smoke in the glass tube was thus between a hot and cool tube. The smoke particles, on cooling sufficiently, were enclosed in droplets of water-vapor which were heated unequally by unequal radiation from the hot and cold tubes. This caused an inequality of the surface tension on the two sides of the drop causing movements of the water surface which, by friction of the air, caused a vortex movement in the air the inertia of which forced the droplet toward the side of the least surface tension, and therefore toward one of the tubes. It is not necessary here to debate the question of which tube, hot or cold, the droplet was precipitated on, it being only necessary at the end of the experiment to wash the outer surface of both the tin tubes and the inner surface of the glass tube to obtain the precipitated smoke.

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Results obtained with the use of the smoke precipitator.

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Heretofore we have experienced some difficulty when precipitating smoke in determining iodin by McClendon's method. The results of smoke precipitation, the theory of which Dr. McClendon has explained, show that the deficiency of the precipitator is in inverse ratio to the amount of smoke given off. When the volume is small the efficiency is around 90 per cent, but when the volume of smoke which passes through is great, it probably does not stop more than one-half of an efficiency of about 50 per cent. Therefore, the average efficiency that has been obtained in all of the determinations would average about 66 per cent.