AIR FLOW MEASURING INSTRUMENTS

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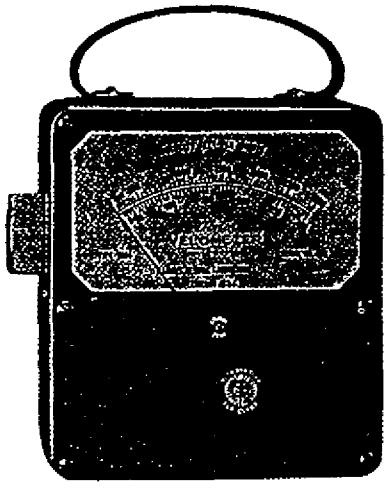
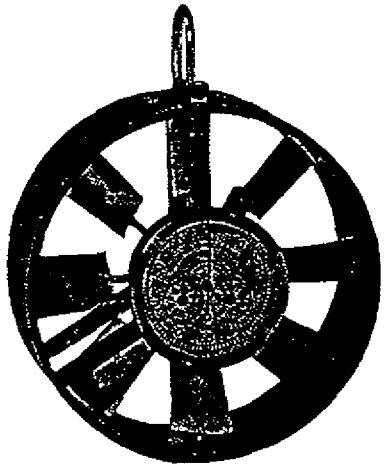
Many times it is of considerable interest to industrial hygienists to measure air movements for purposes of evaluating the adequacy of control measures or comfort conditions in a workroom. Several different types of instruments are available for making such measurements and are in common use by engineers. The choice of metering device depends on features pertinent to the instrument as well as on the character of the airflow. Principles of operation and limitations of these devices will be discussed briefly, direct reading instruments in this issue, and indirect reading instruments in a subsequent issue of the NEWSLETTER.

Velometer

A velometer operates on the principle of radial displacement of a pivoted vane by the air stream. The vane is counterbalanced for steadiness and operates against a torsion spring. A pointer attached to the vane indicates the amount of displacement on a calibrated scale. The mechanism is enclosed in a plastic case with an inlet and outlet opening for the air stream. Numerous attachments are available for measuring different ranges of air velocities at inlet and exhaust openings of various shapes and sizes. The vane is very sensitive to fluctuations in the air stream and therefore the indications of the pointer must be averaged to obtain the average air velocity. For accurate measurements, correction factors must be applied to the readings. Serious errors of unknown magnitude are introduced when the velometer, without attachments, is used to measure air flow through very small openings.





Vane Anemometer

The vane anemometer consists of a small multivaned propeller mounted inside a thin metal ring. Linear feet of air movement through the instrument are indicated on a calibrated dial counter to which the propeller is connected by a gear mechanism. A lever is provided for engaging or disengaging the gear mechanism from the dial counter. A time interval device such as a stopwatch must be used with the usual anemometer for obtaining air velocity. Special anemometers are available which indicate air velocity directly. The anemometers are designed for a limited air velocity range, but are available in various ranges. Like the velometer, correction factors must be applied to measurements made at various types of air discharge and exhaust openings. Also, errors of unknown magnitude are introduced when the instrument is used in the plane of very small openings.

Smoke Tube

This device consists of a tube filled with a specially prepared chemical which reacts with the moisture of the air aspirated through it to produce a smoke. By observing the time of travel of the smoke over a measured distance, the velocity of air is determined. At best, such measurements are only estimates. Smoke tubes are especially useful for determining the direction of air movement or distribution of air currents.

Report on Prepayment Hospital and Medical Care Plans Available

The U. S. Public Health Service has published the report of a Nation-wide, 3-year study of Blue Cross hospital service prepayment plans and affiliated medical service prepayment plans. The report, *Blue Cross and Medical Service Plans*, by Dr. Louis S. Reed, health economist, Division of Public Health Methods, gives a detailed account of the development and growth of both types of plans, the areas served, enrollment, subscription rates and benefits, remuneration of hospitals and physicians, enrollment procedures, the legal status of the plans, the composition and selection of the boards of directors, finances, administrative organization, cancellation rates, subscriber utilization of hospital and medical services, and interplan coordination. An appendix describing commercial hospital, surgical, and medical expense insurance is included. Copies of the report may be obtained free from Public Inquiries Section, U. S. Public Health Service, Washington 25, D. C.

NOTICE TO STATE EDITORS

When you have news of a timely nature, such as a conference, which you wish to announce in the INDUSTRIAL HYGIENE NEWSLETTER, please keep in mind the deadline dates for each issue. For instance, the copy for the April issue goes to press February 18. Your copy should reach the editor's desk by February 12 to give time for typing, proofreading, and clearance by the editorial board.