

machine to save them labour. "The European papers on electricity," Franklin wrote in the earliest of the reports which he regularly made to Collinson, "frequently speak of rubbing the tube as a fatiguing exercise. Our spheres are fixed on iron axes which pass through them. At one end of the axis there is a small handle with which you turn the sphere like a common grindstone."² Thomas Hopkinson, president of the American Philosophical Society, first noticed that points "throw off the electrical fire." Ebenezer Kinnersley, a Baptist minister with no pastorate, discovered that the Leyden jar could be electrified as strongly through the tinfoil coating as through the wire leading into it, and independently rediscovered the "contrary electricities" of glass and sulphur. His lectures—planned and encouraged by Franklin—in Philadelphia, Boston, Newport, and New York during 1751–52 made Kinnersley's experiments nearly as famous in America as Franklin's.

But Franklin, carefully crediting his friends with whatever they found out, was the real master of the new knowledge. In his busy house in Market Street, working with such pieces of apparatus as a saltcellar, a vinegar cruet, a pump handle, or the gold on the binding of a book, and "little machines I had roughly made for myself,"³ he had the most spacious views and the most painstaking methods. Within a few months he could write to Collinson, on 28 March 1747, that "we have observed some particular phenomena that we look upon to be new."⁴ By 11 July, when he wrote at length, he had already hit upon two of his fundamental contributions: his conception of electricity as a single fluid, and his substitution of the terms positive and negative, or plus and minus, for vitreous and resinous electricity; and he was full of "the wonderful effect of pointed bodies, both in drawing off and throwing off the electrical fire,"⁵ which was to suggest the lightning rod.

Within another month he had written Collinson two more long letters, and then on 14 August sent a hurried note after them. "On some further experiments since, I have observed a phenomenon or two that I cannot at present account for on the principle laid down in those letters, and am therefore become a little diffident of my hypothesis and ashamed that I expressed myself in so positive a manner. In going on with these experiments how many pretty systems do we build which we soon find ourselves obliged to de-