

MONT PELÉE IN ERUPTION.

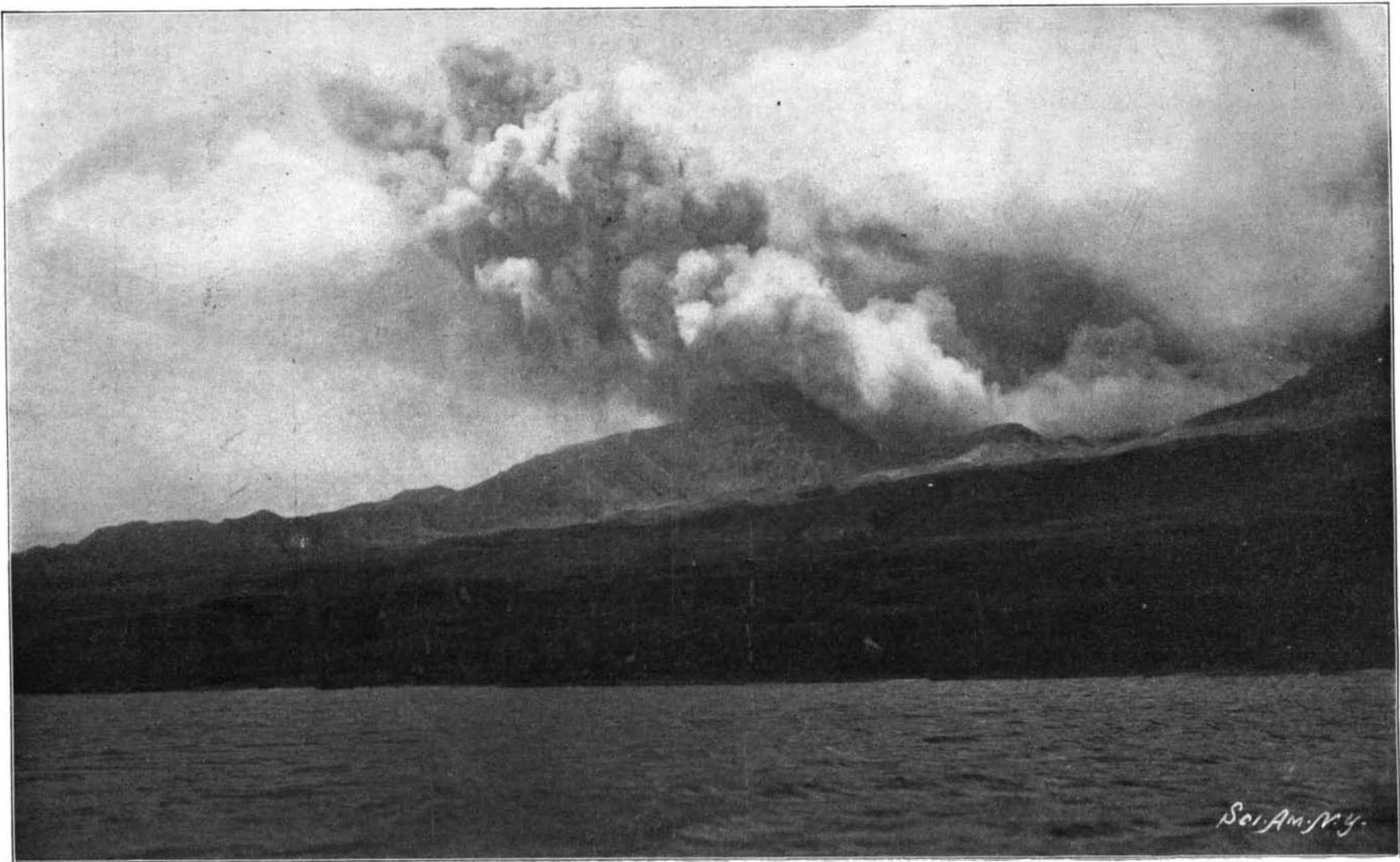
BY E. C. ROST, SPECIAL CORRESPONDENT.

It is not my intention to review the events that occurred on Martinique just before the fatal 8th of May and up to the final destruction of the town, but

to give a brief account of my observations during some of the eruptions of Mt. Pelée and my ascents of the volcano, in connection with the American and English Scientific Commissions.

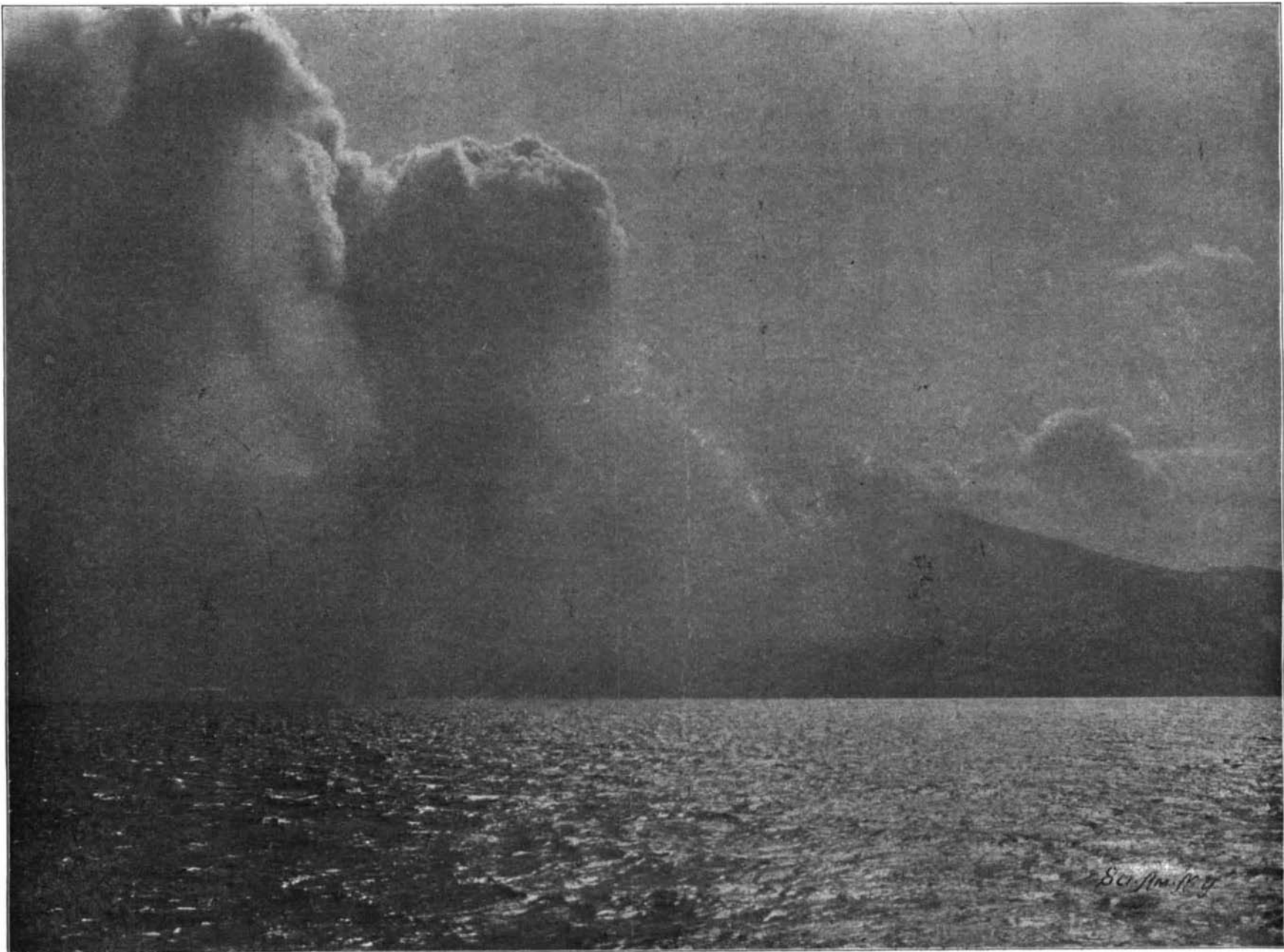
St. Pierre, perhaps the most beautiful of all West

Indian cities, with its pretty houses nestled at the foot of the verdure-covered cliffs, with the brilliant coloring of the town reflected in the perfect blue of the Caribbean waters, and the mass of picturesque shipping anchored in the roadstead, exists only in mem-



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SECOND STAGE OF THE ERUPTION (30 SECONDS LATER) SHOWING THE CLOUD OF VAPOR SPREADING AND DESCENDING ALONG THE SLOPE OF THE MOUNTAIN.



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THIRD STAGE OF THE ERUPTION (1 MINUTE LATER) SHOWING VAST AREA COVERED BY THE CLOUD—THE SAIL OF THE SLOOP FROM WHICH THIS PHOTOGRAPH WAS TAKEN WAS DESTROYED THIRTY SECONDS AFTER THE PLATE WAS EXPOSED IN THE CAMERA.

ory. It would take the pen of a Danté to do justice to the scene. St. Pierre, only a few weeks since a city full of human souls, is no more. It lies consumed before us, silent and desolate, a city of the dead.

No words can convey the vastness, the completeness, of the destructive powers that have wrought this weird transformation. A party of three of us decide to explore the volcano, on the leeward side from St. Pierre, moving up over the track of the forces which came from Pelée's crater on their awful errand of destruction. We take every precaution we can; our boat manned by five natives, is to lie off shore, ready to pick us up at any hour. We decide, however, to visit St. Pierre first. Here we find that the sea front shows no material change. Many buoys are still there, the sea wall of heavy masonry shows the same old water marks, coral and sea moss. We next travel through what once were streets, but are now masses of broken stones, iron work, wood, and dead bodies, all covered by the prevailing lead-colored dust. It was with great difficulty that we wended our way up through the ruins, because of the great depth of the dust. Then we crossed the deep mud flats, occasionally stepping into a decomposed body. We succeeded in reaching the bluff above that section of the town known as the Fort. The other two sections were called Centre Mouillage, from which point we have an extended view of Mt. Pelée, or rather what was at one time Mt. Pelée, but is now a mass of torn and broken rocks, mud-lava, ruins of houses and plantations, with ravines and hills of débris; yet withal, the general outline of Pelée is as of old.

At our feet (some 300 feet below) still flows the Riviere Roxelane, which is spanned by two bridges, one of stone, the other of iron and steel—on the latter heavy steel plates were all bent away from the mountain side. Just beyond the river we see cropping out here and there on the various terraces, parts of buildings; for this section of the city was buried under a tremendous mud-lava flow which in one section meas-

ured quite 200 feet in depth. This bed of volcanic matter, mud-lava, pumice-stone and dust, completely covers the leeward slopes of Pelée, filling up deep ravines and valleys, and as we view the volcano from St. Pierre, it seems an easy and gradual ascent to the very summit. We decide, however, to make the ascent up the valley of the Riviere Blanche, down which swept the death-dealing blast from the crater.

Having spent the night at Carbet, enjoying the

through and above the clouds. These superficial eruptions occur sometimes only fifteen minutes apart, then, again, we have but one or two a day.

By 7 A. M. the aneroid shows us to be 2,500 feet above sea-level, and about opposite the crater, out of which come the real eruptions. Practically at the crater's edge we find old sugar-cane fields, where are seen the charred remains of cane, which have been covered with great deposits of dust, but which are now furrowed by the heavy rains, which have left the deposits in queer, fantastic shapes. Then again we cross great high ridges of mud-lava. Just ahead of us is revealed the huge cup-shaped cone or crater proper, but our view of this is but for a moment at a time, for it is now the rainy season, and clouds continually hover over and cover the mountain; moreover, steam and vapor rising out of the crater prevent a good view. In a northeasterly direction and looming far above us we see the huge "Shark's Fin," a tremendous cliff, left standing when the very top of Pelée was blown away. The summit is now 4,140 feet, and was formerly 4,290 feet high, being lowered by but 150 feet. These figures do not give a true idea of the great fissure in Pelée's sides, which runs toward the west from the crater. Along this fissure have been

thrown great angular blocks, and huge rents have been torn into the sides of the slopes, out of which come puffs of dust-laden steam. All is in a turmoil and seems to be moving not down the mountain sides, but in every direction. The old Lac des Palmistes, a lake near the summit on the easterly side, supposed to be the old crater of fifty-two years ago, is now dry and covered with angular blocks of stone, vomited by Pelée. From this point there is an easy descent down the eastern slopes to Basse Pointe and Morne Rouge, but we prefer to descend again along the Riviere Blanche valley, as in this direction came mostly all of Pelée's destructive forces. Save for our hearing some severe rumbling within the crater, resembling the rushing of steam and the sound of boiling water, the



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CRATER OF MONT PELEE JULY 4. THE FIGURE AT THE LEFT IS DR. T. A. JAGGAR, JR., OF THE U. S. GEOLOGICAL SURVEY.

hospitality of Charles Gouyet, the administrator of the northern section, we start at the low-vitality hour of 4 A. M., our boat taking us to the mouth of the Riviere Blanche, and travel up the at first gradual slopes, and over hot, red-hot, beds of ashes, over which a cool crust has formed of sufficient strength to bear our weight. Now we find beds of pumice, then again soft mud; but generally we travel through dry dust, all of a dull leaden color, save that here and there the red ashes still show through. Occasionally we are treated to a supposed eruption. By that I mean an entirely superficial eruption. These are caused by the deposits of red-hot dust, sliding as does a land slide, into the river, when vast clouds of vapor and dust ascend at times not only up to, but actually



Photograph Copyright 1902 by E. C. Root.

NORTHERN PORTION OF ST. PIERRE COVERED BY A MUD FLOW WHICH AVERAGES 200 FEET IN DEPTH. IN SOME PORTIONS OF THE VALLEY ABOVE, THE DEPTH OF DEPOSIT WAS 600 FEET.

descent was uneventful, unless I may add that the temperature as we rested for a few moments proved to be quite cool, so cool in fact that coats were longed for. This was at an altitude of 2,000 feet, half-way up the volcano.

On reaching the shores near our starting point we find our boat in waiting, with the native crew most anxious to leave, and we ourselves possessed of a pleasurable feeling that we were again in a comparatively safe place. Safe only by comparison with other places within the range of Pelée's activity (a circle of 10 miles in diameter); for while off this very point in our frail craft a few days later we were so fortunate as not only to see one of Pelée's most important eruptions, that of July 9, but to escape unhurt. We had just returned from another exploring expedition of the lower slopes, and of St. Pierre, when the rumbling and hissing seemed louder than usual. The cauliflower clouds, so peculiar to and characteristic of Pelée, suddenly became darker in color, and above all arose the much dreaded "black smoke," which seemed to pour over the sides of the volcano, then form itself into a great, huge mass which rolled with a circular motion down Pelée's slope toward St. Pierre, spreading itself out more and more, and coming for miles out over the Caribbean Sea, enveloping everything in darkness, covering all with the gray dust, ashes and pumice stone. Our crew seemed to think it necessary to spend their time on their knees and pray, and we were thus forced to use the oars to the utmost of our strength to bring our craft farther on down toward Carbet, for we knew that the bluff south of St. Pierre has thus far warded off the deadly blast, thus leaving a place of refuge, perhaps one-half mile off shore. This eruption lasted from 6 P. M. until 10:30 P. M. Having witnessed this and other eruptions of Pelée I am inclined to believe that the destructive forces consisted of superheated steam, hot pumice and a blast of tornadic force, which swept everything before it. Add to this the electric disturbances, which at times were so vivid as to quite resemble shooting flames, and the peculiar feature that the electric disturbances were much more noticeable at the water level.

I am satisfied that St. Pierre and its people were slain by superheated steam, laden down with an almost incalculable weight of red-hot sand, stone and pumice and traveling with a circular motion, at hurricane speed. After this blast had passed over St. Pierre it carried the heroic-sized statue of the Virgin, which stood on a bluff to the south, fifty-two feet from its base, and then overturned and tore from their carriages huge modern cannon, which stood in the fort still farther to the south. Daylight next morning revealed a scene of utter destruction. In every direction from Pelée's crater great rivers of hot sand and mud were tearing and roaring down its sides, while steam was issuing from every crevice. St. Pierre was again covered with ashes, and the foliage between St. Pierre and Fort de France was covered with a gray mantle.

To witness such an eruption is an experience never to be forgotten. I would not have missed it for much in this world. As to the future, no man, scientist, or layman, can predict just what Pelée will do. "Stay away at least for a time" is the only safe advice.

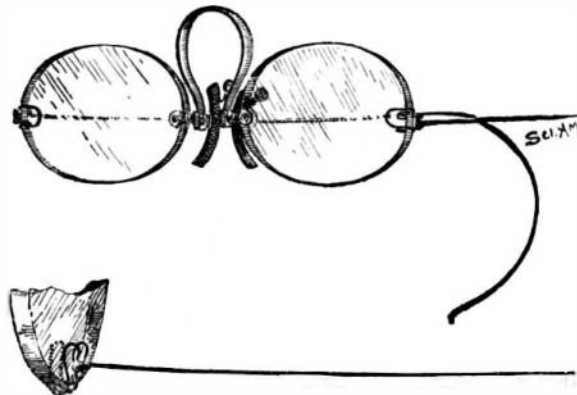
Much has been done by scientific men, much has been learned as a result of Pelée's later eruptions. But much more remains unanswered.

Now just a few words more as to my own observations. One of Pelée's big eruptions at night, as witnessed at a distance of eleven miles, was quite as awe-inspiring, even more weird and uncanny than the eruptions I witnessed at close range. The skies in the direction of Pelée become impenetrably inky black. This black mass moves upward and toward you. Suddenly all over this black space appear myriads of lights, just like incandescent electric lights; now they glow, now all is dark. There is no perceptible motion to these lights. But suddenly they all move in one direction, then in another. Now up, now down; now east, now west. Then just as you think you have discovered their line of motion they suddenly dart in every conceivable direction. You see everywhere: now sharp, zigzag flashes, now circular, like myriads of monster pin wheels; now all have a spiral motion, then of a sudden all is dark again, and you think the worst is over. But no, they appear again; are much more active and much nearer; the blackness now extends from the horizon in the north quite over your head; in a few minutes more it has spread out like a huge umbrella, quite to the southern horizon, completely shutting out all sky. But lo, and behold, of a sudden the scintillating lights and flashes appear again, and under that black pall, now so completely surrounding us, are seen all of nature's clouds that before the eruption were visible by moonlight, placidly floating by and all brilliantly illuminated by the electric display far above. In a short time dust falls upon us, and then stones, the size of walnuts. It was a majestic scene that will live as long as memory endures.



SOME RECENTLY PATENTED NOVELTIES.

TEMPLE ATTACHMENTS FOR EYEGLASSES.—Spectacles, though not so stylish and neat in appearance as eyeglasses, are nevertheless greatly used because they can be so much more securely held in place. Occasionally a man carries a pair of each style,



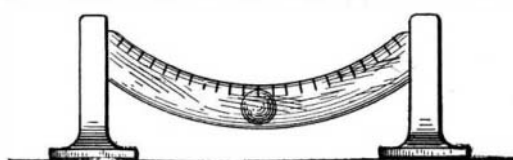
TEMPLE ATTACHMENT FOR EYEGLASSES.

using the spectacles only whenever his duties or pleasures do not permit of the convenient use of eyeglasses. This, however, is a great annoyance, and is quite expensive where high-priced lenses are worn. Our illustration shows a much cheaper method of adapting one's eyeglasses to varied requirements. A pair of temple pieces are provided which are adapted to be clamped to the lenses of the eyeglasses, thus converting them into spectacles. These attachments are very simple, and can be cheaply made, so that if lost they can be replaced at but slight expense. By their use the glasses will be firmly held, no matter how violent the exercise or how warm the weather. A patent for this attachment has recently been granted to Mr. E. L. Lembke, of New York city.

MAGAZINE TORPEDO-CANE.—A simple amusement for children is provided by the invention of Mr. John H. Fox, of Fostoria, Ohio. The device comprises a cane having a hollow bore which forms a magazine for storing a number of torpedoes. On the end of this cane is a selector for feeding a single torpedo at a time from the magazine, and a detonator for exploding the torpedoes as they are fed out. The detonator consists of a pin formed on the bottom of a sleeve ferrule which is fastened to the end of the cane and closes the lower end of the magazine. A mortar embraces this ferrule and allows it a limited vertical motion therein. The mortar is provided with an arm which passes up into the bottom of the cane and forms a wall for the lower end of the torpedo magazine. In this arm is a recess so located that the lowest torpedo in the magazine will be forced by gravity therein when the cane is in its lowest position. As the cane is raised, the mortar remains stationary and the torpedo rests in the recess until the lower end of the ferrule has been cleared, when it drops by gravity into the firing chamber.

On the next downward stroke of the cane, the detonator pin explodes this torpedo and at the same time the next lowest torpedo in the magazine drops into the recess of the selector arm; thus the torpedoes may be rapidly and successively delivered to the firing chamber and exploded.

IMPROVED GRADOMETER.—While not absolutely essential, a device fixed to the automobile which will tell

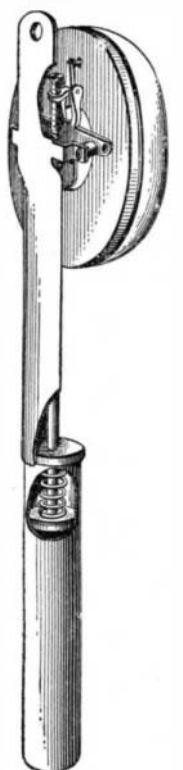


AN AUTOMOBILE GRADOMETER.

at a glance the per cent of a grade being climbed is a great source of satisfaction. There are a number of gradometers on the market, but most of them are built on the lines of the spirit level, and the little bubble is so sensitive to every movement of the vehicle and its movements so convulsive that it can hardly be seen as

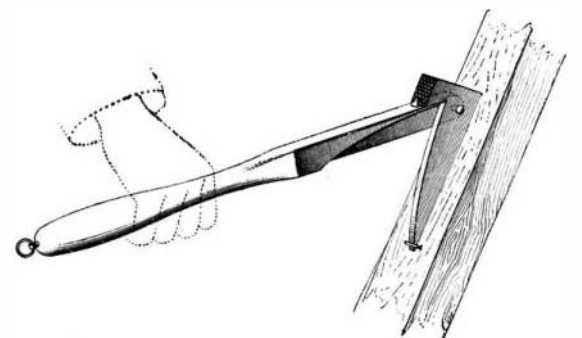
the carriage moves along. In order to meet the shortcomings of the others an improvement has been designed by J. H. Bullard, of Springfield, Mass. It consists of a curved glass tube fixed rigidly in a frame, which is to be fastened to some convenient surface of the vehicle. The lowest part of the tube is in the center, and before the tube is sealed a metal ball, having a diameter nearly that of the inside of the tube, is placed therein and the tube is then filled with some non-freezing liquid such as alcohol. The ball will, of course, seek the lowest point, and in doing so will register the grade of the hill being negotiated. While the action of the ball in finding the lowest point is not at all tardy, the resisting action of the liquid which it must displace as it moves about prevents it from being wildly agitated back and forth.

THERMOSTATIC FIRE-ALARM.—In a recent number of the SCIENTIFIC AMERICAN we described a thermostatic fire-alarm, in which the gong was rung by electricity. The inventor, H. C. Vierkaut, of Tarrytown, N. Y., has invented another thermostatic fire-alarm which is entirely mechanical in its operation. The alarm consists of a base, on which is mounted a spring-actuated train of gearing, the winding shaft of which is threaded to receive the gong. The bell clapper is vibrated by an escape wheel suitably connected with the gearing. When the temperature in the room rises to the danger point, the liquid in the thermostat expands and lifts a plunger which, through the medium of a bell-crank lever, forces in a pin at the back of the alarm base. This releases the clapper and permits the alarm to sound. The end of the plunger stem is connected with the bell-crank lever through a set-screw. By adjusting this screw the alarm can be made to sound at any desired temperature.



THERMOSTATIC FIRE-ALARM.

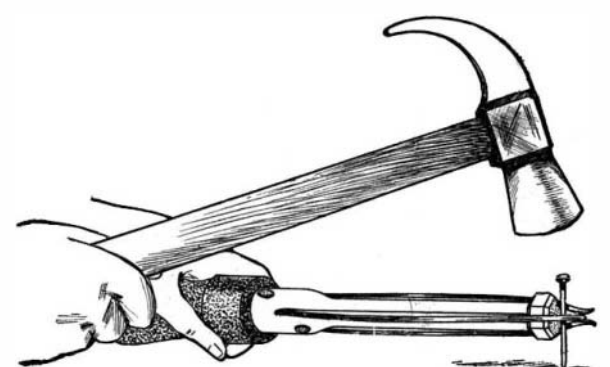
STAPLE EXTRACTOR AND HAMMER.—A United States patent has been recently issued for a combined staple extractor and hammer, which comprises a handle having a side portion cut away at one end and edge and having a rounded extremity. A member is pivoted to the handle concentric to the round end and having its long arm combined and arranged to fit snugly in the cutaway portion of the handle. A head at the outer or



STAPLE EXTRACTOR AND HAMMER.

projecting end of the opening may overlap the rounded end of the handle and project beyond its inner or lower edge. The projecting portion forms a hammer, and is notched to provide a claw to overlap the inner edge of the hammer and limit the opening of the pivoted member.

NAIL-HOLDING IMPLEMENT.—A man who has evidently experienced the difficulties of tacking down a carpet or hammering small brads and nails in inconvenient places has invented a simple hand implement adapted to hold the nail until it has been properly started. The construction of this instrument, which will be readily comprehended by a glance at the illustration, is of the simplest order, comprising a number of spring fingers secured at their inner ends to a body portion and held in alignment near their outer ends in



A HANDY NAIL-HOLDING IMPLEMENT.

SCIENTIFIC AMERICAN

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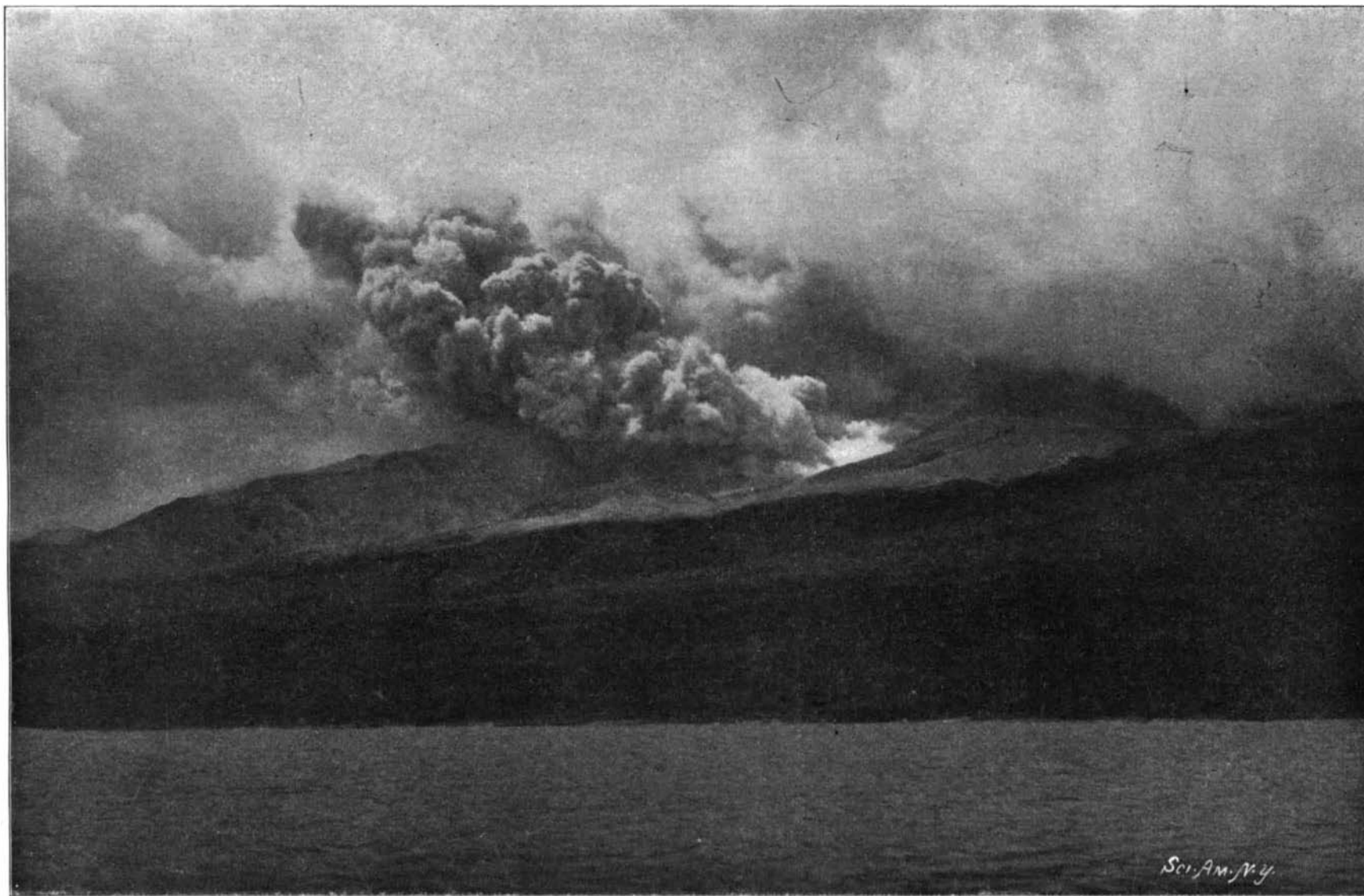
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ST. PIERRE, MARTINIQUE, AS IT APPEARED BEFORE THE ERUPTION OF JULY 9. THIS PORTION OF THE TOWN WAS ENTIRELY COVERED BY THE ERUPTION OF THAT DATE. CROSS INDICATES MONT PELEE.



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THE ERUPTION OF MONT PELEE ON JULY 9, FIRST STAGE SHOWING CAULIFLOWER EFFECT OF THE CLOUDS OF STEAM AND DUST.—[See page 106.]