

at Marli: the rod was found capable of giving out electrical sparks when a thunder-cloud passed over the place. This was repeated in various parts of Europe, and Franklin suggested that a communication with the clouds might be formed by means of a kite. By these, and similar means, the electricity of the atmosphere was studied by Canton in England, Mazeas in France, Beccaria in Italy, and others elsewhere. These essays soon led to a fatal accident, the death of Richman at Petersburg, while he was, on Aug. 6th, 1753, observing the electricity collected from an approaching thunder-cloud, by means of a rod which he called an electrical gnomon: a globe of blue fire was seen to leap from the rod to the head of the unfortunate professor, who was thus struck dead.

[2nd Ed.] [As an important application of the doctrines of electricity, I may mention the contrivances employed to protect ships from the effects of lightning. The use of conductors in such cases is attended with peculiar difficulties. In 1780 the French began to turn their attention to this subject, and Le Roi was sent to Brest and the various sea-ports of France for that purpose. Chains temporarily applied in the rigging had been previously suggested, but he endeavored to place, he says, such conductors in ships as might be fixed and durable. He devised certain long linked rods, which led from a point in the mast-head along a part of the rigging, or in divided stages along the masts, and were fixed to plates of metal in the ship's sides communicating with the sea. But these were either unable to stand the working of the rigging, or otherwise inconvenient, and were finally abandoned.<sup>15</sup>

The conductor commonly used in the English Navy, till recently, consisted of a flexible copper chain, tied, when occasion required, to the mast-head, and reaching down into the sea; a contrivance recommended by Dr. Watson in 1762. But notwithstanding this precaution, the shipping suffered greatly from the effects of lightning.

Mr. Snow Harris (now Sir William Snow Harris), whose electrical labors are noticed above, proposed to the Admiralty, in 1820, a plan which combined the conditions of ship-conductors, so desirable, yet so difficult to secure:—namely, that they should be permanently fixed, and sufficiently large, and yet should in no way interfere with the motion of the rigging, or with the sliding masts. The method which he proposed was to make the masts themselves conductors of electricity,

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<sup>15</sup> See Le Roi's Memoir in the *Hist. Acad. Sc.* for 1790.