subject is now under investigation by the A.S.H.V.E. Research Laboratory. At the *National Bureau of Standards* a test method was developed for interested Government agencies, under which measured samples of the uncleaned air and of the air cleaned by a device under test are passed through filter papers.[58] The ratio of the flow rates through the two filter papers is adjusted during successive tests, until the resulting dust spots approach equality in density as shown by a photometer. The ratio of the flow rates is then indicative of the effectiveness of the cleaner in arresting dust. A statement of an air cleaner's efficiency by any test method, is meaningless unless the test dust is specified.

Other instruments for determining gaseous and particulate air contaminants are described in industrial hygiene literature.[55, 59, 60, 61]

Sound and Vibration Measurements

Approximate measurements of sound intensity can be made by aural methods. The ear is used to compare the measured noise with sounds of known strength.

Electrical devices, in which the ear plays no part, furnish the most satisfactory means of measuring noise intensities. The sound meter consists essentially of a microphone coupled to an amplifier designed with an ear-like response. The output of the microphone is read on a sensitive direct current milliammeter graduated to read directly in decibels. Instruments of this type, if connected with suitable band pass filters, can be used to study the intensity of the sound over its entire range of frequencies.

Electrical instruments are available for measuring the frequency, amplitude and acceleration of a vibrating mass. They are usually more convenient and accurate than the vibrating reed tachometer, the seismic type displacement meters or the accelerometers which can also be used for this purpose. Sound level meters are discussed in several text books[62, 63] and standards.[64]

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