Correspondence.

The First Foreign Salute of the American Flag.

To the Editor of the SCIENTIFIC AMERICAN:

It was recently my good fortune to meet one of the direct descendants of the first foreign magistrate who formally recognized the flag of the American republic. According to my informant, the first foreign salute to the American flag was given to an American brig by a Dutch fort in the harbor of St. Eustatius, by order of the governor, Johannes de Graaff, on November 16, 1776. I was informed that there hangs in the State House at Corcord, New Hampshire, an antique portrait of De Graaff, which was presented to the State in 1807 by F. W. Cragin, of Surinam, South America, in commemoration of this significant act of the governor of the West India island referred to. Now, I have always been under the impression that the celebrated Paul Jones claimed that he had the honor of being in command of the first American ship of war to be formally recognized by a foreign government, this event having taken place when his ship the "Ranger" was at Quiberon in the year 1778, or some two years later than the date of the incident at St. Eustatius. Here is an evident confusion of dates and circumstances; and, as my informant is a descendant of De Graaff, and possesses many interesting relics of the governor, and appears to be in possession of strong historical evidence of his having saluted the flag at the date named, I should be greatly obliged if you will explain this apparent contradiction, and inform me as to the exact date and place of the first official acknowledgment by a foreign power of the flag of the young republic. SIGNUM.

New York, July 17, 1906.

[The confusion arises from the fact that the flag saluted at St. Eustatius was of different design from that which was similarly honored two years later at Quiberon Bay. The subject is discussed at length in our editorial columns.—ED.]

The Glidden Tour as an Endurance Test.

The seventy-odd machines that are running in the Glidden tour made remarkable progress last week in view of the conditions under which they ran. In the first day's run (which was the third stage of the tour) from Saratoga to Elizabethtown, N. Y., besides traveling over extremely rough and dangerous roads through the edge of the Adirondack forest, the tourists had the misfortune to encounter a bridge which had been broken by the heavy commissary wagon of the Fifth Infantry during a trip from Plattsburg to Albany. In order to pass this spot, a detour of 12 miles over the roughest kind of mountain roads was made necessary. A time allowance of nearly two hours was granted for this detour. During the 87-mile trip (which was thus lengthened to 99 miles) several machines almost went over precipices, and there were many narrow escapes. The truck used as a baggage wagon experienced a cave-in of the road-bed, and was only extricated after many hours' labor had been expended in building crib work to support it. That any kind of schedule could be adhered to over such roads speaks volumes for the reliability and staunchness of American machines. Nothing so severe has been experienced by them since the 1903 Pittsburg run.

The daily stages for the rest of the week were from Elizabethtown to Bluff Point (near Plattsburg), from Bluff Point to Montreal, from Montreal to Three Rivers, and from Three Rivers to Quebec. The shortest day's run was the first mentioned (37 miles). This included a trip to Ausable Chasm, which was visited by nearly all the tourists. The other runs were about 100 miles in length. On the trip to Montreal, coarse trap rock laid loosely on the road had to be traversed for a distance of some 15 miles, and this gave the tires a severe test. One car had three punctures between checkings.

Upon reaching Montreal, 27 out of 47 contestants still had clean scores. A record repair was carried out on one well-known make of bevel-gear-drive car. The rear axle had been damaged by striking a bowlder on a mountain road. A new one was obtained, and, just after the car had made its start from Bluff Point, this was substituted for the damaged one in twenty-one minutes. On another car a broken starting crank was replaced by a new one in sixteen minutes, while other minor repairs were made to the various cars in quick time.

From the above it can be seen that the present Glidden tour is a strenuous endurance test of men and machines, which, while all very well in its way, was not the idea Mr. Glidden had in mind when donating the trophy. A touring competition over good roads, run at an average speed of fifteen to seventeen miles an hour, and in which the cars are officially observed as to their fuel, oil, and tire consumption, as well as to all repairs and replacements, would be more apropos, and would serve a useful purpose in giving the intending purchaser a good idea of what a car will do under actual touring conditions, rather than how long it will hold together in a lengthy and difficult endurance test, such as he would never ask it to stand.

An Effective Method of Repairing Iron Pipe Cracks.

A correspondent in Leadville, Col., observes that the mending of a hole or crack in a steam pipe, is a difficult undertaking. He has had three years' experience in mending water pipes, and has acquired knowledge of a number of practical ways.

When he first began this work he wound a strip of plain canvas six inches wide around the pipe, a sufficient number of wrappings being employed to prevent the water from oozing out. After the canvas shrank as much as it would from being wet, it made a waterproof mend, up to a pressure of about five pounds per square inch; if the pressure exceeds five pounds, it is not practical.

He then experimented with canvas soaked in boiled linseed oil, and found that it worked very well if it was wrapped on before the oil dried and had about ten days to dry before any water was turned on in the pipes. When it dried well, a covering over the crack was made, which was very solid, but in about three to five years it would rot and would have to be renewed. In place of the foregoing he recommends the following method, which has been found to stand every test: First, provide a sheet of lead or copper about 1-20 of an inch thick, and a spool of either copper, iron, or steel wire about 20 gage; copper wire is preferable, as it will not rust like iron and steel wire. Then take a file and smooth off the iron all around the crack or hole in the pipe. Next lay waste or some rag or asbestos steam packing of some kind all around the crack to serve as a gasket. Now take a piece of sheet lead or copper (it should be large enough to lap half to three-quarters of an inch on all sides of the hole) and lay it down smooth and tight on the gasket. Then begin at one end of the patch, and wind plenty of wire around the pipe and the patch, and with a small hammer tap it gently as the wire is being wound on. If the pressure is high, a number of layers may be used, but only a gasket is required, and one layer of sheet metal around the pipe, for light pressures.

Telegraphy and Wireless Telegraphy During the San Francisco Disaster.

BY W. R. CARROLL.

During the earthquake and the subsequent days of fire marking the awful calamity which all but swept the city of San Francisco from the map, and when every single telegraph, telephone, and cable wire was interrupted, the only direct means of communication with the burning city was by wireless telegraphy. One could scarcely imagine a more propitious occasion for demonstrating the triumph of wireless communication over the wire method.

The demolition of walls and even whole buildings and also broken and twisted conduits put a greater part of the wires out of commission, or else so tangled them as to make work unreliable if not wholly impossible. There was one instance where for three days immediately following the disaster, the sole means of communication with Seattle and Portland on the north was by means of the Postal Telegraph office on Goat Island, midway in the bay between San Francisco and Oakland, and that over a providentially crossed wire, until when, in the middle of one of the bulletins sent out from this office, the wires parted, and further attempts to restore the circuit were futile.

Great credit is due to those operators in the main offices of the two telegraph companies who stood by and worked the crippled wires for fully two hours after the earthquake. In spite of the falling plaster from the shattered walls and ceilings at every detonation of the exploding dynamite and gun-cotton used to fight the onrushing conflagration, they stayed by their keys, and not until the flames had already taken hold of their own buildings did they leave, each one carrying to a place of safety some part of the more valuable instruments. By this saving of the instruments they were enabled at once to establish temporary main offices in Oakland across the bay, inadequate however to handle for some time the great rush of telegrams. Cable communication with Honolulu was re-established from the cable hut on the beach, six miles from the burning city, as soon as enough battery could be collected to charge the submarine wires. Every source of electrical energy was more or less crippled, and in some cases wholly destroyed, by the earthquake, which lasted forty-eight seconds. Independent plants having storage battery were fortunate in having some available power, though the generation of further power was forbidden, because of the lack of water for steam or because of damage resulting from the fallen chimneys of power houses.

Very unfortunately the wireless station on the top floor of the Merchants' Exchange building in San Francisco and its connecting station in Oakland were both rendered inoperative for lack of current, originally derived from the lighting mains, with which to actuate their induction coils. On the second day the wireless apparatus in the Merchants' Exchange, together with everything else in that magnificent fourteen-story structure, was consumed by the flames. Previously, the operator had laboriously mounted the long flight of stairs to listen at the receiver, and found it ticking quite merrily, the etherograms emanating from the government wireless station on Goat Island. This latter station having its own current supply, a forty-cell storage battery and generating set, and suffering no damage from the earthquake, was not for a moment placed out of operation. Within a very few minutes after the earthquake the line of government wireless stations extending from Mare Island navy yard to San Diego had received wireless tidings of the city's distress. The flagship "Chicago," accompanied by the cruisers "Boston" and "Marblehead," were at sea, having sailed from San Diego at daylight, and were steaming leisurely northward to Long Branch, when these same dispatches were received by the ships' operators. Immediately forced draft was put on, and the fleet headed with all possible speed to the relief of the stricken city. While the fleet was yet over 300 miles away, complete arrangements had been made by wireless for the landing upon their arrival of medical and food supplies and an armed force of blue-jackets and marines.

At frequent intervals throughout the fire's sway as it swept over San Francisco's hills, bulletins were radiated from the Goat Island wireless station to Mare Island and to the Farallones Islands, whence they were relayed to Point Arguello and San Diego farther down the coast.

Upon the arrival of the naval vessels, the flagship anchored off Fort Mason at the foot of Van Ness Avenue and within a stone's throw of the shore, where Gen. Funston, in command of the military forces, had established his headquarters. For the next two weeks the cozy little wireless office on the "Chicago" presented a very business-like appearance. Without hitch or delay an enormous lot of telegrams were handled. While the underbay cables were in a hopeless state of chaos, and telegrams were being carried by messenger across the bay to Oakland and then put on the wire, the government officials enjoyed the advantage of wireless to Goat Island and thence east. In addition to the great number of telegrams to and from the War Department at Washington were others from nearly every other branch of the government. With the Mills Building in flames, the Weather Bureau established temporarily aboard the "Chicago," where they found meteorological apparatus, and were supplied with weather reports from outside points, enabling them with their customary accuracy to make a forecast. Heralded in advance, rain fell on the fourth day, though not until after the flames had been subdued.

Learning that it was possible to reach the outside world by the "Chicago's" wireless, many of the refugees made their way to the water front and filed messages of their safety. From the "Chicago" came in telegrams to every point of the Union and cables to foreign parts.

A private wireless station in Alameda, tapping our aerial bulletin service, supplied the anxious people there with news of the disaster. During the first day of the fire, the dynamiting squad having exhausted their entire supply of explosives, a wireless telegram to the navy yard at Mare Island, thirty miles distant, brought by torpedo boat within an hour a fresh supply. In all nearly three thousand dispatches were transmitted by the wireless stations. Had not the commercial stations been handicapped by lack of having their own source of current supply, wireless telegraphy would have further demonstrated its value and advantage in cases of this kind, where every other means of communication was demoralized.

A ONE-HUNDRED-AND-FIFTY-TON ELECTRIC CRANE.

BY H. J. SHEPSTONE.

Of late years a great improvement has been noted in the British shipyards so far as their crane service is concerned. Indeed, all the well-known shipbuilding firms have now a more or less efficient crane service, both in their sheds and over the building berths. The majority of the cranes, too, are electrically driven, depending upon electricity for the whole of their operations. The one shown in our photograph may be said to represent one of the latest of these electric cranes, and is to be seen at the shipyards of Messrs. Vickers, Sons & Maxim at Barrow-in-Furness, England. It is a 150-ton crane, having a total height from watel level of 180 feet, and an over-all radius of 150 feet. It is designed to take a load of 150 tons at 71 feet radius, the load being gradually reduced to 135 feet, at which distance the crane can lift 53 tons. There is an auxiliary purchase at 138 feet radius of 15 tons. All the motions—lifting, slewing, and traversing—are effected electrically from the operator's house on the under side of the lifting jib, and the crane is balanced with a cantilever arm to take the hoisting and traversing machinery and counterweight. The crane is seen lifting one of the British submarine boats. It almost looks as if the submarine could be placed on the deck of the vessel, but, of course, this is not what is intended, the boat being lifted over the ship fitting out.

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LIFTING A BRITISH SUBMARINE BOAT WITH A 150-TON ELECTRIC CRANE.—[See page 67.]

Total Height from Water-level, 180 Feet; Total Radius, 150 Feet.