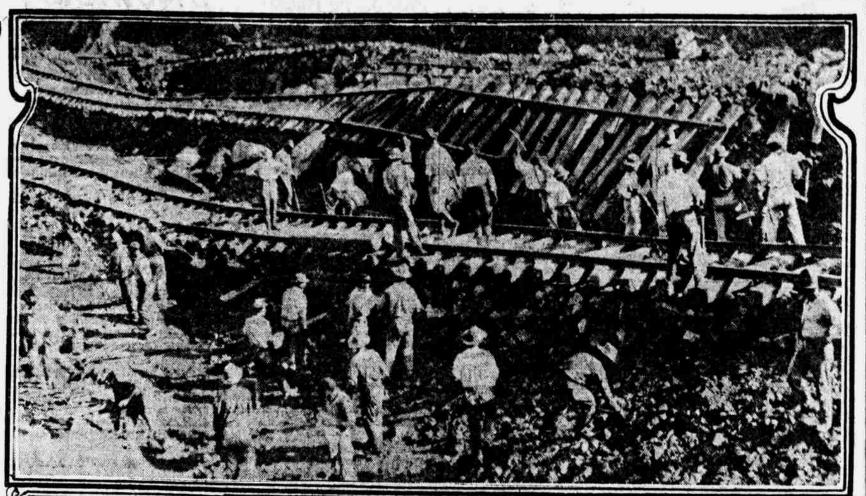
THE OMAHA SUNDAY BEE: JUNE 2, 1912.

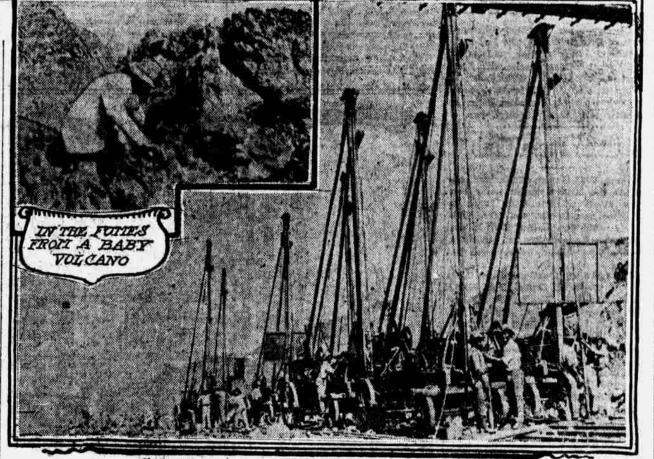
Dry Glaciers Feature Along Canal Route



RATLROADS AND TIES THROWN TO ONE SIDE

(Copyright, 1912, by Frank G. Carpenter.)

LEBRA, Canal Zone, Panama. I want to tell you something bout the dry glaciers of the Culbera cut, the mighty masses of earth and rock which are sliding down into ditch that Uncle San is gouging out of the Andes. It is hard to understand them without being on the ground. But if you will take your foot your hand and come with Colonel David D. Gaillard, the famous engineer who has charge of the Culbera division. we shall go through the cut and look at them with our own eyes. There are plenty in sight even as I write these lines There are two places nearby where more than 1,000,000 cubic yards of earth and rock are now moving. The material in action is equal to a solid block 300 fee square and 300 feet high. Build it up as a cube and its base would be more than two acres and it would rise to the height of a thirty-story flat. That enornous quantity of rock is advancing at the rate of almost two feet per day and since the beginning of our digging we have had thirteen or fourteen times as much as that mass to take care of. The total has been over 13,000,000 cubic yards or enough material to make a wall three feet thick as high as a two-story house reaching all the way from New York to Chicago. It would make four mighty pyramids as big as Gizeh, and, all told,



GANGS OF NEGROES DRILLING LEDGES

considerably more than the excavation we have yet to make. In other words had there been no slides the excavation for the canal would have been done long dynamite so wrapped we arrest .im." 11.000.000 go. As it is we have of the canal. So far an area something years when the bottom of the canal has vards to dig and of this something like How the Earth Slides. As we make our way down into the cut 4,000,000 are the direct result of the slides. we can see cracks everywhere. In some In the Culebra Cut. places they are so wide that you could But let us climb down into the Culebra put your foot in them, and others would cut. As we stand here on the heights we hold only your finger. There are cracks can see it stretching to the right and the all over the hills, and some of them .mark left until the windings of the mountains out bodies of earth which will have to be hide it from view. It is altogether nine moved, as they are already sliding down miles in length, and about 300 feet deep. into the ditch. In some places the cutting back that has There is one great crack here at Cubeen made on account of the slides is lebra which incloses four acres, comprisalmost 2,000 feet wide, at the top and the ing 1,000,000 or more cubic yards, which sloping goes down in ledges to the bot- are already moving, although so slowly tom of the canal, where the width is 300 as to be impreceptible. The crack is fect. Looking at the country the edges about a foot wide and it steadily grows. of the ditch are raged and hily. In Another movement of the same kind is some places the mountains rise high over apparent at Empire, where Colonel Gallit, and in others they slope down and lard has his headquarters, workmen in pointing to it facetlously say that Mother then rise again. Earth is about to take her revenge on It is impossible to conceive the vast amount of earth that has been taken out. Engineer Gaillard for the scars he is making upon her old body at Culebra. The figures convey no idea of the con--As we go on I ask the colonel to tell us crete dimensions. I will only say that up something about the slides. He shows us to a year ago, we had taken out enough that these cracks mark their beginning, earth and rock to have built a wall 200 feet high, twelve feet thick and long earth coming down. There are several and later on in the out we watch the classes of slides. The first are those from White House in Washington, or enough the surface, consisting of the material to have made six pyramids the size of lying above the bed rock. These are com-Cheops and left something to spare. In posed of clay and other earth, and they one month we have taken out enough may have a great deal of rock mixed in stuff to fill a ditch three feet wide and them. Such a slide is caused by the figthree feet deep from Boston to Chicago, ging away of the material which holds it and most of that was of such a nature in place and also by the increased weight pair the tracks and were bringing up that it had to be blasted. If you should made by the water of the heavy rainfails. blast out a tunnel over a thousand miles This aids in carrying the earth down into long and so big that a hog could crawl the canal.

Watching a Slide.

told, to keep the stuff from the slide cut

now slowly and now in great masses,

continuously dropping down into the cut.

Mighty Cockroach.

Indeed, most of such slides occur at

and can be easily caught. The loss from of the cut near Culebra, which covers before night. Four hundred men are this source was considerable, but this twenty-eight acres and another on the working at it and sending it down to pink paper can be seen a great distance, east side north of Gold Hill where about Balboa.

and now whenever we catch a man with seventeen acres have broken off, begin- Colonel Gaillard tells me that there has ning 1,200 feet back from the center line not been one week during the last three

sities of the work, however, and it will

all be remedied when the canal has been

properly sloped and the earth is again

Baby Volcanoes of Culebra.

ates heat. In some places the cut steams

and in others the ground is so warm that

These hot spots are found at various

depths, and they are often of such a tem-

perature that dynamite would explode

if put down in a hole, drilled through

them. For this reason a long iron pipe

is dropped down into every drill hole

before it is charged. It is left there for

ten minutes and then taken out. Now,

by running the hand along the pipe one

can find whether there is a hot place in

place. Some premature explosions have

occured owing to the lack of this test,

and I am told that some of the material

now being handled would fire dynamite

Investigate a Geyser.

over an area of several square yards.

Colonel Gaillard took a manilla envelope

In looking at the earth near the steam

vents it seemed cool, and I put my hand

ride on the loads, and they hang outside

holding on by the irons, as the trains

I would say, in closing, that there is no

danger from these heated areas. The ge-

ologists of the commission have examined

them, and they say they are due to the

move on stoward the dump.

you cannot put your hand in it.

As we make our way through the cut

Sacrifice Sale

Lace Curtains and Draperies Because of a late spring the stock in our drapery department is much larger than it should be at this time of the year. In order to reduce it we have decided to break away from the common and accepted form of after-inventory sales, and to place on the bargain altar an immense line of goods we have at prices far below the regular figures. Nearly all cuts are from onethird to one-half of the regular retail price.

In this stock are large and varied selections of lace curtains, in all sorts and kinds, in the very latest styles; plain, fancy and colored scrims in all the newest patterns and designs; cretonnes, chintzes and figured sunfast mercerized overdrapery goods, in both 36 and 50-inch widths. These goods are all very different from the ordinary so-called sale goods, as they were bought for our regular retail trade and do not include any odds and ends or dropped patterns of old stock, but are all good, new patterns in the latest styles.

Any one who has any need or will have any need in the next three months' time for anything in the way of lace curtains, cretonnes, scrims and overdrapery goods cannot afford to miss the bargains in this great sale. We note a few of these immense bargains:

Muslin Bed Room Curtains A Big Line of Swiss and Muslin Curtains-Bought to retail at \$1.50 to \$2.50 pair; 85c to \$1.20 on sale, pair ...

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Suitable for Bed Rooms, Living Rooms, Dining Rooms or any room in the home in large variety of designs. Appliqued Border Scrim-Worth \$11, on sale at..... With Lace Insertion and Edging-Worth \$9.00; on sale

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retonne	and	Taf	feta	Cloth-	Worth
40c per	yard,	on	sale,	per	150
yard at.		• • • •			.15c

through it you might have some idea of the work Uncle Sam did in that month.

Dynamiting the Andes.

that time, although there are some also in the dry season. I watched one such As we pick our way down into the cut mass of earth moving today. It comwe can see the mighty work everywhere going on. Flying trains of earth are prised about 1,000,000 cubic yards, equal moving this way and that. Scores of to a block 300 feet square and 300 feet steam shovels are puffing and groaning high, and was going forward at the rate as they drop the earth and rock on the of eighteen inches per day. As I grood of the canal. cars, and everywhere are gangs of ne- in the bed of the canal the place where the clay joined the rock could be plainly groes who are drilling the ledges and putting in dynamite to break up the earth . for the shovels.

As we start we pass the pipe line which carries the air for the drills. This is ten inches in diameter, and it runs from one end of the cut to the other. It is fed by three air compressors, the earth as it fell and loading the cars. one of limestone or a layer of volcanic that place the ground was yellow with by fuel oll, and which are so powerful that they can compress 17,000 cubic feet of the way. I could see the earth foll of air every minute. The air feeds the drills and keeps them chugging away day and night boring the holes for the blasting. It drives the augers, each as big around as your leg, down into the heart of the Andes, cutting holes from fifteen to thirty feet deep, in which the

dynamite is sunk to tear up the rock. "Last year," says Colonal Gaillard, "the holes we put down, if joined end to end would have reached 900 miles. They would have equaled a pipe running all the way from Philadelphia to Chicago, or if sunk straight through the earth would have reached almost one-fourth of the way to the center."

As we go on I ask Colonel Gaillard something as to the amount of explosives needed on the canal. He replied that the consumption of dynamite for twelve months was over 5,000,000 pounds. Every hole requires twelve pounds, and the consumption in one year would more than load five trains of the Lidgerwood cars which carry the earth and rock out the holes, I observe that the dynamite is wrapped in pink paper, and ask Colonel so even when the slide is a tong one.

Gaillard the reason. He replies: "That is to keep track of it and pre-

like 157 acres of slides has been taken not been heaving and rising, but he adds out, and there are many acres still in that the heaving grows less and less as motion. Colonel Gaillard, who has seen the weight from the sides of the cut is the glaclers of Alaska, tells me that removed and the upper banks properly these slides move just like them. The sloped. At present the only place where earth flows down the sloping surface of the earth is so working is right under Gold the bed rock, the lateral support of the hill. The trouble occurs within a length masses having been removed by the dig- of perhaps 200 feet, whereas it formerly ging. It is just as though the earth were extended over 2,000 feet. The humps make made of molasses and held back by dams it necessary to rebuild a great deal of at the sides. These dams were taken track, and on this account altogether away by the digging of the canal. more than 100 miles of track have already been shifted. This is one of the neces-

Squeezing Old Mother Earth. In addition to these surface slides or flows there is another class of earth motion which is carrying great masses

in equilibrium. of rock into the canal. These masses do not come from the top, but from the strata of which the canal banks are with Colonel Gaillard we can see the made. Sometimes they come from below baby volcances which have alarmed the the canal bed and force themselves up ignorant as to the future of the canal. in humps through it, overturning steam They are not really volc nes, but are shovels and throwing down the railroad heated areas where the chemical contracks. dition of the earth is such that it oxi-During my walk through the cut this dizes upon exposure to the air and gener-

morning, at a point just opposite Gold Hill, I saw a hump or great hill which had risen up in the bed of the canal during the night, moving the four railroad tracks which ran parallel across it. The rails were pulled out of the earth. Colonel Gaillard and myself stopped to watch the men who were getting ready to reshovels to take out the hump, when lo, right under our eyes, we saw the earth

rise and throw the railroad, ties and all, to one side. I had my camera ready and made photographs of the ground the hole as this heats the pipe at that while it was moving. I had just finished taking my last picture when one of the tracks fell clear over and rolled down the side of the hill. This hump was right in the bed of the cut and almost on the if brought near it. bottom of what will be the permanent bed

In going through the cut with Colonel Where Rock Moves Like Water. Gaillard the other day I climbed the side

Shortly after this I went with Colonel of a hill to the place where the steam seen. It was a sort of a hollow in the Gaillard to one side of the canal where was pouring forth like a geyser. The hillis where the rock of the out had been the rock was such that the strata could smell of sulphur and brimstone was blasted off sheer so that one could follow be plainly seen. The walls of the cut strong, and I had to get windward to with his eye the line where the clay contained many different layers of rock prevent being overcome by it. The colended and the bed rock began. "there of varying degrees of density, lying one onel warned me also that the gas might was a ninety-five-ton steam shovel at upon the other. Here was a stratum of be poisonous. I reached down and put my the foot of the rock, and it was catching shale, there one of lava, and above it hand in the steam. It was scalding, At It was working just fast enough, I was dust hardened to stone. There were also sulphur and the steam was oozing out strata of lignite and other soft rocks. Now, before we began excavating, as these strata lay one upon the other, the and held it over one of the cracks, and weight of the mass was equally distribute the heat was such that it destroyed it. It uted, bed upon bed, so that it was not even charred a piece of white pine lum-

These surface slides have carried down possible for any of the strata to move, ber, although it did not bring it to a great masses of material. Take the no matter what lay above them. Then the great ditch was cut and the weight Cucuracha on the east side of the canal. The word Cucuracha means "cockroach." and pressure on that side were taken

and this cockroach is the biggest of its away. This allowed the great weight on the surface. There was no sign of kind upon earth. It covers an area of above to exert its force on the weaker heat, but when I scraped away a bit of forty-seven acres and forms a great mass strata beneath, and it has squeezed some the crust I was almost burned by the of earth which has broken off 1,839 feet of them out into the canal. You may contact. In loading this stuff the mass is some imagine how this could be if you will retimes so hot that the brakemen cannot

from the center line of the canal. It began when the French were still gard some of the weaker strata as like working, and it has caused us trouble a thick fluid, say molasses, or the jelly ever since we started to dig.' We have in a layer cake. The layers above will already moved out of it a mass of earth force the molasses out at the sides, and amounting to 2,000,000 cubic yards, and it if you press on the cake the jelly will is still active. At one time it came onooze. Now, the lignite strata especially ward at the rate of fourteen feet every are of this nature. These give way to the day. Nevertheless the steam shovels ate weight above and force themselves out it up as it came, and there is no doubt into the canal bed, or if the stratum is oxidation of pyrites and other materials but that the shovels and dredges will be under the bed of the canal it is squeezed able to take care of it and all other slides out so that it humps up and throws the

of the cut. As I watch them charging of the future. The ordinary slide can railroad as I have described. be handled by one shovel, and this is Slides Can Be Controlled. Slides of strata such as I have de-At Las Cascades a shovel moved up and described are common, but the engineers

down a slide 100 times going back and know how to control them. They have architect.

"That is to keep track of it and pre-vent the workmen stealing it to dynamite the waters for fishing. Such a charge kills the fish and they rise to the surface." Not exactly. I want one of those were pushed into the cut. There is a big slide on the west side is a big slide on the west side is a with the surface is a big slide on the west side is a with the surface is a big slide on the west side slide on the west slide slide on the west slide slide on the west slide slide slide on the west slide slid

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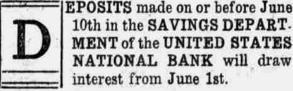
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