"Atlantic," would like nothing better than to have a whole-sail reaching breeze from start to finish; a breeze with less weight in it than the "Valhalla," "Utowana," "Sunbeam," and "Apache" would call for. Probably under these conditions the race would lie (that is, if the yachts kept the same course) between the German entry "Hamburg" and Wilson Marshall's "Atlantic," with the odds in favor of the "Hamburg," because of her deep lead and greater stability and her ability to carry canvas longer than the auxiliary yacht, although this would be compensated in great measure by the extra sailing length of the big three-masted schooner. Moreover, Capt. Barr, the most successful racing skipper of the day, is familiar with the ocean passage, and the "Atlantic" will be perfectly sailed and handled.

There is one vessel in the race which is notable for the fact that she is the only yacht built as an out-andout racing craft that is carrying her full racing canvas into the race. We refer to the handsome yawl "Ailsa," built originally as a cutter to defeat that famous yacht of the nineties, "Britannia," "Ailsa's" chance will come if conditions prevail throughout the course similar to those which are ordinarily met with in the regattas of our summer season. If she is favored with light breezes, in which she can use her big spread of canvas to its best advantage, breezes in which the subtle question of ratio of sail area to wetted surface becomes all important, and especially if light head winds should prevail, Grenville Kane and Capt. Miller will be well repaid for the risk they have taken in stepping the big racing mast for this ocean race. Given her weather, "Ailsa" will prove to be a keen competitor for the cup.

The German yacht "Hamburg" is, like the "Ailsa," a strictly racing craft; but her rig has been greatly reduced—a wise precaution, if the winds should be strong and the seas heavy; but likely to spoil her chances if the winds are light.

The big schooner "Atlantic" is generally picked as the winner, and the expectation is based upon her fine performance last season and upon the fact that Capt. Barr, of America Cup fame, is to be her skipper. Given weather in which she can carry her heavy rig, she should win. In heavy weather she will lose to "Hamburg" or to the square-riggers; in light weather and easterly winds, we look for "Ailsa" to prove her most dangerous competitor.

Mont Pelé's New Dome. BY EDMUND OTIS HOVEY.

The Abbé Yvon climbed two-thirds of the way to the top of the new "dome" of Mont Pelé in the fall of 1904, and the expedition is thus described by him in La. Martinique: The party which started for the mountain consisted of himself, the Abbé Altéroche of Morne Vert, M. Roux, gendarme at Le Carbet, and two porters. Leaving Le Carbet by canoe at 5 o'clock in the morning, they_arrived at the mouth of the Rivière Blanche at 6:30, and disembarked. The dry bed of the river is now a gorge with walls averaging 15 meters high. Twice they found the gorge blocked by great rocks which formed cliffs 8 to 10 meters high. The first of these was encountered at twenty minutes' walk from the sea, and the second at one hour and a half. Fumaroles were observed at intervals along the river bed from the second kilometer to the foot of the talus of the new cone.

The slope of the material filling the gorge of the Blanche becomes noticeably steeper at an altitude of about 500 meters above the sea. At this point the party stopped, had breakfast, and rested from the fatigues of the rough journey along the new gorge of the Blanche. When the question arose as to the continuance of the ascent, Abbé Altéroche declared himself too weary to go on. In the words of Abbé Yvon:

"M. Roux and Julien the servant at Morne Vert consented to follow me, and we directed our steps toward the middle of the base of the talus slope. My project was in general to climb to the level area on top of the 'dome' at the same altitude as the base of the needle which rises on the side toward Morne Lacroix. I was persuaded that the dome ought to be cold and that the fumaroles there, i. e., on the side toward St. Pierre, ought not to have a very high temperature. Furthermore, since the dome fills the crater of 1902 to 100 meters depth, who knows whether or not a new crater, an avenue of communication with the interior of the earth, does not exist in the summit at the place where. as viewed from Morne Vert, there seems to be a level area? Curiosity impelled me to determine the question if possible, and I resolved to climb clear to the top. The volcano was very tranquil and the vapors seemed less abundant than for days before." After climbing for a few minutes farther, M. Roux decided to go no higher, but he agreed to await the return of Abbé Yvon and Julien; apparently this decision was reached in the breach of the old crater wall and near the base of the new dome. Beyond this point the first fifty meters were rendered difficult to traverse by the loose stones scattered thickly over the slope, which rolled under foot. Then the Abbé reached the white bands which are a prominent feature of the dome as

seen from the sea, which he found to be steep slopes* covered with fine white ash. These had been the path of countless dust-flows for two years. Scrambling across the zone of white bands, the two men reached the solid lava of the dome and were able to climb more easily. Noting a large fumarole to the south of their path, they started toward it. This divergence probably saved their lives, since they had scarcely turned aside before an explosion occurred in the upper part of the dome and in a few seconds an avalanche of great rocks traversed the route up which they had been climbing, scattering fragments even to their feet. M. Roux had barely time to take shelter behind a great rock, before the descending stones reached his level. The avalanche lasted about two minutes and impelled M. Roux to start down the mountain at full speed, as soon as it had ceased. The Abbé was determined to go on by a different route, but Julien was thoroughly frightened and would proceed no farther, so that the Abbé was forced to abandon the ascent when about two-thirds of the way up the dome. He was probably at an elevation of about 1,400 meters.

Before beginning the return journey, the large fumarole was visited and was found to be a crevice two or three centimeters wide and 20 to 25 meters long, beside a high, narrow, serrated ridge, resembling the dorsal fin of a fish placed radially with reference to the dome.

Steam was rising vigorously from the fissure to a height of about three meters above the opening. Much sulphur was observed on the farther side of the crack, but the thickness of the deposit was not determined, because it did not seem prudent to cross the fumarole to measure it. On the return journey across the plateau between the Blanche and Sèche rivers and down the gorge of the latter stream, small fumaroles were seen here and there until within half a kilometer of the sea. These were discharging hot air, but no live steam, under some pressure and with considerable noise.

It may be remarked that although the Abbé found the portion of the dome that he ascended essentially cold, he would probably have found a different condition of affairs prevailing on the summit plateau which he was striving to attain, since the December bulletins of the French volcano commission on Martinique report continued explosions from near the top of the mountain and the frequent appearance of incandescent spots near the summit of the dome.

An Inside-Connected Locomotive for Purdue University.

Purdue University is to receive from the New York, New Haven and Hartford Railroad the historic locomotive "Daniel Nason." A few years ago the university interested itself in securing from railways samples of such classes of locomotives as are now being superseded, its purpose being to preserve as museum exhibits types of design which were becoming extinct. and a number of valuable relics are already upon its grounds. From the beginning of this movement an effort has been made to secure a representative of a type which was common throughout New England thirty years ago, namely, an eight-wheeled engine having cylinders inside the frames connecting with the crank axle. This effort has now been crowned with success. The "Daniel Nason" is said to have been built in 1858. It was exhibited in Chicago in 1893 and has since been held as a relic at Roxbury, Mass. The engine weighs about 25 tons, is complete with its tender, and will be shipped to the university at Lafayette, Ind., upon its own wheels.

The university is also to become the custodian, in behalf of the same railway, of a stage-coach passenger car which is said to have been placed in service in 1835. It consists of the body of a stage coach suspended over a simple railway truck by means of thorough braces. It will seat inside and on its top about twenty persons.—American Machinist.

The Carrent Supplement,

The English correspondent of the SCIENTIFIC AMER-ICAN opens the current SUPPLEMENT, No. 1533, with an illustrated article on the hydraulic power works on the River Glommen, Norway. Some striking illustrations

Correspondence.

Why the Stone Eall Moves.

To the Editor of the SCIENTIFIC AMERICAN: The movement of the stone ball may be the result of earth vibration, caused by trains on some railway within a radius of five miles. C. BARTHOLOMEW.

East Toronto, May 8, 1905.

Another Solution of the Stone Ball Puzzle. To the Editor of the Scientific American:

The photograph and article about the stone ball that is slowly moving around interested me very much. I was sure that you would have a good many letters on the subject, but I do not read in any one of them a suggestion that the moving might be due to some metal embedded in the stone, which is being drawn toward the pole as the needle of a compass is naturally drawn. I do not know if the ball is moving in the right direction for this suggestion to be admissible; but might it not be as near the mark as some of the other ones? I hope that some time we may hear the correct solution of the subject. N. L. LADD. East Orange, N. J.

That Stone Ball.

To the Editor of the SCIENTIFIC AMERICAN: The spontaneous moving stone ball is a very simple problem, if my theory be right. I am willing to leave the matter to you as to whether it is worth mention or not. It is my opinion, based on the theory that the sphere is unbalanced, not due to imperfection in its shape or symmetry, but to density; in other words. one side is heavier than the other. Then the effect of the expansion and contraction of the base or pedestal upon which the ball rests must be considered. The base has a flat surface directly facing the south, and must of course be affected by the sun's rays, producing the creeping motion of the ball. When the heavy part of the ball has reached the bottom, in my opinion it will cease to move. If it continues to move more than half a revolution, then my theory is wrong. It will take time to settle the matter.

New Paris, Ohio, May 4, 1905. DR. C. M. WILCOX.

Sentiment Versus Commercialism,

To the Editor of the SCIENTIFIC AMERICAN:

Referring to an article entitled "Sentiment Versus Sense" in the SCIENTIFIC AMERICAN for May 6, I would like to ask why utilitarian John Pratt does not use the right word? It is not a question of sense, but of dollars and cents. The people who are alive to the beauties of nature, to whom Niagara is not "a great mass of dead matter tumbling in meaningless froth and noise," do not object to a sane withdrawal of water for the production of power.

When, however, the falls are put in danger of ultimate extinction, it will be found that the people of New York State and of the whole country will not be ready to enter upon the "grand and beneficent purpose" of fattening one more corporation. Are the projectors willing to pay for the water? No; if the State offered to sell power for what it is worth, we would not be troubled with these business philanthropists, who would incidentally line their pockets with the millions of dollars which would result from the sale of this power. Nothing that can be put on a good paying basis is safe from the greed of some men. There are other and better standards of value in life than that of money, and we would do well to recognize them.

But whether power is sold or given away, Niagara must not be lost to the millions of people who find delight in it, for the sake of enriching a few capitalists. H. L. JACKSON,

A citizen of New York State.

Boston, Mass, May 7, 1965.

Output of Baltimore Locomotive Works in 1904.

The total output of the Baldwin Locomotive Works for 1904 was 1,453 locomotives, of which 1,352 were steam, 94 electric and 7 compressed air. This is nearly one-third less than the number built in 1903, which was 2,022. The falling off in business, which began in the autumn of 1903, affected the locomotive industry. The works were run at their full capacity until last spring, but from June until the latter part of October very few orders were received. During the year 286 locomotives were exported to the following countries: Argentina, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Guatemala, Hawaii, Japan, Korea, Mexico, New Zealand, Peru, Porto Rico and South Africa.—The Railroad Gazette.

accompany the text. George W. Dickie's paper on "The Man and the Ship" is concluded. A. Frederick Collins describes the Massie wireless telegraphy system at length. Other articles that deserve to be mentioned are those entitled "Decorative Insulating Beads for Electric Light Wires," "Photographic Chemistry," "The Cement Industry," "A New Form of Friction Clutch," "Salt Furnace for Steel Hardening," "Radium Testing," and the "Present Status of Electric Furnace Working." Karl F. Kellerman discusses copper as an algicide and a disinfectant in water supply.

On the railways of the United Kingdom there is one locomotive and thirty-six vehicles per mile of line. In the United States there is only one per four miles of railway, and thirty-six vehicles per mile.

* These slopes were inclined at an angle of 40 deg., as measured in March, 1903, -E.O.H.

A new and ingenious pocket calculator, automatic in its action, has been designed by a German inventor. The device comprises a small case about six inches in length made of steel and aluminium. There is a keyboard of nine figures corresponding to the numerals, and it is additionally provided with a small spring for the supply of the tens and hundreds. There is also a small dial, and by pressing the requisite keys the total amount is recorded upon the dial.

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