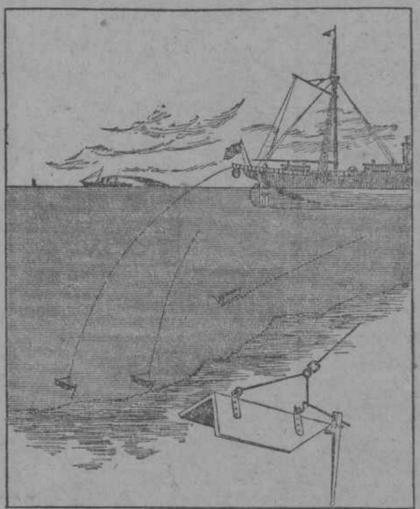
circuitous route, will be from 65 to 70 per cent less.

If an American citizen wished to send a congratulatory message of forty words to Admiral Dewey in the Philippines to-day it would cost him just \$104.80, at \$2.62 a word, which is the rate. The connections would take from two to four hours, and the return would require as much more time. That means at least half a day.

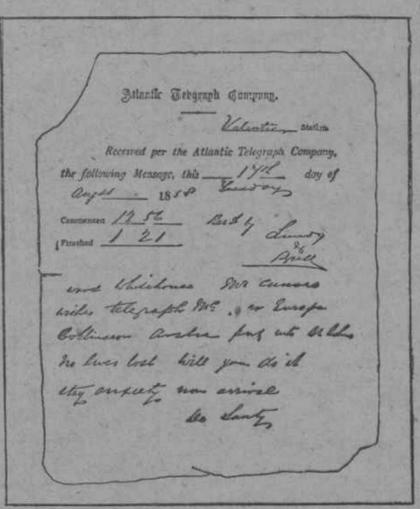
When the Pacific cable is ready for business this same message will go and come in half an hour, and the cost will be hardly more than \$30. This great difference in speed and rates means considerable from any point of view.

The rapid rise of Japanese competition requires that we shall get in immediate and cheaper communication with that nation. The whole world will gain by this closer telegraphic union and a greater benefit will accrue to the social and industrial future of the country. The telegraph and cable have completely revolutionized the methods among merchants and financiers of conducting business, and it must be America's work to come in closer union with the money markets of the whole world.

The War and Navy departments of the



Submarine Sentry and Sounding Machine.
Showing how the cable steamer finds the varying depths of the ocean bottom before laying a cable.



Sent Over the First Atlantic Cable.
Reproduction from photograph of an original message sent August 17, 1858, the day after the Atlantic cable was laid. Time occupied in sending, twenty-five minutes.

America.

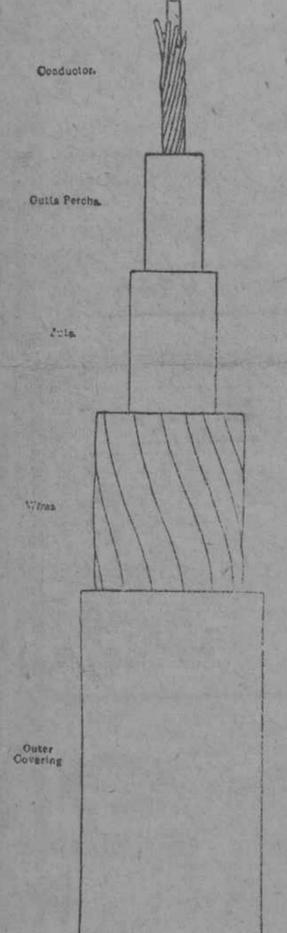
The next step, apart from minor lines, was to connect Ireland with Newfoundland. A company was formed known as the "Atlantic Telegraph Company," and after many trials of paying out and picking up cables in 1,800 fathoms of water in the Bay of Biscay during the Spring of 1858, H. M. S. Agamemnon, under Captain G. W. Breedy and U. S. S. Niagara, under Captain W. L. Hudson, proceeded to mid-ocean between Ireland and Newfoundland. They spliced cables at that point, and after much difficulty proceeded back to their respective shores.

The cable parted three times. Still the projectors stuck to their work and were finally successful in joining the two cables. After paying out a certain length from each ship until the splice was found to have reached the bottom, each vessel again proceeded on her course, the Niagara steering toward America and the Agamemnon toward Ireland, the former arriving on the 5th of August, seven days later at the head of Trinity Bay, Newfoundland.

On the 4th of August, after a terrible voyage and much distress with the cable machinery the Agamemnon entered Dou-

In a short time the great length of cable ceased to speak to two nations, and became practically inoperative.

Cyrus Field did not give up the project of perfecting a transatlantic cable. In 1855 the Great Eastern, built by the great engineer and his associates, made another attempt to lay a line over the same route, starting in Ireland and dragging the cable right across the Atlantic to Newfoundland. But complications arose while the work



Sections, One Inside of the Other, Which Make Up An Ocean Cable.

that there will be no great tension on the line, which will rest entirely on a solid bottom, so to speak.

Actual size illustrations, showing the cable to be used in the trans-Pacific line, are given on this page.

This cable will cost about \$1,000 a mile to make and lay, and if the bill now before Congress granting the company various concessions, both at Monterey, where it will have its American terminals, and at Manila and intermediate points, goes through, work will be begun in six weeks.

Two years will be consumed in the manufacture and placing of the cable, and in the meantime a geodetic survey will lay out its course across the Pacific to the three points where it will touch before landing at Manila and on our new island possessions.

The exact life of this cable cannot be determined, as its location and surrounding conditions have a great deal to do with its existence. Cables that were laid in the English Channel as far back as 1851 are still in good working order.

The important part which a Pacific cable will play in our commerce and finances is not to be overlooked. In the first place, it will materially assist in shrinking the limits of the globe, so far as time is concerned. It will put us in touch with the Hawaiian Islands, link us to the Carolines, bring us within hourly speaking distance of the Philippines, and the branch line which is to run from Guam up to Japan, terminating at Yokohama, will be of the greatest possible service to our commercial world in watching the issues that are being created with wonderful rapidity in the Orient.

It will serve as a lightning means of conveying important messages to our American authorities, both there and at Manila and in our recently annexed islands of Hawaii.

The difference in the cost of transmission which we are about to get to-day by a

BY SECRETARY OF THE NAVY LONG.

"DON'T think there can be any question about the advisability and necessity of connecting the United States with its remote possessions, such as Hawaii and the Philippines. A cable line would, of course, be a prime necessity for the navy, I can speak of this project only in a general way at the present time, but as to the proposition, it is a good one from the standpoint of the navy and commerce. I hope it will be laid as soon as practicable. The interest of the Navy Department in the matter is self-suggestive."

INTERESTING CABLE STATISTICS.

Compiled from a Work on "Submarine Telegraphs" by Charles Bright, F. R. S. E.

The cable lines operating to-day throughout the world are long enough to girdle the earth eight times, or reach two-thirds of the distance to the moon.

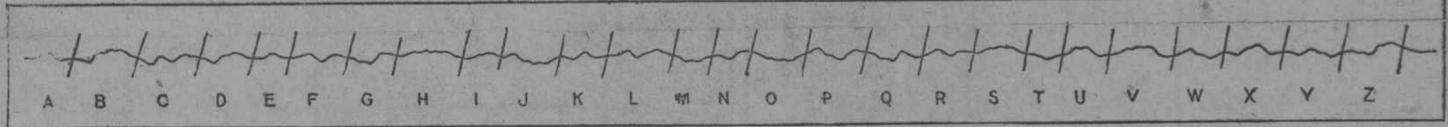
The greatest depth to which a cable has been laid is 2,800 fathoms. This occurs near the Bermudas.

The transatlantic cable weighs twenty-eight tons to the mile; on this basis the trans-Pacific cable will weigh 280,000 tons.

A message has been sent over the Western Union cable from Washington to London and back, a distance of 8,360 miles, in 13 1/2 seconds.

BY MAJOR-GENERAL MILES.

"AS a question of military expediency a cable to Manila from San Francisco will commend itself to all military men, if the Philippine Islands, or any part of them, are to be retained by the Government. As communication with Hawaii is essential, it would be equally so, and with greater reason because of their greater distance, in reference to the Philippine Islands. All the circumstances are arguments for the laying of the proposed cable."



The Cable Alphabet Just as the Receiving Instrument Records a Message—Perpendicular Lines Show the Division of the Characters.

By Charles Bright, F. R. S. E., of England.

"THE present long peace between the great powers of the world is not broken there is no reason in the nature of things why this great enterprise should be much longer delayed. When spoken of in the light of a direct line across the Pacific from San Francisco to Japan or China, this is sometimes described as the 'missing link' of the earth's girdle.

The Pacific Ocean bed is some 700 fathoms deeper than any cable heretofore laid, but such a matter will not trouble any telegraphic engineer worth his salt.

By Capt. A. S. Crowninshield, Chief of the Bureau of Navigation.

"I do not think that there could be opposition to the proposed enterprise. The laying of a cable to Manila will be of inestimable advantage to every naval interest, and I am confident you will find it endorsed in every department of the navy. It was obviously essential even if the possessions of the United States extended only to Honolulu. We now have by the treaty of Paris the island of Guam, but that station would be absolutely isolated if we cannot extend our connections beyond the Hawaiian Islands.

"I presume that public policy, the naval, the army and all commercial interests, look to the laying of a cable from San Francisco to Manila as soon as it can be properly done by Congress. I favor the proposition for the reasons which I have now time to outline only briefly."

By Edmund L. Baylies, Vice-President of the Pacific Cable Co., of New York.

"A CABLE starting from Monterey, California, touching Honolulu, of the Sandwich Islands, Ulau, of the Carolines, Guam, of the Ladrones, terminating at Manila, with a branch line to Yokohama, will cost in the neighborhood of \$10,000,000, and will require two years to complete after work begins.

"The matter is soon to come before Congress, and if the concessions we require are granted, operations will be begun inside of two months. The distance to be covered will be 9,554 nautical miles, or about 10,000 geographical miles.

"The cable rates will be from sixty-five to seventy per cent lower than those charged to reach Manila to-day."

United States, as well as the State Department, realize the necessity of a trans-Pacific cable. The Washington authorities have so expressed themselves that there can be no doubt about the recognition of the Government will give such a project as the Pacific Cable Company has in view.

If the proper concessions are not bestowed by Congress on the company now promoting the scheme it is the duty of the Government to take the matter in hand and put Hawaii and the Philippines on the wire at once.

In the year 1795, over a century ago, a Spaniard named Salva read before the Barcelona Academy of Sciences a paper which suggested the feasibility of submarine telegraphy.

Since that time, after a series of experiments, which terminated successfully and

linked the continents of the world with submarine cables, the art of communicating with the people across the sea has become common.

And now comes the sequel to Salva's suggestion in the shape of a trans-Pacific cable which is to link the United States with the Philippine Islands, which America took from Spain in the war of 1898, over one hundred years after an ingenious Spaniard conceived the idea of the marine telegraph.

The earliest evidence of any successful submarine telegraph of which there appears to be any authentic particulars relates to experiments made by Colonel Parry, of the Royal Engineers of Chatham, England, in 1838. Other men followed his lead rapidly, and the question of insulation, which was most important, began to develop progress with wonderful rapidity.

In 1847 the brothers Breets managed to secure concessions from the French and English Governments to establish connections between Calais and Dover. But their experiments were unsuccessful, and after much correspondence another concession was secured. In 1850 a line was laid across the English Channel, over which certain signals were exchanged, one being sent to Louis Napoleon Bonaparte. A few hours afterward the signals ceased, the cable having broken.

Nevertheless, the feasibility of the plan had been proved, and the promoters took renewed hope. On September 25, 1851, another submarine cable was successfully laid, and on the 13th of November of the same year it was thrown open to the public. That line is to-day practically intact, with the exception of a renewal near the beach at Sangatte. The insulation of gutta percha has withstood the action of the water, and is in excellent preservation.

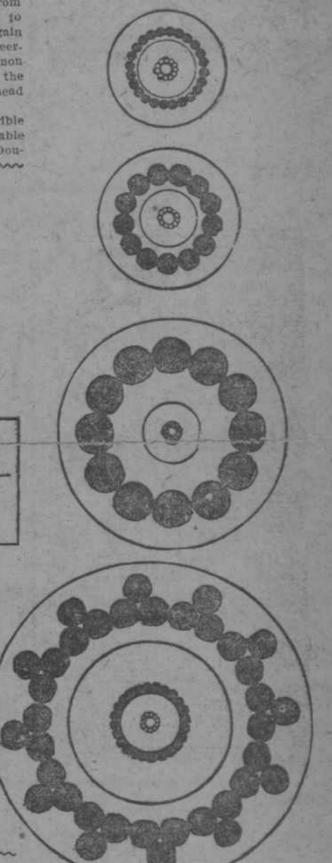
Other attempts soon followed the success of this scheme, and in 1853 the first effective Anglo-Irish cable was laid in 180 fathoms of water between Scotland and Ireland. This cable weighed eight tons to the mile. Then came the line between Dover and Ostend, and the Anglo-Dutch and Anglo-German cables followed rapidly. Within ten years the Submarine Telegraph Company was working half a dozen cables, ranging from 25 to 117 miles, connecting England with the Continent.

During the next few years connections were established between Denmark, Sweden, Italy, Corsica, Sardinia and Africa, and finally between Ireland and North

Bay, Valencia, and landed the cable end at Kingston. It was at once taken into the cable house by Mr. Whitehouse, the electrician, and the first transatlantic message was received through its entire length, consisting of 2,050 nautical miles, the average slack paid out being 17 per cent.

In America Cyrus W. Field and Captain W. L. Hudson, with Messrs. Everett and Woodhouse and Messrs. De Sauty and Laws, all of the expedition on the Niagara, received a perfect ovation both in Newfoundland and in the United States. Charles Bright, of the Agamemnon, was knighted, while other officers received promotions along with commander Preedy. Congratulatory messages were exchanged between the President and the Queen. A torchlight procession was held in New York and the City Hall caught on fire among other things.

England was about to add her voice to the demonstrations when the cable message became confused, and by September 1 the transmission was broken.



Exact Size of Various Kinds of Ocean Cables.

was going on in mid-ocean, and the task was again given up.

In 1860, however, the "Great Eastern" again tried, and the cable of that year was successfully laid, as well as the cable of 1865 being recovered and completed also. This double achievement revived submarine telegraphy and the earth began to speak from nation to nation with the whole world within speaking distance every twenty-four hours of the day.

On the first transatlantic cable it required five minutes to send one five-letter word. At present from forty-seven to fifty-five-letter words can be transmitted in a minute. This rate of speed will be increased from time to time.

To-day cables are strung all over the bed of the oceans, with the exception of the Pacific. The total length of the telegraph cables resting on the bed of the sea throughout the world is 170,000 nautical miles, estimated at a cost of \$25,000,000.

THE STORY OF A MODERN CINDERELLA.

(Continued from Page Thirteen.)

softness, which she wears in a school-girl's dress. She has a soft, well-modulated voice and a serene face. Her teachers describe her as "bright and amiable."

Twice as rich and twice as wise will she be as compared with Miss Della Richardson, her eccentric aunt, who lives alone at No. 110 East Houston street, and deluges with hot or cold water the unwary process or suspicious servers who ring the bell of her squallid house. The miser begets the spendthrift. The hoards of generations of economists are squandered by the son, or daughter of the last. And Annie Richardson's friends say hers is the breadth of view of the genial spendthrift.

Even though Miss Della Richardson knew this she would not be less fond of her "little niece in Bridgport." Those who know the miser family best say that Annie is the only person in the world toward whom Della Richardson's strange heart warms. She has been heard to declare that she has made her will in her niece's favor, and there is a New York lawyer who is in Miss Richardson's confidence, and who knows the secrets of the old iron vault in the cellar of the Houston street house, who does not deny the story.

Miss Della does not like visitors. She never answers the bell unless she has been apprised by letter of the coming of a friend, and such letters are very rare. She keeps a mudgeon-looking iron bar in the hall, and this she reserves as well as the excellent pair of vases standing for the unwelcome visitor. But amid the cobwebs, the murkiness and the stuffiness of this miser home Annie Richardson is always

welcome, and is often bidden. Three or four times she has journeyed from Bridgport to live among the shadows of what the neighbors call the "Houston Street Prison." When she returns she is laden with gifts from her aunt, cheap gifts it is true, but sumptuous from Miss Richardson's standpoint.

Miss Annie Richardson will inherit stocks in several great railroad companies and banks and big mining corporations. She will inherit, too, valuable real estate in New York. One famous bit is the "Spite House," built by her grandfather to keep out the sunbeams from the apartment house of a neighbor whom he hated. This neighbor had refused to buy the narrow lot belonging to Richardson and adjoining his own property because he thought the price too high.

The miser showed his disappointment by a grim smile at first. Later he displayed it in a more tangible form. He caused a house five stories high but less than six feet in width to be built on the narrow lot. There was scarcely room for the building of the narrow stairs that connected the floors of this playhouse of spite. Here the old man lived in order, it was believed, to enjoy the luxury of a daily checkmate at his enemy as he passed. The old man died here, at No. 1216 Lexington avenue, the "Spite House," and the neighbors declare that the house is haunted, at least by memories of hatred and malice and vengeance and a needless penalty.

Annie Richardson has said, in childish confidences, that some day she will tear

down the wicked spite house that grandpa built.

Soon the modern Cinderella will ride in her chariot, but it will be a Fifth avenue victoria, and even his Fifth avenue will marvel at this greatest heiress of them all.

There is some cavilling about the amount of the fortune of Joseph Richardson. There is a wide discrepancy between the statements of his widow's attorneys and those representing the children. The widow claims that George and Della Richardson transferred stock and bonds to the amount of many millions in order to lessen her third. Della Richardson claims that the fortune left by her father is smaller than the public supposed. In any event, it is one of the largest, probably the largest, ever inherited by an American child.

Oysters and Indigestion.

An interesting experiment was made not long since by a physician to determine the relative effect of whiskey and beer upon the digestion of food in the human stomach.

As oysters are regarded as self-digesting food, two fine specimens were chosen, one being placed in a glass full of beer, and the other in a similar vessel about half full of whiskey. The oysters were allowed to remain in their respective receptacles all night.

When examined in the morning by the physician it was found that the bitative which had been in the beer had dissolved with the exception of the tough and indigestible heart, while the oyster that had spent the night in the whiskey had shrunk to half its natural size, and was almost as tough as sole-leather, its dissolution whatever having taken place.

"I was persuaded

once to try another baking powder than Cleveland's, but that was just once too often. Having used Cleveland's for 20 years, always with the greatest success, I cannot be induced (again) to use anything else."

Mrs. J. M.

Don't let peddlers or grocers substitute any brand for the old reliable standard

Cleveland's Baking Powder.