

UNCLE SAM'S COLossal WORK AT PANAMA

Frank G. Carpenter Writes of the Great Cut for the Canal at Culebra

IN THE CULEBRA CUT, Isthmus of Panama, March 12.—(Special Correspondence of the Sunday Oregonian.)—I have come to Panama to tell you how Uncle Sam is digging his big ditch from ocean to ocean. I have traveled over the line of the canal from the Atlantic to the Pacific, have talked with the engineers of the various sections, and, in company with Chief Engineer Wallace and Governor Davis, have walked over the greater part of the Culebra cut.

I sit in the Culebra cut as I write, with thousands of men at work about me, with steam drills boring holes into the rocks for blasting, and with the great steam shovels puffing away as they load the cars, each doing the work of hundreds of men.

I am in the midst of the mountains. Jagged, rough and covered with a dense growth of vegetation, they rise high above the great rocky gorge in which the excavation is now going on. Below me the water lies in the bottom of the cut, and looking up and down the gorge I can see the work of the French engineers. They labored 26 years, and spent here and in Paris \$200,000,000 in gold; but they worked in the dark, and with blinding and bad business, accomplished one-tenth of this excavation. The French were fine engineers on paper, but they never ascertained the cost estimates of men, machinery and materials which are absolutely essential to any rational deduction as to the time it will take to build the canal or the money needed for the purpose.

What is Being Done at Panama.

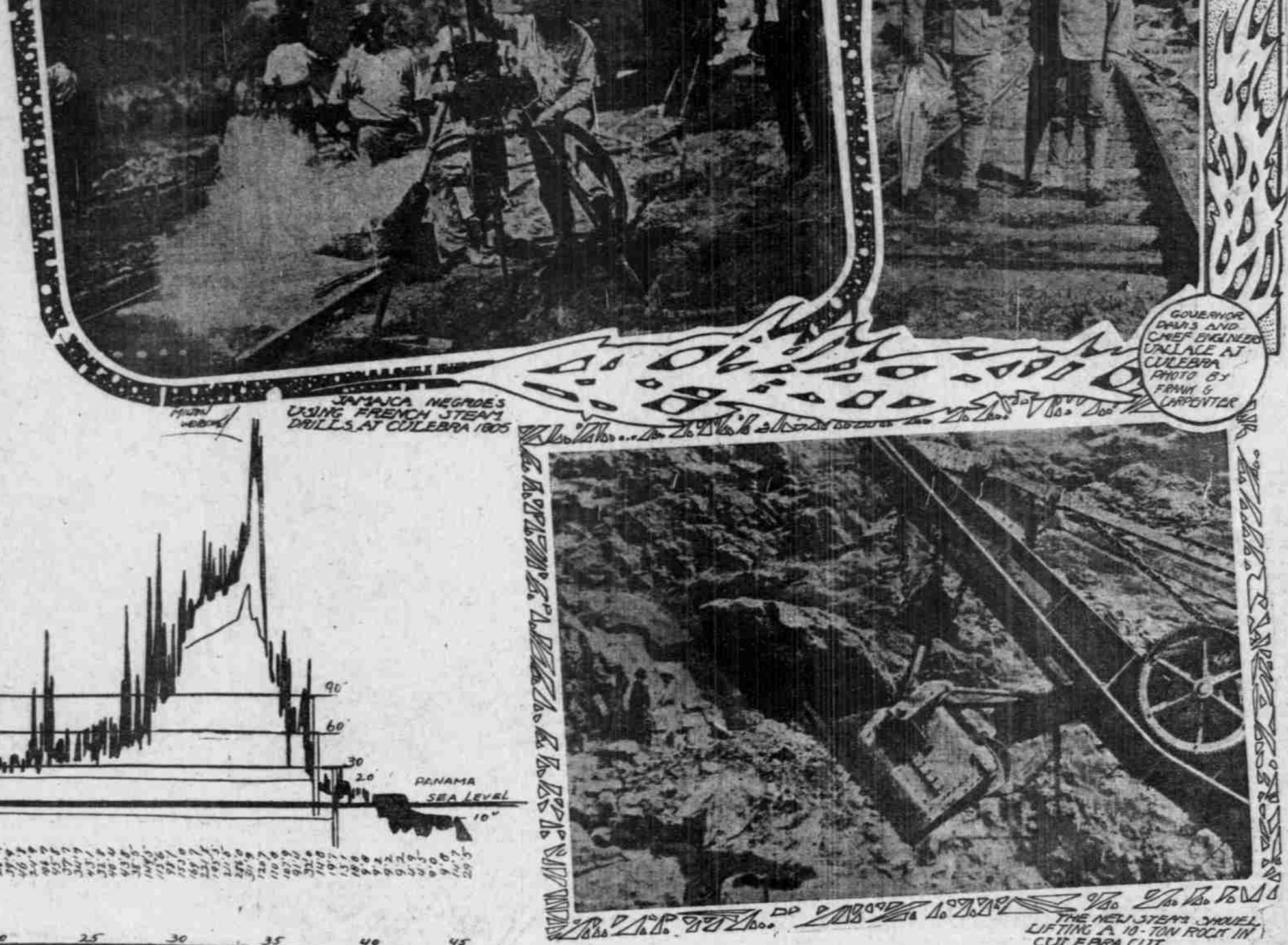
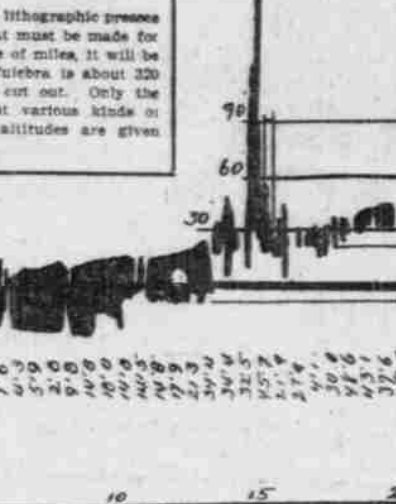
This is what the Canal Commissioners and the chief engineers are doing today. They are making the tests which will form the basis of all estimates and contracts for the work of the future. There are now gangs of men all along the line of the canal under the charge of skilled

mountains which in South America rise more than four miles above the sea, and which drop down to the level of the isthmus on their way north to join hands with our Rockies. In this country these mountains are on the average only about 5000 feet high, and very at Culebra their highest peaks are just about 200 feet above the sea.

This height the French have cut down 120 feet, leaving us in round numbers 120 feet more to cut before we reach sea level, and about 200 feet before we get to the bottom of Uncle Sam's ditch, which will have to be dug 40 feet below sea level to accommodate the big ships of the day. In this statement I assume that we will have a sea-level canal. That is the general opinion here at Panama, although no one is willing to make that statement for publication.

This cutting at Culebra will be on the average eight or ten miles long for the upper levels, but it lengthens as it goes down, and it will be 25 miles long when it approaches the level of the sea. It is composed of rock and earth, which will have to be gouged out and carried away to let the ocean flow through. Let us figure the matter out for ourselves. A cubic yard of earth is a block of earth a yard wide, a yard long and a yard thick. Take a hundred million such blocks, and suppose they are piled in one train, making a line 100 miles long, and 100 yards wide, a yard deep and 100,000,000 yards long, and you begin to see what the Culebra cut means.

One hundred million yards is 100,000,000 cubic yards. That is the length of our ditch. Now in round numbers 8000 feet make a mile, and dividing the 100,000,000 feet by that we have 12,500 miles of earth to be hauled in one train, making 100 cubic yards to a train. Therefore, if this whole mass is loaded upon cars which will take 100,000 trains to haul it away, now suppose you can load 100 trains in a day. This, according to the ten-hour



This map, made from one of the old French lithographic profiles at Panama, shows the excavation, or cut, that must be made from Colon to Panama. By the scale of miles, it will be seen that it is 47 miles long. The peak at Culebra is about 320 feet high, but has about 150 feet been cut out of it. The black is earth. The shaded portions represent various kinds of rocks and mixtures of earth and rock. The altitudes are given in feet.

engineers looking into every cost element of the canal construction. Some parties are at the headwaters of the Chagres, and others at various places along its course, making dams and locks. Others are preparing the way for the harbor excavations at the Atlantic and Pacific ends of the canal and others are testing over the line of the ditching to form the basis of all estimates and contracts for the work of the future. There are now gangs of men all along the line of the canal under the charge of skilled

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Fragments From Earliest Christian Writings

These include extracts from Origen Referred to by Dean Robinson

AM of the opinion that the expression by which God is said to be "All in All" means that he is "All" in each individual person. Now he will be "All" in each individual person in this way: When all rational understanding, cleansed from the dregs of every sort of vice, and with every cloud of wickedness swept away, and when all that can either feel or understand or think will be wholly God, and when it will no longer behold or retain anything else than God, but when God will be the measure and standard of all its movements. Thus God will be "All" for there will no longer be any distinction of good and evil, being nowhere exists, for God is all things, and to him no evil is near, nor will there be any longer a desire to eat from the tree of knowledge of good and evil on the part of him who is always in possession of good and to whom God is all.

The last enemy, moreover, who is called death, is said on this account to be destroyed, that there may not be anything left of a mortal kind when death does not exist, nor anything adverse, when there is no enemy, moreover, who is called death.

The destruction of this last enemy, indeed, is to be understood not as if its substance which was formed by God is to perish, but because its mind and hostile will, which comes not from God, but from itself, are to be destroyed.

FRAGMENTS.

"Baptism is an escape from matter"; the Lord leads us out of disorder, illuminating us by bringing us into the light which is shadowless and is material no longer.

Melito to Antonius Caesar.

(180 A. D.)

It is not easy especially to bring into the right way the man who has a long time previously been held fast by error. It may, however, be effected, for, when a man turns away ever so little from error, the mention of the truth is acceptable to him. For just when the cloud breaks ever so little there comes fair weather; even so, when a man turns away from error, the thick cloud of error which deprived him of vision is quickly withdrawn from before him.

For error, like disease and sleep, long has fast those who come under its influence, but truth uses the word as a good and amiable, the slumbers, and

rate now prevailing, means the loading and carrying away of 20 trains every hour, or a train every three minutes all the working day through. But there are 200,000 trains to be taken out, and, dividing this by 20, the daily rate, we get 2000 days as the time required to haul out this earth at three minutes to the train. But 200 days at 25 working days to the month equals 100 months, which divided by 12 gives us 8 1/2 years as the time needed to haul out the material at that rate of speed. But three minutes is a very short time to load a train. The time must be doubled, and quadrupled by additional tracks and sections of work so that 12 minutes, or 24 minutes, may be allotted to each train.

To show you how such things are calculated, let me give you an estimate of the handling of this 100,000,000 cubic yards at Culebra. The cars they are using here will carry just ten cubic yards, and 20 cars can be hauled in one train, making 100 cubic yards to a train. Therefore, if this whole mass is loaded upon cars which will take 100,000 trains to haul it away, now suppose you can load 100 trains in a day. This, according to the ten-hour

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