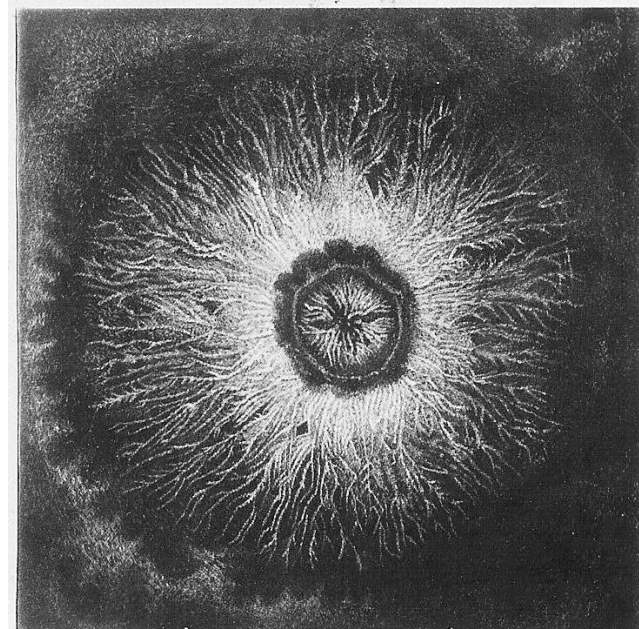
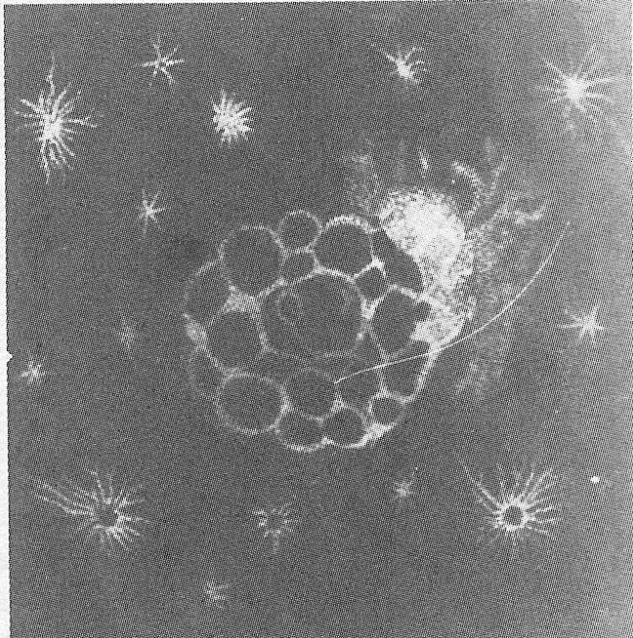


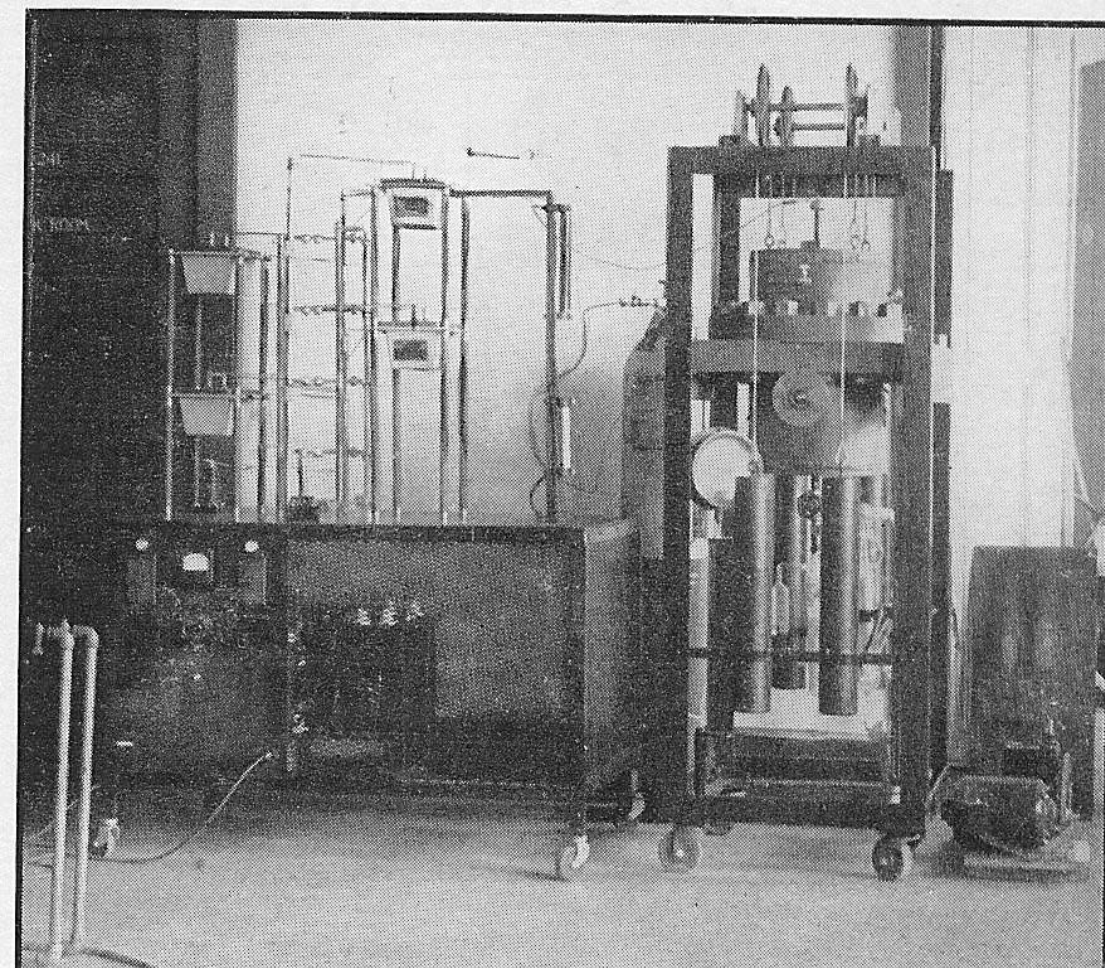
Illustrations for *Lightning Strokes in Other Worlds*
by Arthur R. von Hippel, 1982 ©



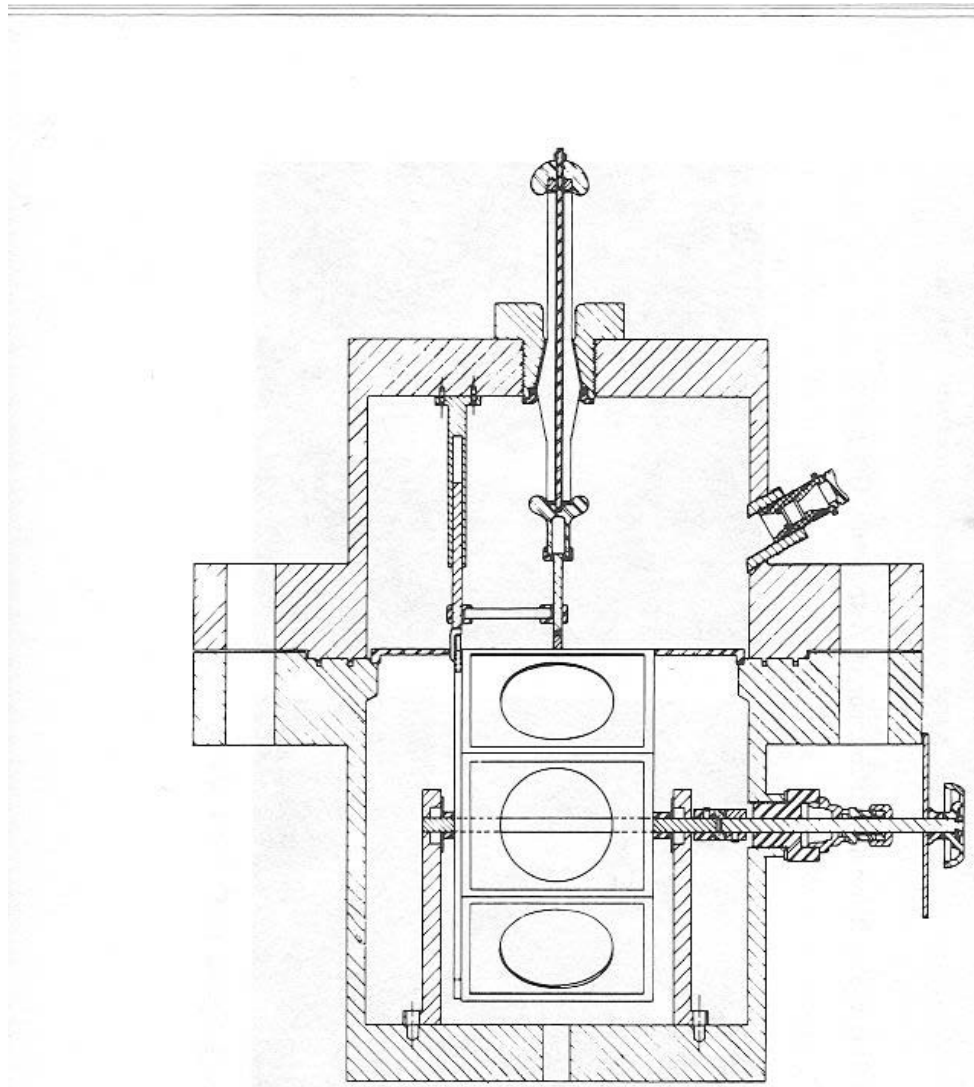
1. George Christoph Lichtenberg, Professor of Astronomy, Göttingen



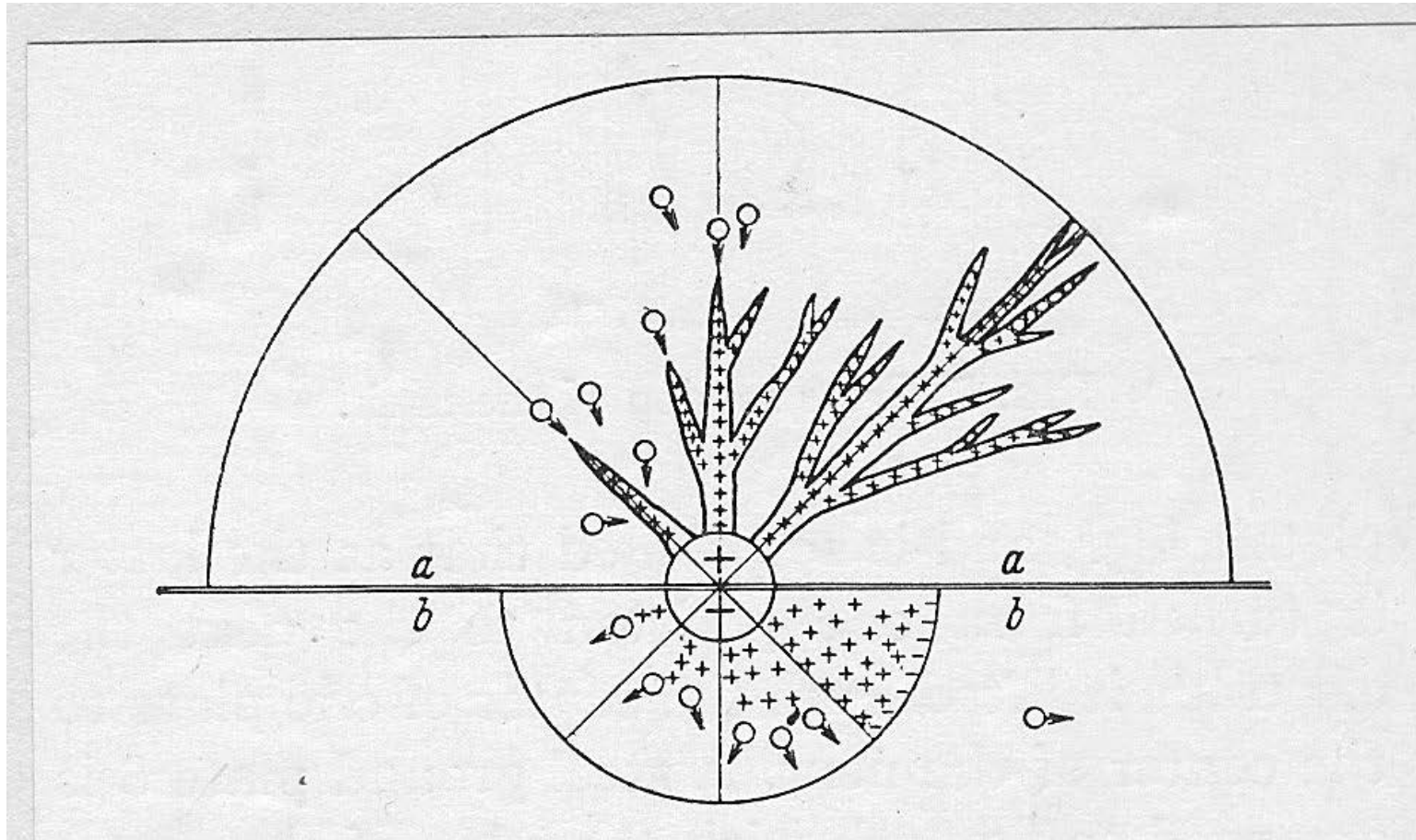
2. Lichtenberg figures (G.C. Lichtenberg, 1777).



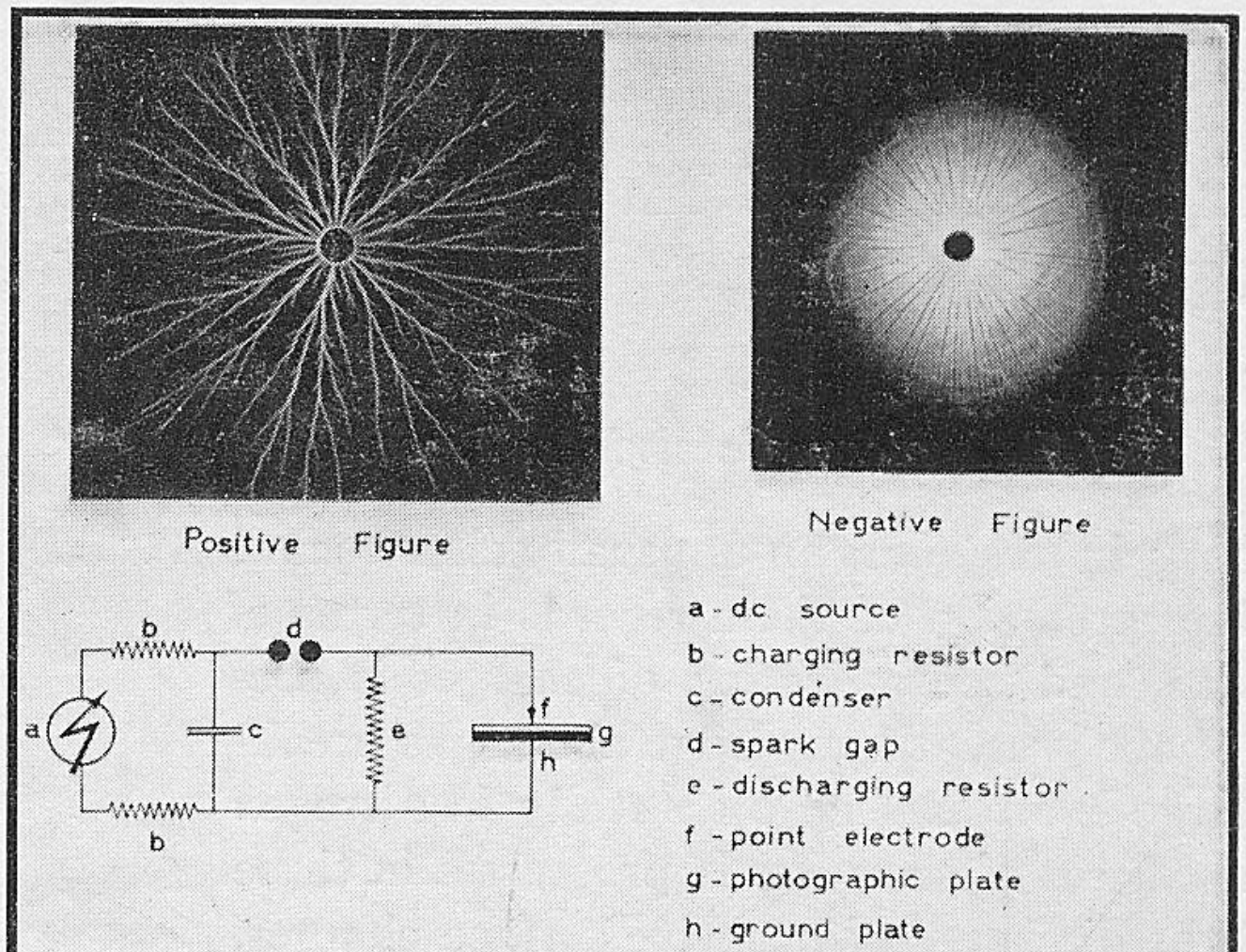
3. Impulse generator and pressure tank -- external view



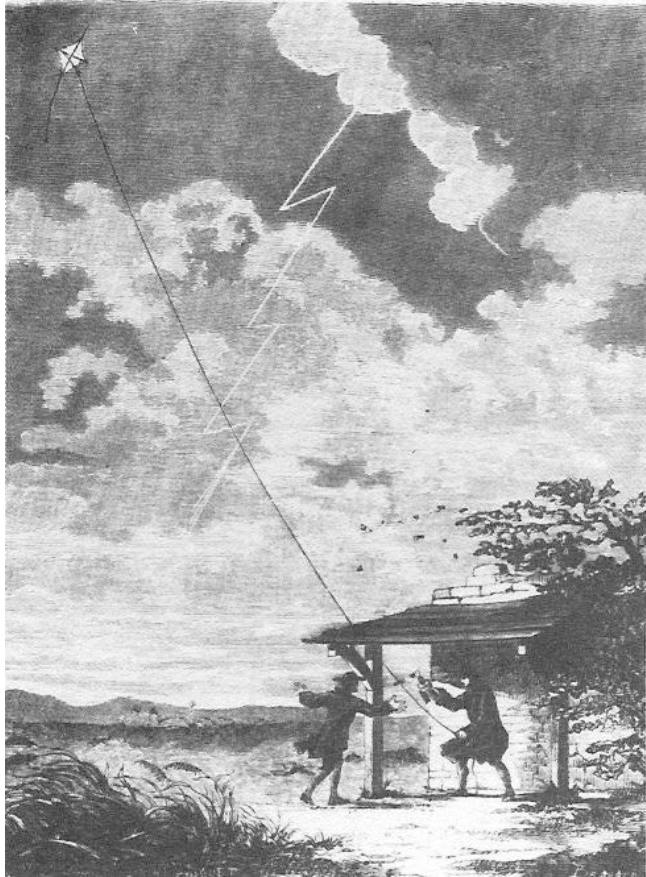
4. Vertical cross section through the pressure tank. The central electrode, a quarter-inch steel rod, comes from above and rests on the center of a horizontal photographic emulsion mounted on a grounding plate.



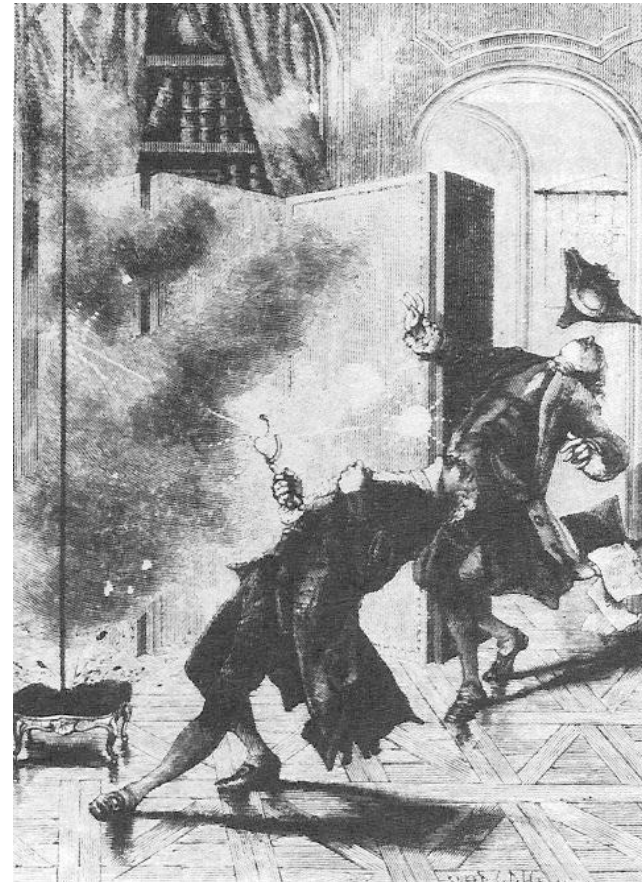
5. Generation of a positive (above) or negative (below) Lichtenberg figure depending upon whether the electrons are attracted toward or repelled from the center electrode.



6. Diagram of the equipment and examples of positive and negative figures.



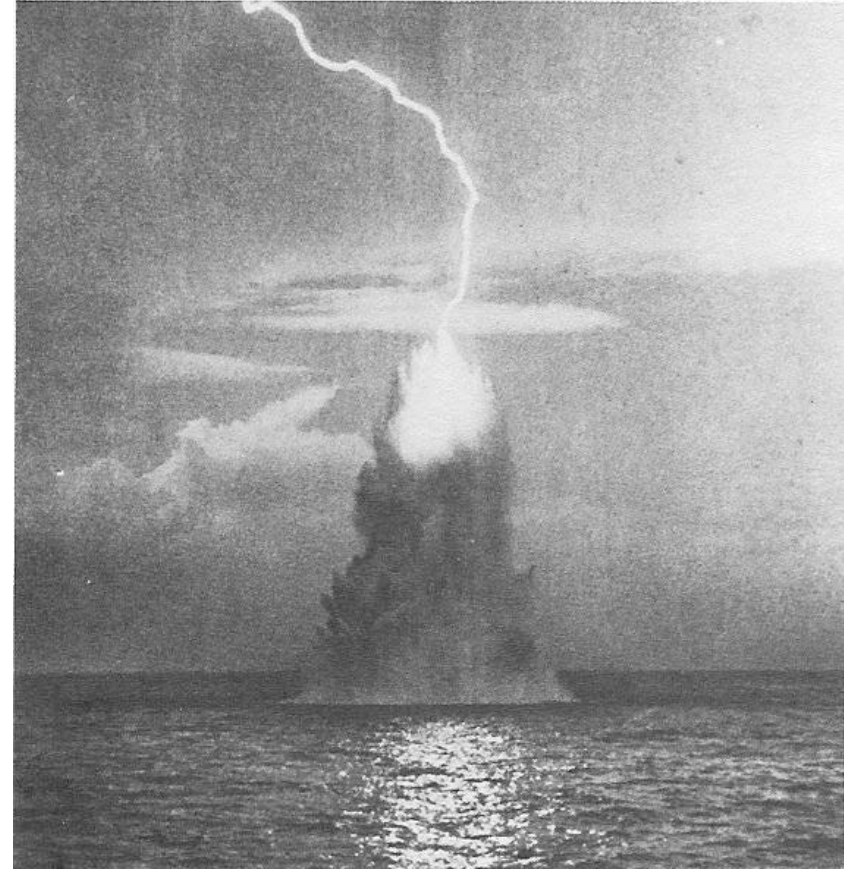
7. Benjamin Franklin flying his kite.



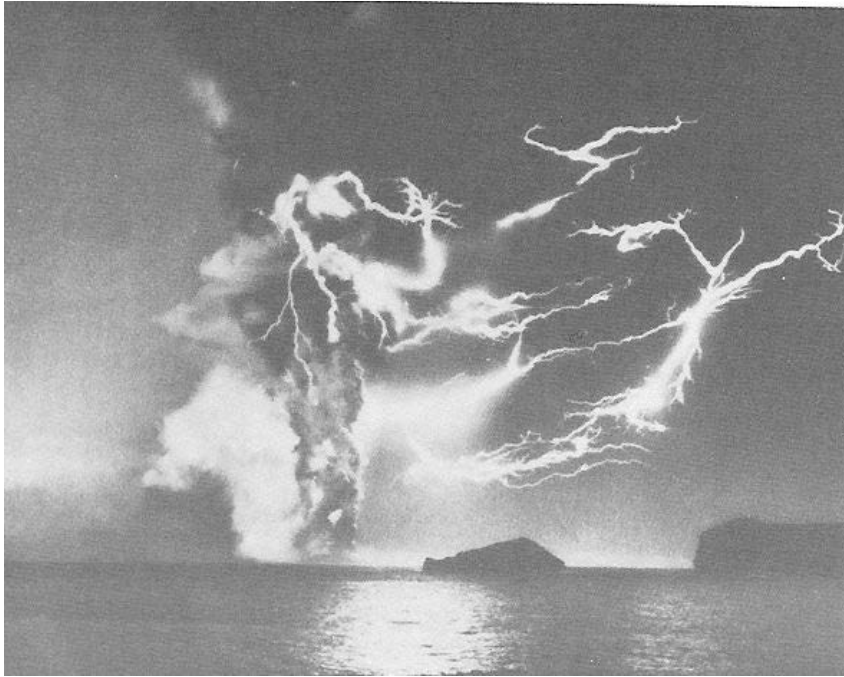
8. G.W. Richman, a Russian physicist, killed while attempting to repeat Franklin's experiment.



9. Lightning over a city.



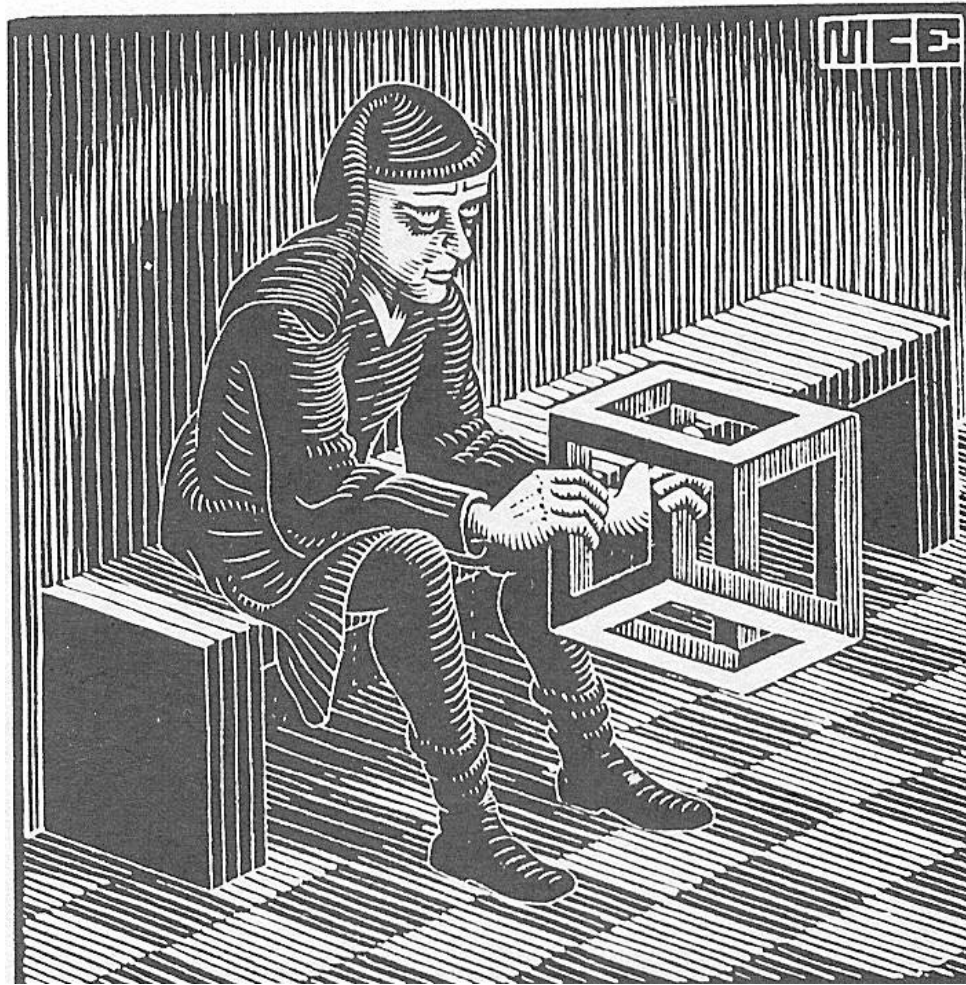
10. Lightning striking a water column created by an exploding mine.



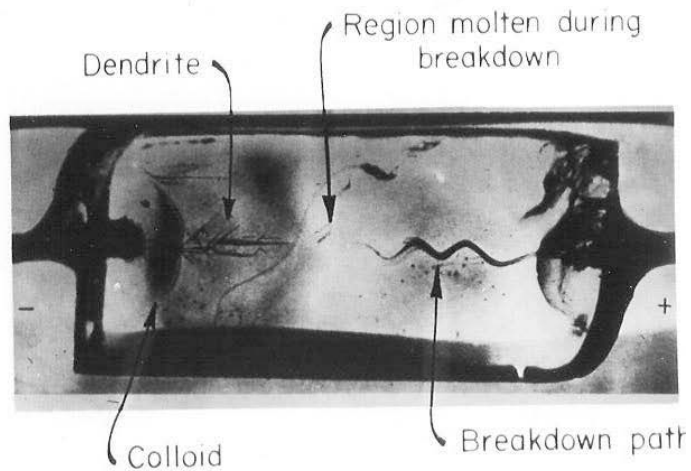
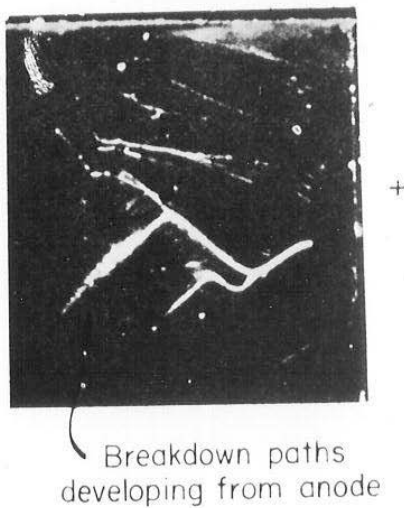
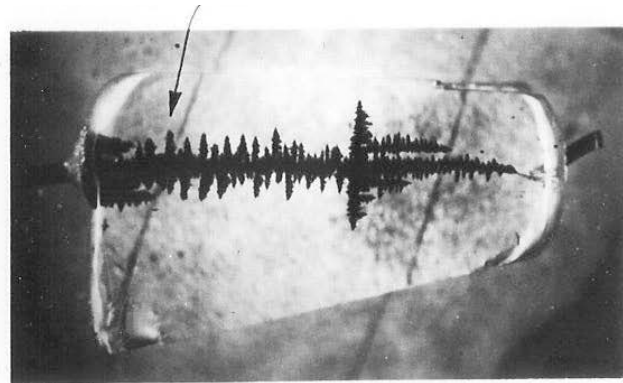
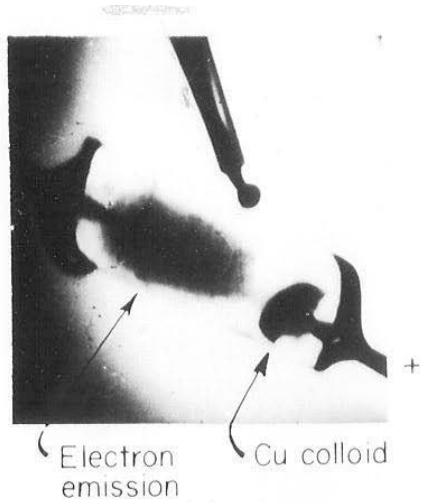
11. Lightning storm caused by the birth of the volcanic island, Surtsey, off the south coast of Iceland.



12. Lichtenberg figure more than a meter in diameter burned by lightning into the grass of a meadow

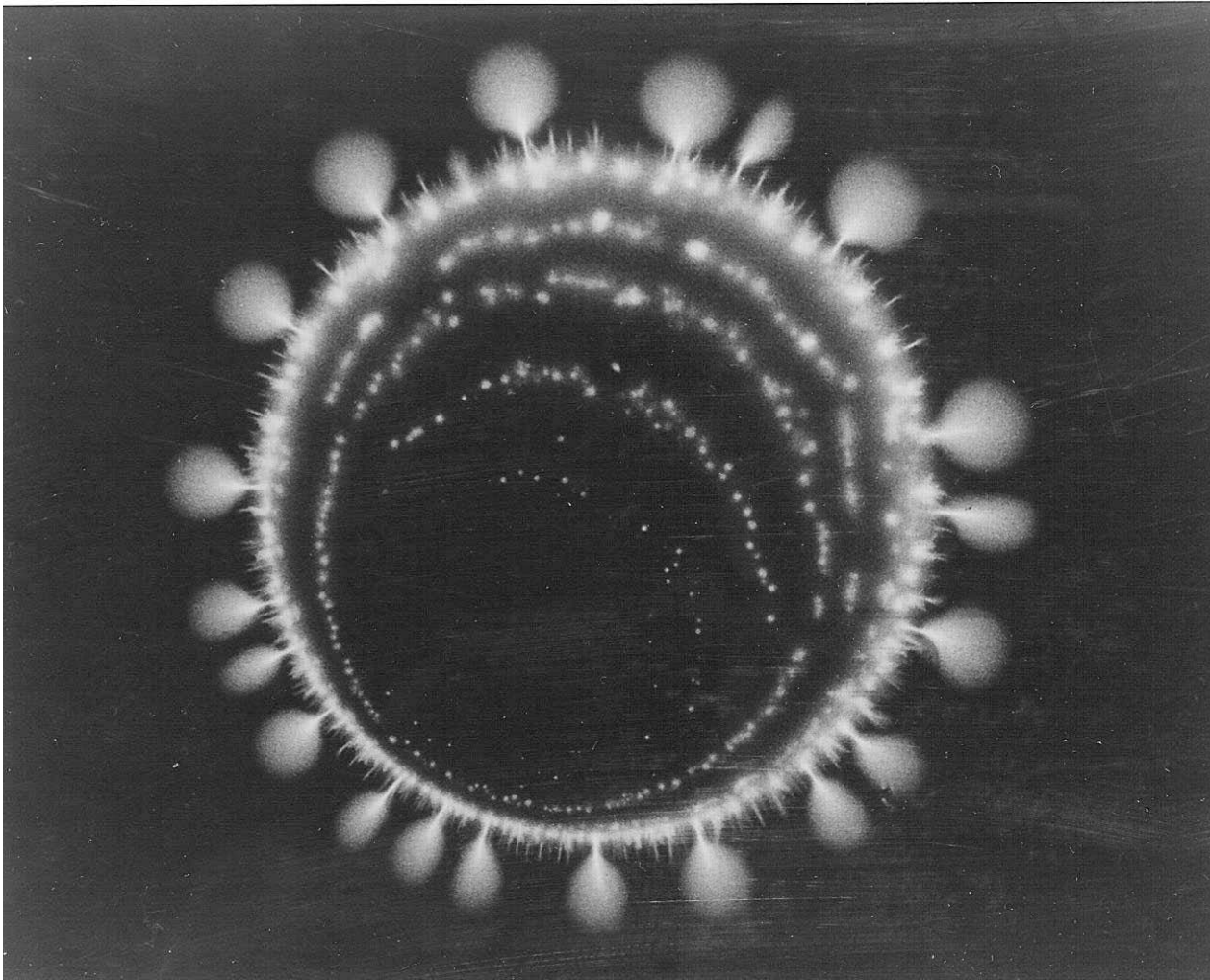


13. Escher's "Thinker"



14. Photographs during and after breakdown of a sodium-chloride crystal separating two copper electrodes (negative at the left, positive at the right). Above left: electrons are expelled from the negative electrode, copper ions from the positive electrode. Below right: crystal after breakdown. Above right: close-up of sodium metal dendrite that grew from the negative electrode. Below left: close-up of breakdown paths from positive electrode.

Events before and during breakdown
(NaCl crystal, Cu electrodes)



15. Electron clouds erupt from the electrode as shown in this highly-magnified picture. Here a heavy gas under pressure slows up the electrons as they fly out. (This picture appeared in *Life* magazine, July 28, 1941.)

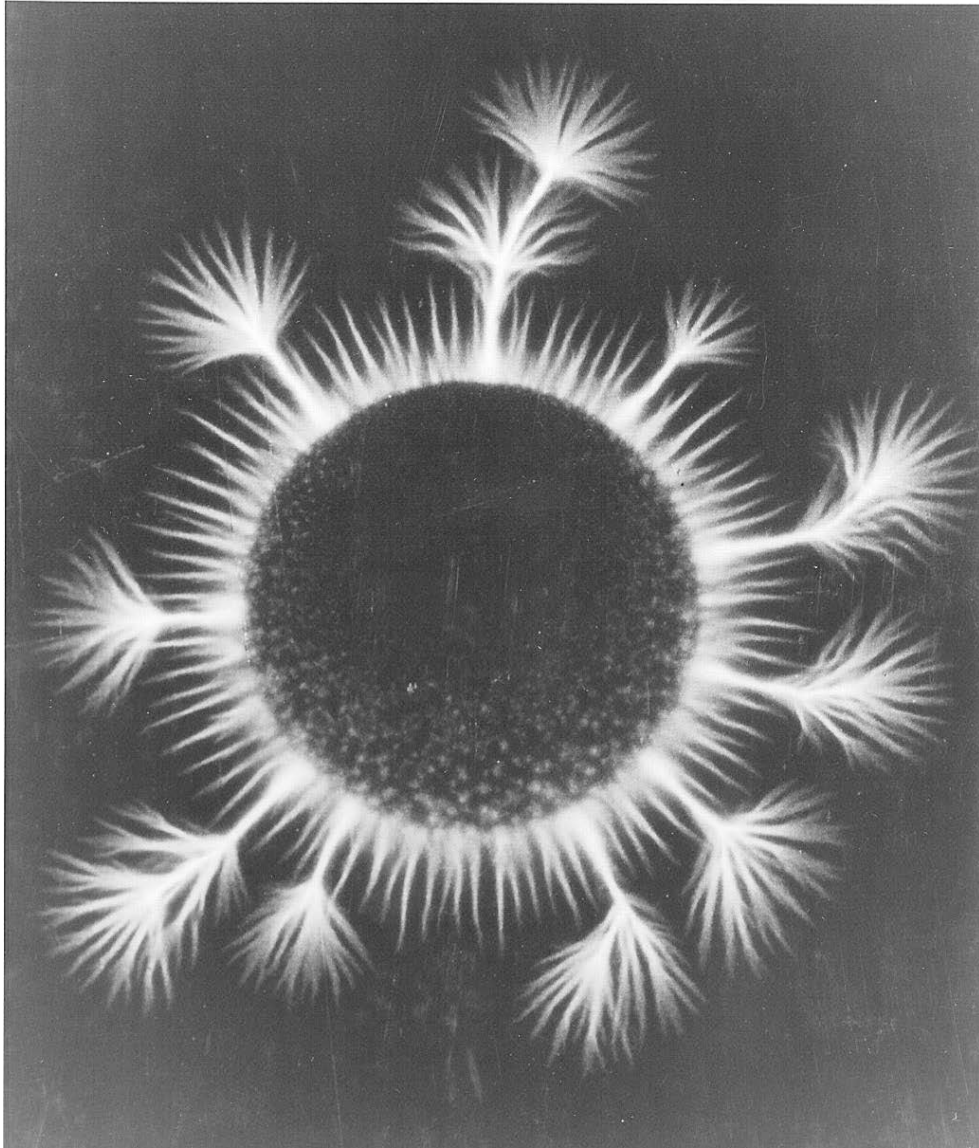


Fig. 16.

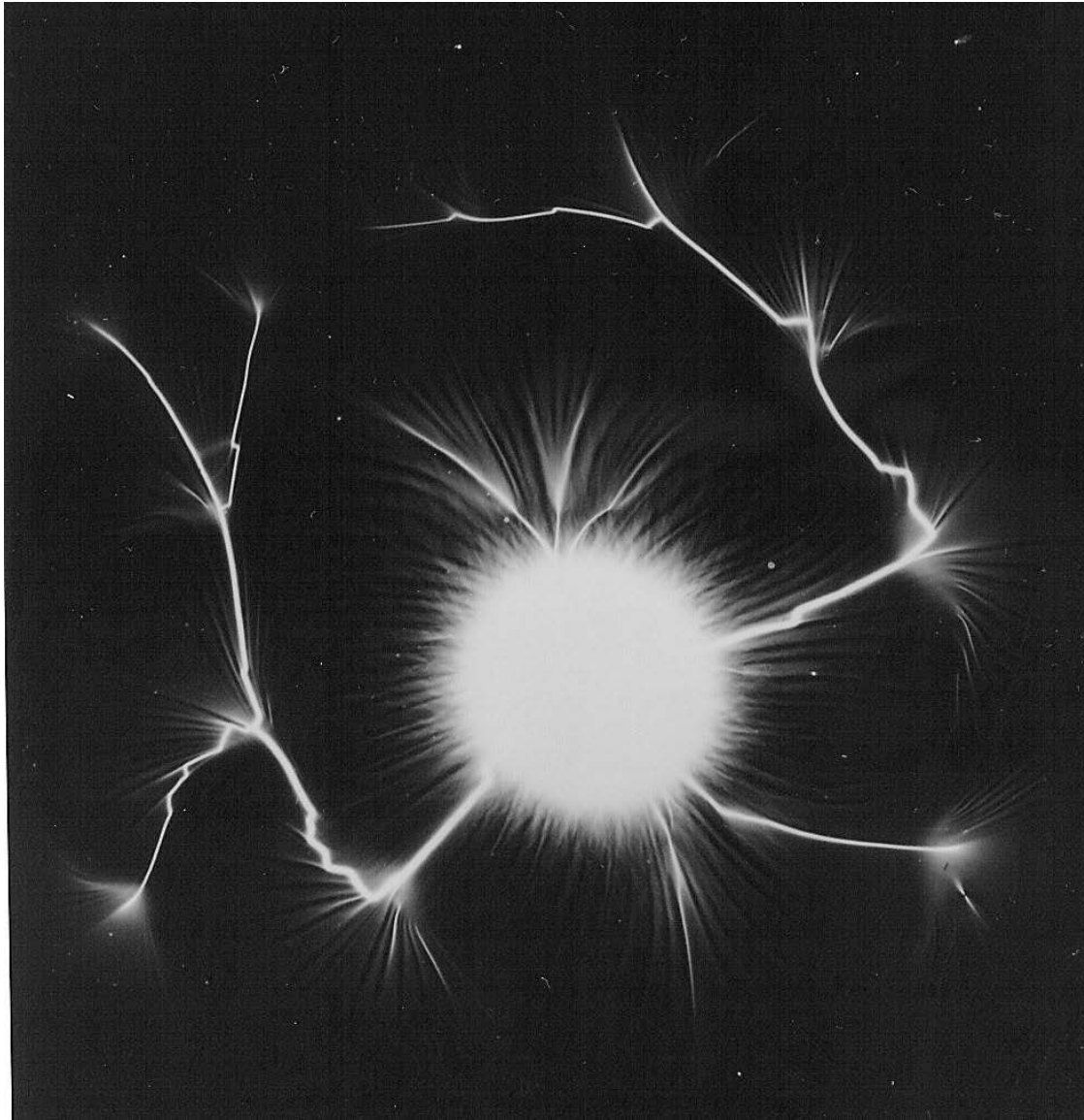


Fig. 17

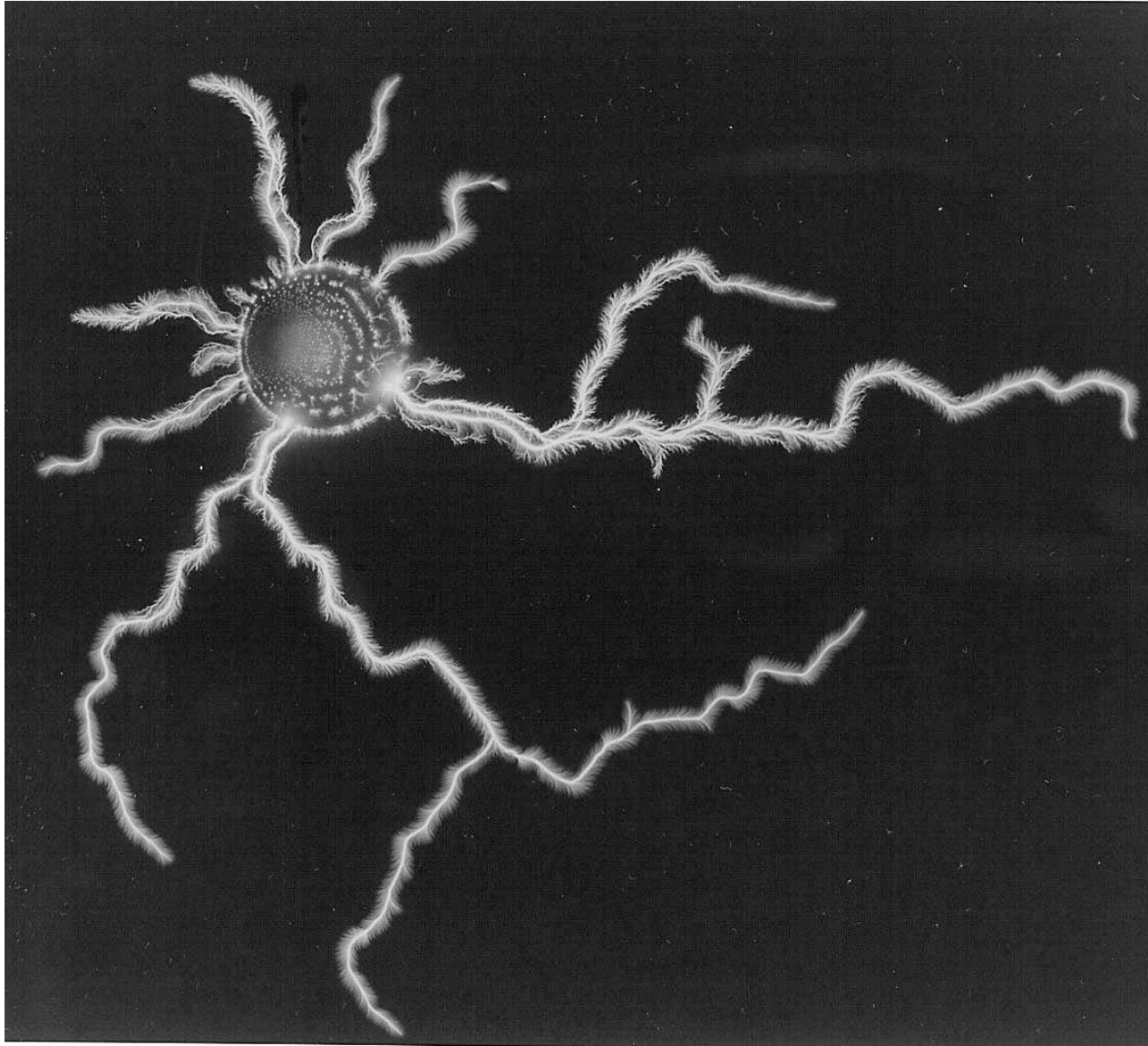
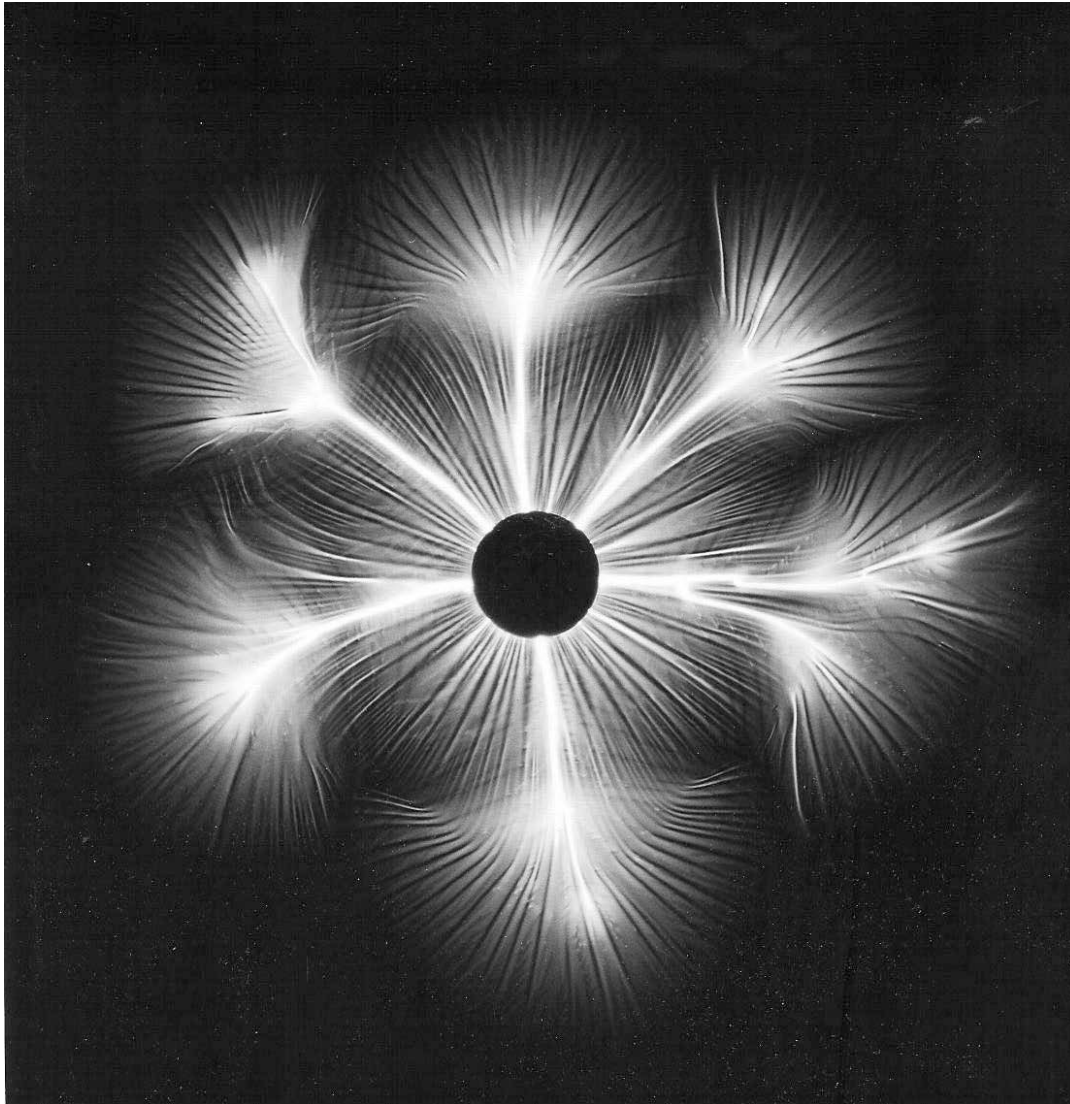


Fig. 18



19. Air at 1 atmosphere,
20 kiloVolt discharge.

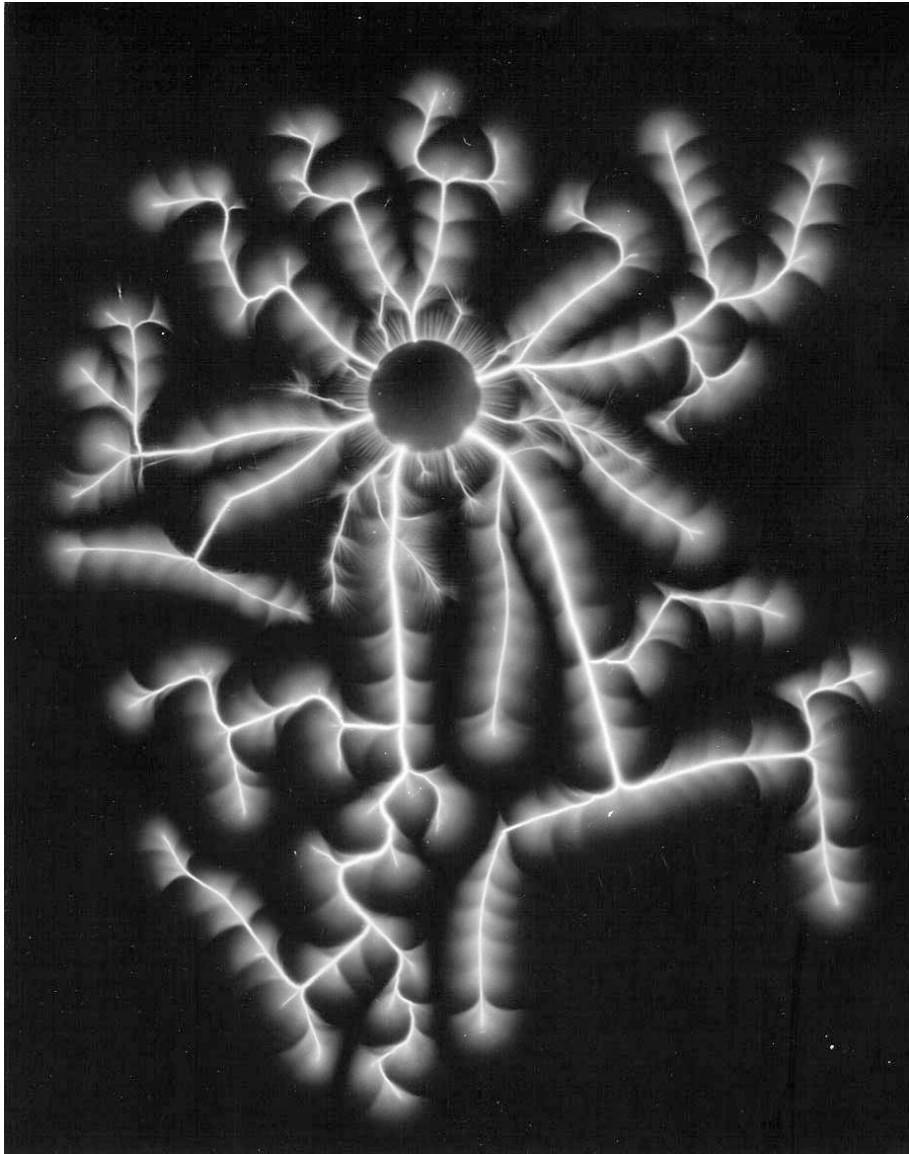


Fig. 20

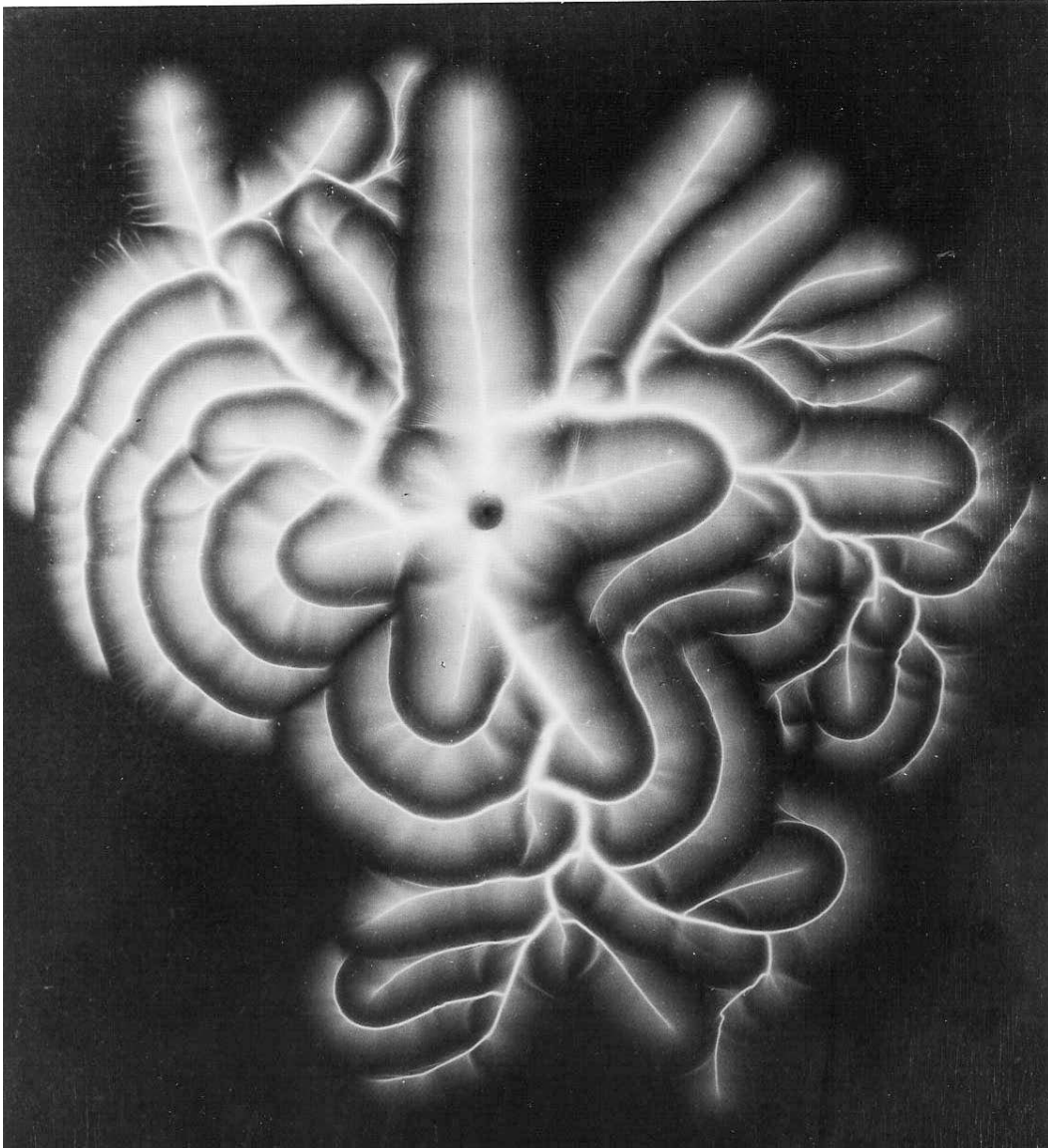


Fig. 21

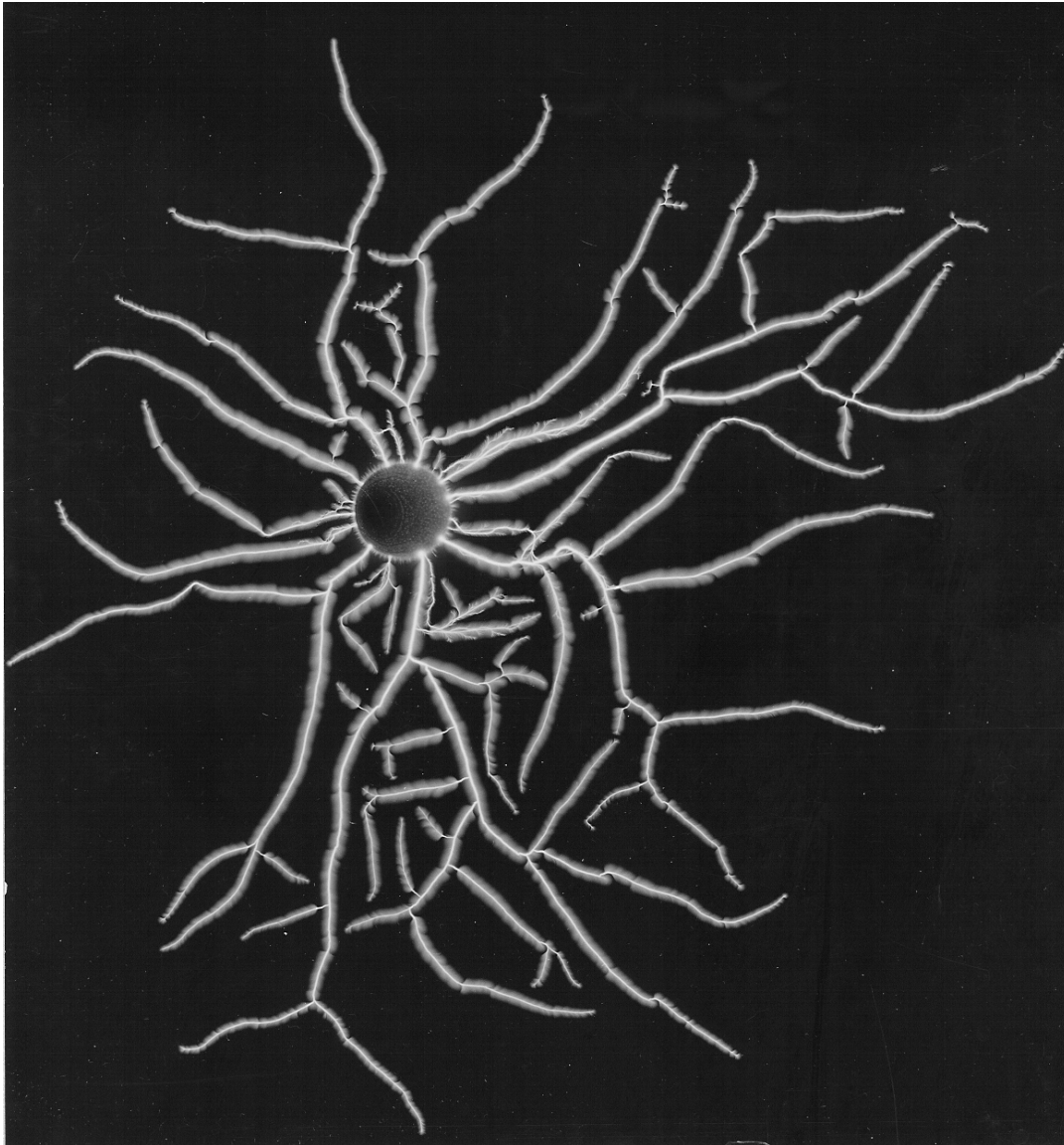


Fig. 20

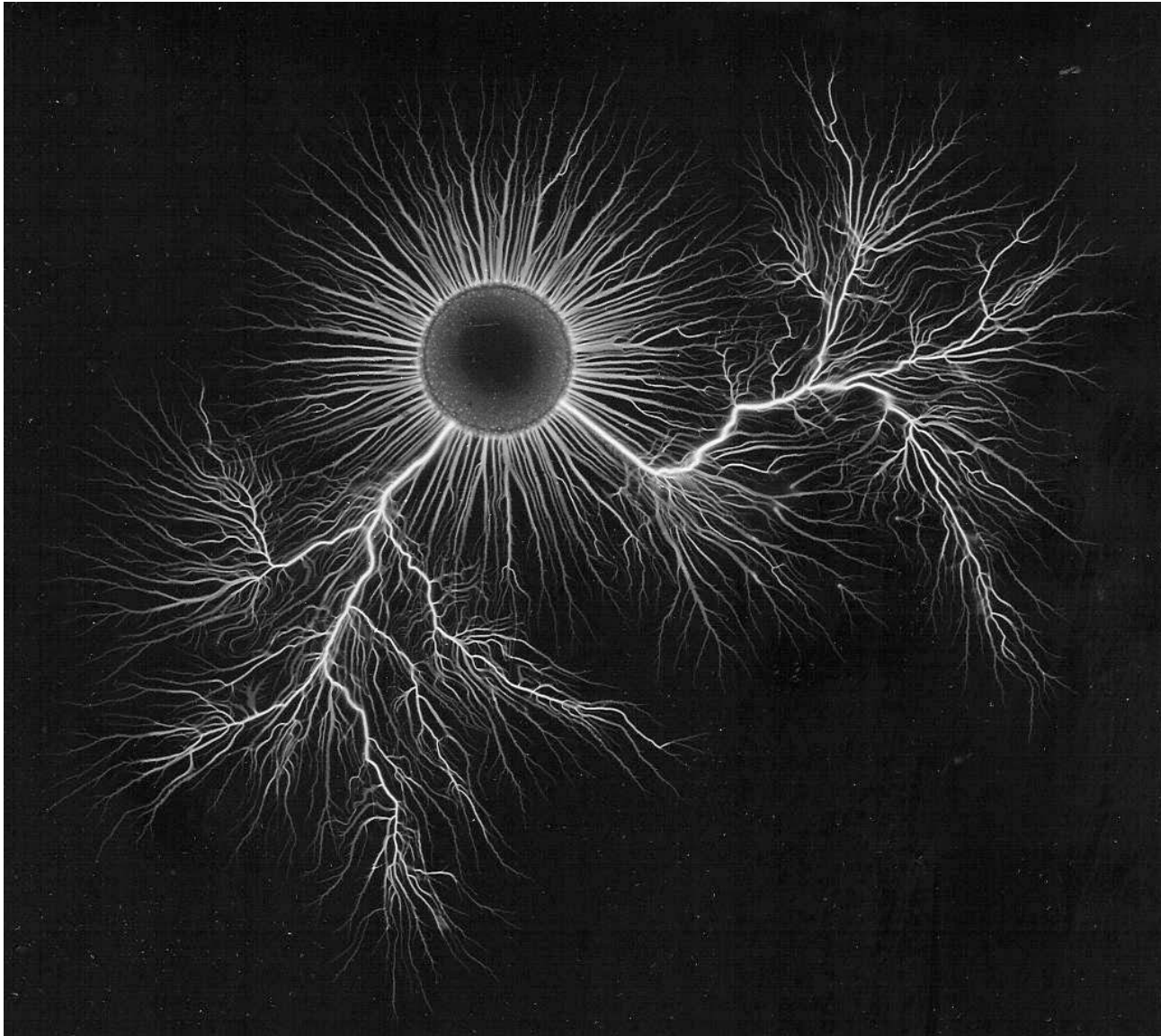


Fig. 23

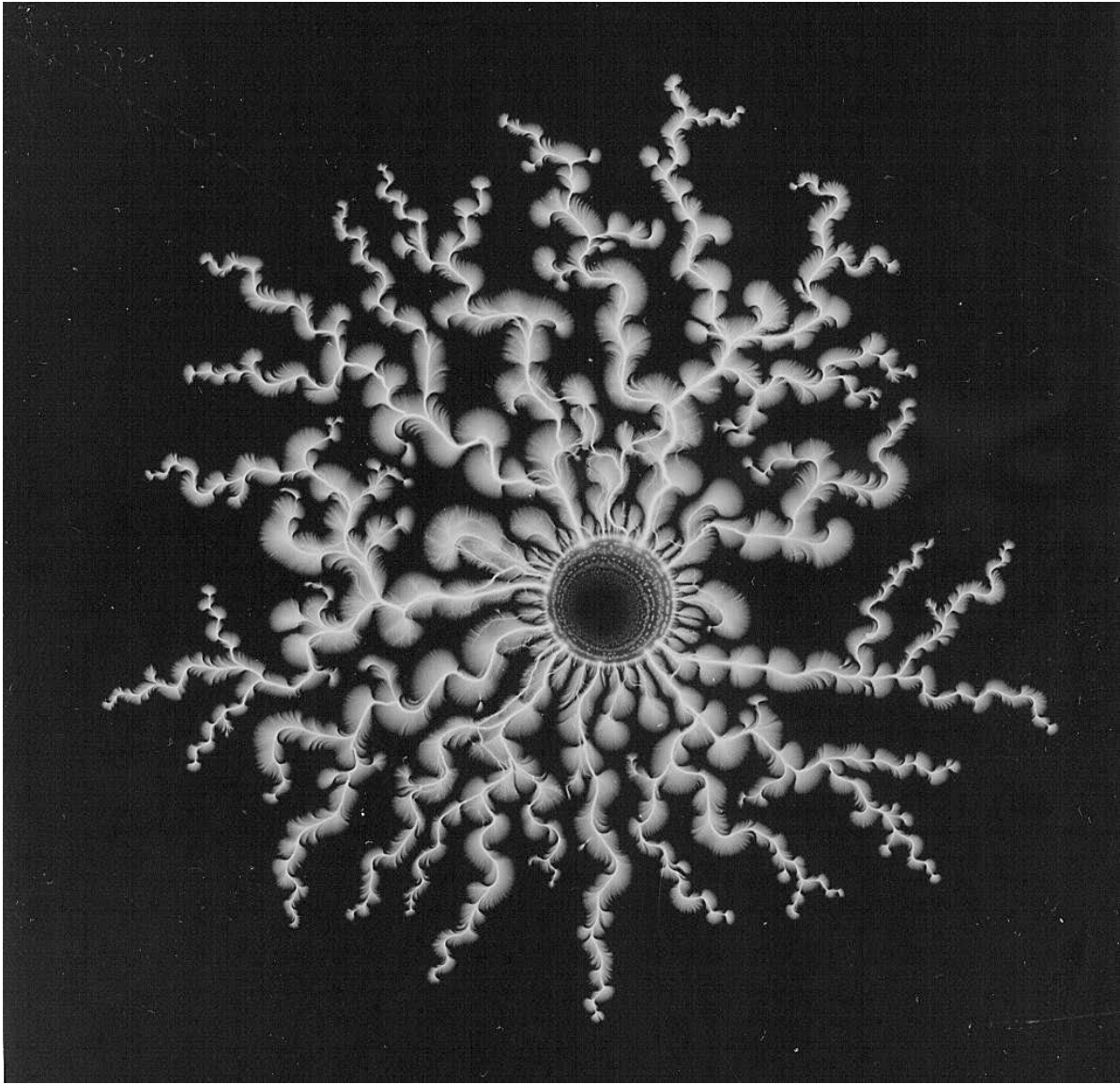


Fig. 24

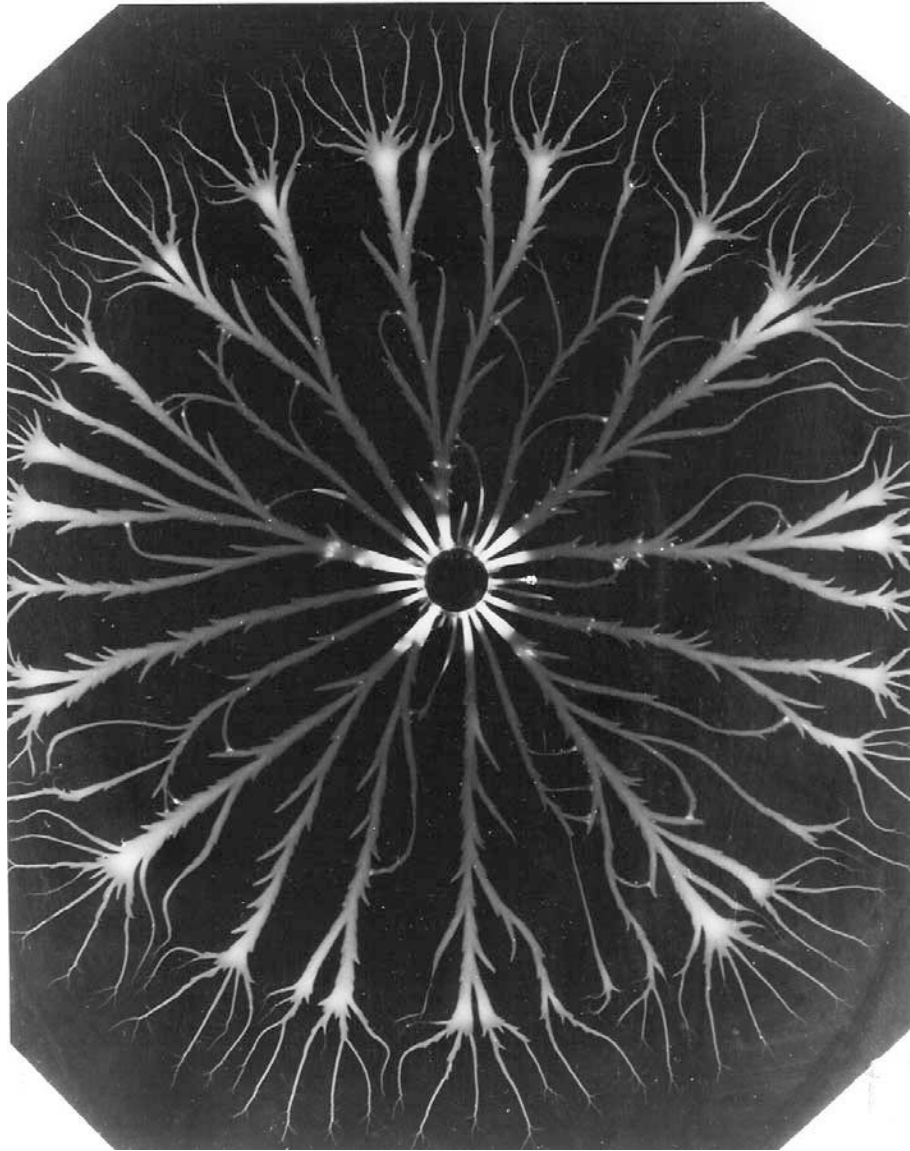


Fig. 25

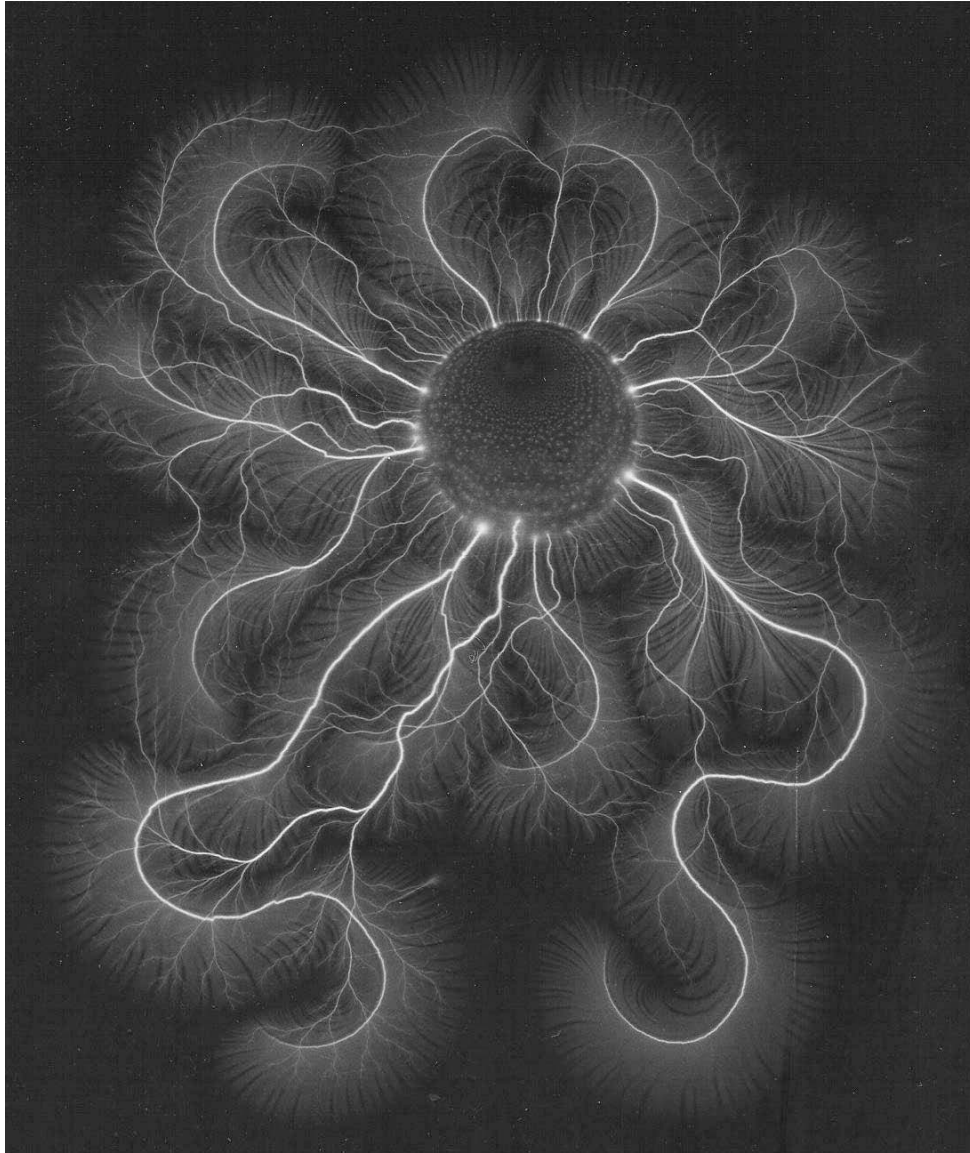


Fig. 26a

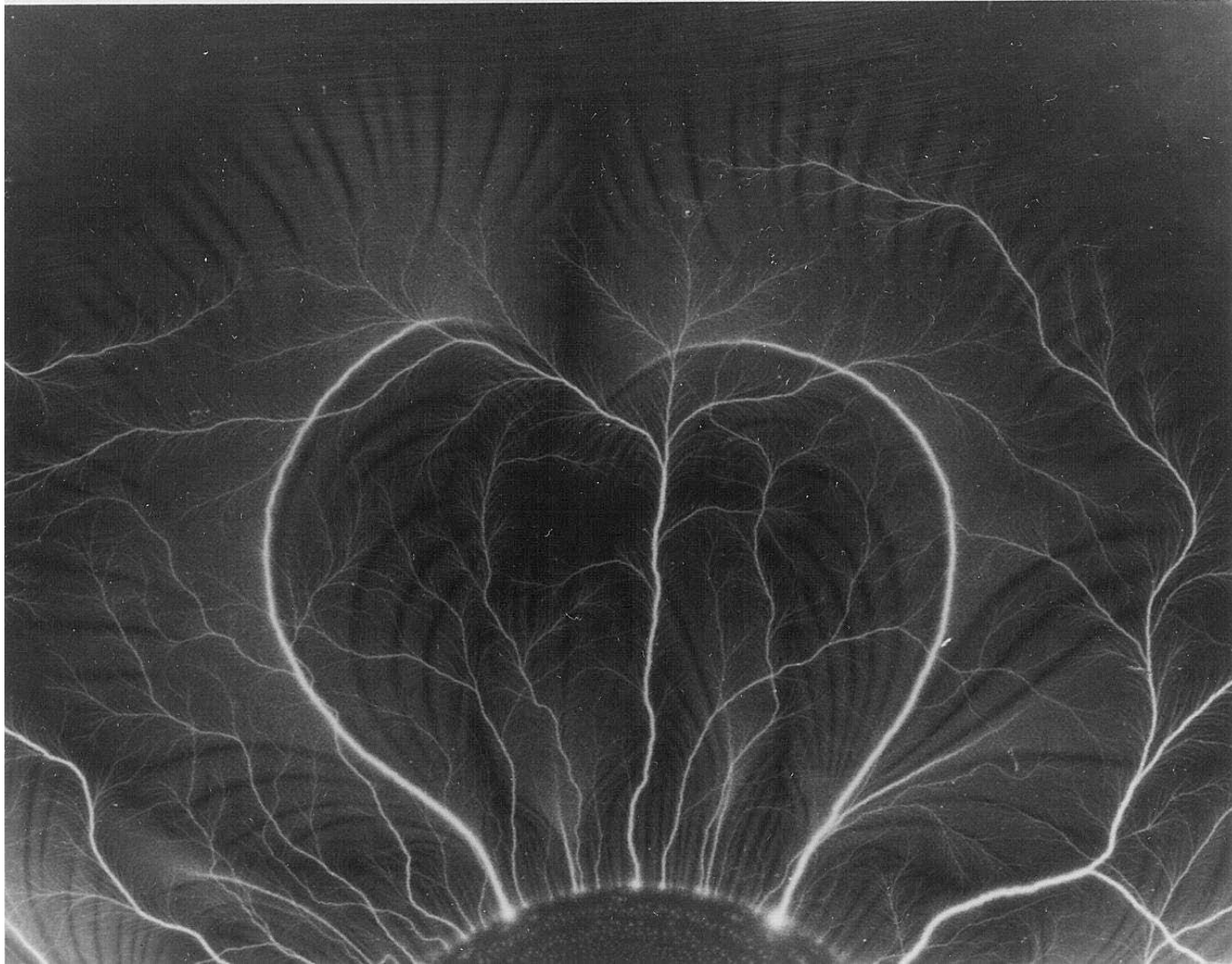


Fig. 26b. (Detail of 26a.)

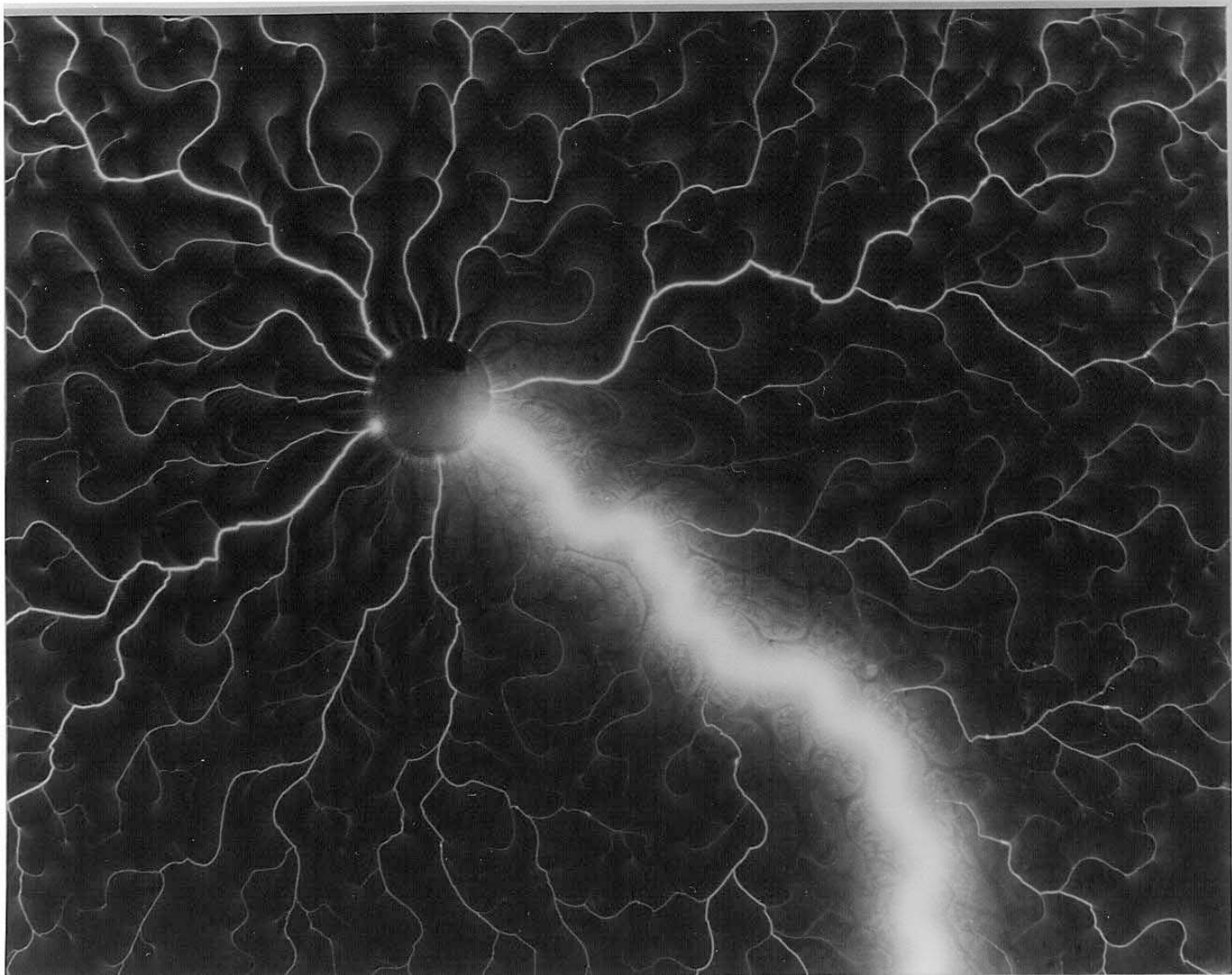


Fig.27