the sample. This device takes advantage of the phenomena that a body warmer than the gas about it is surrounded by a dust free zone. This zone is intercepted by the surfaces of the cover-glasses which are kept cool by masses of metal in close contact. Also since particulate matter in warm gases tends to deposit upon cool surfaces we have two forces which act to deposit the dust from the sample upon the two discs of glass. The sample appears as a narrow strip on each glass parallel with the wire. These samples may be used for count or particle size determination after they are suitably mounted upon a slide. The Thermal Precipitator is used in England and South Africa for checking other methods and to some extent for routine sampling. It is high in collection efficiency except possibly for the larger particles. Its main disadvantages are the difficulty in preparing and mounting the cover glasses and the small sampling rate possible for this instrument, about 6 ml per minute.

The most recent development, the Electrostatic Precipitator, which will be described in detail later by Mr. Barnes, is without question the most satisfactory device for complete separation of solid dispersions from gases. It collects a large sample in a short time and if properly constructed and operated has an efficiency of 100 per cent.

We come now to the most widely used class of dust collecting instruments, the devices which operate upon the impingement principle. Three types of impingers are fairly well known; The "Konimeter", the "Owens-jet dust sampler, and the "Greenburg-Smith Impinger."

The Konimeter was developed in South Africa about 1916 and is widely used both there and in Canada today. It consists of a small pump with a spring operated piston which when released draws a 2½ or 5 cc sample of air through a small circular orifice that faces and is close to a glass plate which is prepared with an adhesive film. The dust in the air sample is impinged upon the adhesive film and sticks there.