

THE RUINS OF ST. PIERRE.

We are enabled to give our readers, in the present issue, illustrations of the ruins of St. Pierre, that quaint, old-fashioned town which but yesterday was the most picturesque spot in the West Indies. Though the first news of the tragedy filled us with horror, our minds were unable to picture the awful extent of the disaster which we are now only just beginning to appreciate. One of our illustrations gives us a general view of the city, showing the bare ruins, the broken walls, the blackened tree trunks, the wreck of years of labor—a grim picture of death. St. Pierre owes the completeness of its destruction, in a great measure, to the manner in which its streets were laid out. The city rises in terraces parallel to the water-front. The streets, twisted and curved, run mainly in the direction of these terraces. There are few cross streets, only three or four leading down to the water's edge. Thus it was that when the eruption came, all the walls parallel to the sea-front and directly opposed to the volcanic blast were immediately leveled, burying the frantic pedestrians, choking up the long, narrow passageways, and destroying all avenues of escape.

The cathedral, whose ruins appear in several of our views, was a handsome piece of architecture. In its belfry hung the finest peal of bells in the West Indies. It commanded a fine view of the sea, and was a most conspicuous object in the panorama of the city. On the eventful morning of the disaster the church was crowded, for it was the day of the Feast of the Ascension. No human work could withstand the fury of that blast. The great structure, the pride of St. Pierre, lived but a moment, and then fell, obliterating those who had put faith in its massive walls and strong roof. The great bell of the cathedral may be seen in one of the illustrations, partly buried under the refuse.

A very interesting part of the ruins is the burying place of the city. Every headstone is destroyed, and all signs of graves are effaced. One of the illustrations shows the vaults with their little mortuary chapels. Wreaths and mortuary emblems; handsome silver lamps and candlesticks may be seen in these tiny chambers.

Everywhere is destruction. Substantial residences and beautiful gardens all shared the same fate, and over all lies a white pall of ashes.

According to Prof. R. T. Hill, of the National Geographical Society, the area of the catastrophe forms an elongated oval, covering eight miles of land, in which there are several well-marked zones; the first or center zone, in which all animal and vegetable life is utterly destroyed; the second, in which a blistering flame killed animal life and burned the leaves on the trees, but did not entirely destroy the leaves themselves; and the third, a zone of ashes which did slight damage to vegetation only. The northern portion of St. Pierre was in the first zone, and here all animal and vegetable life was instantly annihilated. The terrible explosion of gases must have had tremendous force, for guns in a battery on a hill south of the city were dismantled and carried for yards.

A new crater midway between the peak of Mont Pélée and the sea was the cause of the destruction of St. Pierre, and is still vomiting forth black mud, while sympathetic and synchronous eruptions are taking place in the old crater.

Baldwin Relief Party.

News comes from London that W. S. Champ, secretary of the Baldwin-Ziegler expedition, has started on his journey to search for Evelyn B. Baldwin, who is now in the polar regions. Mr. Champ will leave Tromsø in July, and will first endeavor to find the "America," which is believed to have wintered in latitude 82 degrees north. Mr. Champ expects to return between October 1 and 15.

The Longest Railroad Run on Record.

The Pennsylvania Railroad has had a run made from Pittsburg to New York, 438 miles, without a stop. This is the longest run of a passenger train on record. In order to accomplish this feat it was necessary for the locomotive to carry an extra supply of coal, and this was done by enlarging the locomotive tender.

Correspondence.

Volcanoes and the Sun and Moon.

To the Editor of the SCIENTIFIC AMERICAN:

Kindly permit me to call your attention to some remarkable coincidences between certain positions of the moon, relative to the earth and sun, and the recent earthquakes and volcanic disturbances. Do not the following comparisons of facts go to prove that such disturbances are most likely to take place when the moon is directly in line with the earth and sun (conjunction, opposition, eclipse), when the moon is nearest the earth (perigee), and when it crosses the earth's equator?

The moon crossed the earth's equator on April 19; the terrible earthquakes in Guatemala began on the evening before and continued until the 21st. The moon was full and at eclipse node on April 22; the volcanoes in the West Indies first showed signs of activity on the day following. The moon crossed the equator again on May 3—the day that Mont Pelee, on the island of Martinique, first began eruption. The moon was new and at eclipse node on May 7 and in perigee on the 8th; La Soufrière volcano, on the island of St. Vincent, began violent eruption on May 7, and Mont Pélée destroyed the city of St. Pierre on the 8th. Then, as the moon receded from perigee, getting farther away from the earth, the volcanoes gradually quieted down until the activity ceased on May 15. The moon crossed the equator again on Friday evening, May 16, and on Friday Mont Pélée again began eruption, which became violent next day.

The writer has for several years been observing this

carefully investigated by scientists for the benefit of mankind.

ELMER G. STILL.

Livermore, Cal., May 18, 1902.

[We have but little faith in the influence of the variation of the tidal action of the moon, sun, and planets on the seismic perturbation of the earth's crust. To establish any relation of tidal and seismic action, a reference must be made of these conditions at moments of volcanic outbreaks or severe earthquakes in long periods past. The tidal force of the moon is at its maximum every lunar day in some part of a zone of the moon's declination north or south, intensified only by the sun's tidal value at conjunction. Its effect on the tidal pressure of the oceans is varied by the contour of the continents and is probably larger where earthquakes are least felt and not in the regions of volcanic activity; for instance, the tides in the Antilles are only two feet at spring, and are equally small in the regions of great volcanic activity in the past—Krakatoa, Vesuvius, Japan, Central America, Iceland, Mount St. Elias—while the region of greatest tidal force, the Bay of Fundy, is comparatively free from seismic disturbance.

We rather attribute earthquakes and volcanic disturbance to the strain and pressure caused by the contraction of the earth's crust upon heated matter in the interior of the earth and its consequent outbreak at the weak points, which are represented by the relief vents that have been in action for thousands or perhaps millions of years.—Ed.]

A Trip on the "Fulton."

To the Editor of the SCIENTIFIC AMERICAN:

Perhaps you will consider the following extract,

which I have just come across, in the diary of Rev. G. Washington Phillips, written in 1817, of interest to your readers as bearing on the series of papers which has lately appeared in your newspaper:

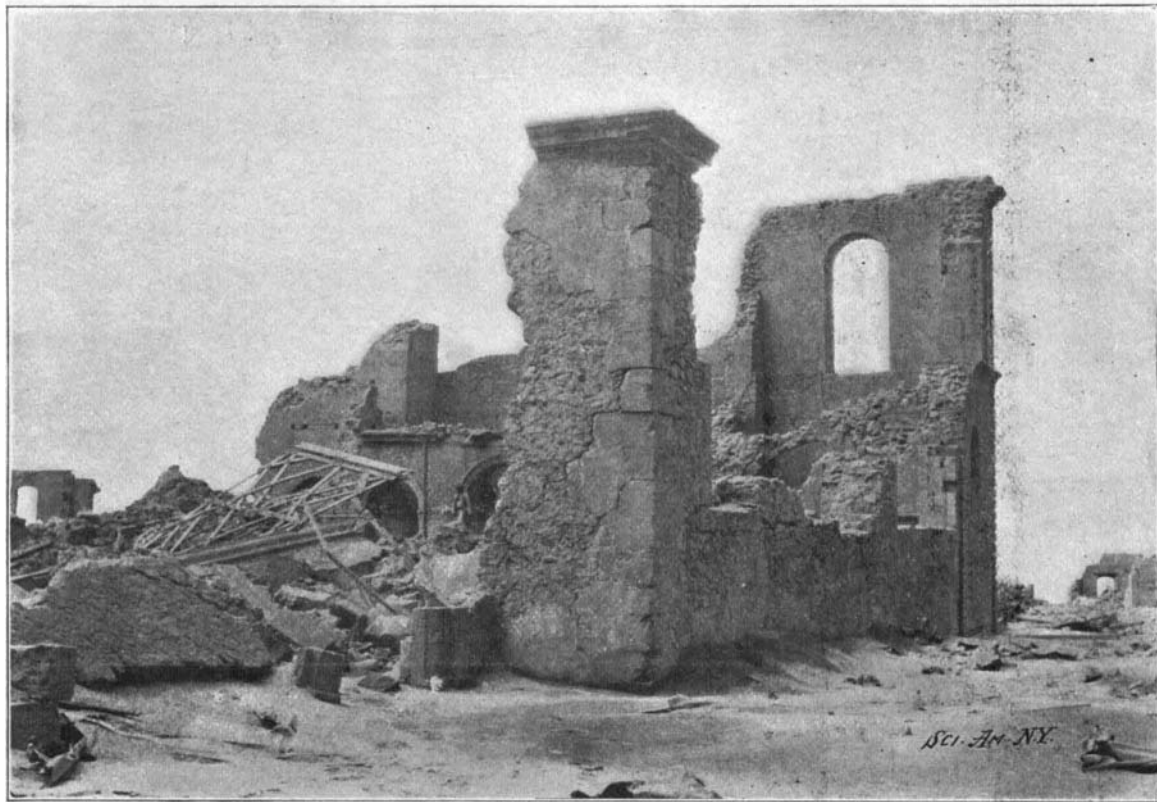
"In the evening I proceeded to the steamboat, with the intention of taking a passage to New York. Seldom have I been more entertained than at the surprise and admiration expressed by the African servants we had brought over. They had heard of ships without sails, impelled by fire, but had always considered such reports as altogether fabulous. When, therefore, they beheld the steamboat, like a huge sea monster, floating on the surface of the water, advancing with inconceivable rapidity amid the foaming billows; heard the clatter of the water wheels, the hollow sound of the machinery working,

and the sudden crash caused by the discharge of steam through the valves, they were completely aghast. Some persuasion and encouragement were necessary to make them venture on board. The vessel, which was named the 'Fulton,' was near 156 feet in length, with excellent accommodations of all sorts. At 8 o'clock the following morning I found myself at New York, distant a hundred miles, without any of the fatigue, delay, or inconvenience of a land journey or any of the uncertainty and risk of water carriage."

He then gives an interesting description of New York, which "like ancient Tyre, rises amidst the waters and presents a very magnificent spectacle as it stands surrounded with a forest of masts." What would he say to the New York of 1902?

A. E. MURRAY.

About thirty million gallons of mixed paint were sold in the United States during 1901. The greater portion of this was not used in the large cities, but in the towns and villages, where structures are of wood. In no country is so much paint made as in the United States of America, and the bulk of that paint is composed of lead, zinc, and linseed oil, and only the darker shades are made of oxides of iron and other pigments. Many manufacturers use a small quantity of water in their mixtures, and when the quantity of water is not over 2 per cent, it cannot be regarded as an adulterant. The water used is usually slightly alkaline, and in the case of lime water it forms a calcium soap with linseed oil and thickens the paint, so that it never settles hard in the tin and is easily stirred.



Photograph by C. L. King.

ANOTHER VIEW OF THE RUINED CATHEDRAL.

relation between the positions of the heavenly bodies and seismic, volcanic, and electrical disturbances, and is forced to the conclusion that the latter are caused in part by the conjunctions, oppositions, perihelions (or perigees) and equinoxes of the moon, earth, and seven other planets, especially when several of these occur at once. Such disturbances do not always occur at these times, but observation proves that nearly all of them do so occur. It is not claimed that the relative position of the heavenly bodies is the sole cause; it is only an aggravating cause and must be combined with local causes and conditions in order to produce seismic and volcanic disturbances. Scientists now recognize the fact that sun spots are caused by the perihelion, etc., of Jupiter and other large planets. Then why are not earthquakes caused in the same general manner?

The writer is convinced that severe disturbances of these kinds can be predicted as accurately as the weather, and that the recent volcanic outbreak could have been predicted with a certainty several days in advance, and the awful loss of life thus averted. The writer felt certain that there would be another severe volcanic eruption on May 16 and 17, and it came.

The moon will cross the earth's equator again on May 31 and June 13, will be in perigee on June 5 and new on June 6; therefore, more volcanic and seismic disturbances are probable on and about those dates in various parts of the world, but especially where they have been occurring recently.

I submit these facts and theories for your candid and unbiased consideration, and in conclusion I earnestly request that you express your opinion of them in the SCIENTIFIC AMERICAN, or at least explain them to your readers, so that these facts and theories may be