

pin passing in a slit, which is a very easy method of fixing it. This lantern is placed on top of a copper rod of $\frac{3}{4}$ inch thick and 4 feet long: the bottom of the lantern having a piece of copper tube fixed to it, a very little larger than the rod, and is thus easily removed and replaced. To the lower end of the copper rod is soldered an inverted copper funnel, a *parapluie*, for protecting the glass insulating pillar upon which it is fixed by means of a short tube firmly soldered to the underside of the *parapluie*. This glass pillar passes into and is fixed firmly in a wooden box, and is freely exposed to the heat of a second lamp, which is placed in this box. It is trimmed at the same time as that in the collecting lantern, and keeps warm and dry the glass pillar, by that means securing a more perfect insulation. From this upright rod and collecting apparatus descends a thick copper wire which serves to convey the accumulated electricity to the receiver which is placed in the observatory.

The receiver consists of a cross of brass tubes (*gas tubes*), each about 2 feet long, and is screwed into a large tube fitting upon a glass cone, which is hollow, forming a system of hollow pipes for the passage of the heat internally, and keeping up a certain amount of dryness and consequent insulation. The glass cone is fixed upon a table over an opening made in it, fitting to the hollow part of the cone. Immediately under this table is placed a small stove of sheet-iron, about 8 inches in diameter, made double, the space of about 1 inch being left between the two chambers; and this plan has been found to effect a good insulation by keeping the whole of the apparatus warm and dry. Charcoal is used as fuel, and is, I think, preferable to a lamp. A coating of suet or tallow is applied to the glass cones or pillars. Care must be taken not to rub or polish the collecting apparatus as it seems to deteriorate its power of collecting and retaining atmospheric electricity; and I have found that its collecting powers increase with its age. Suspended from these cross arms hang the *electrometers*. 1. *Bennet's electroscope* of gold leaves; this scarcely needs a description. 2. *Volta's electrometer*, No. 1, consisting of two straws, two French inches long: a very fine copper wire passes through these straws, which are suspended from the cross-arms. This electrometer is furnished with an ivory scale, the old French inch being divided into twenty-four parts, each being 1° ; this forms the standard scale for the amount of tension. 2. *Volta's electrometer*, No. 2, is similar to the No. 1, but the straws are five times the weight of No. 1, so that one degree of Volta's No. 2 is equal to