INTRODUCTION

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Atmospheric pollutants at any location are usually characterized by great variability in composition and concentration. Factors such as the amount and nature of the emissions from the different sources, together with meteorological parameters affecting dispersion, all contribute to this variability. Intermittent analysis of the air can give no more than a partial picture of the pollution and this may be a distorted picture as well. It has been recognized for a long time that continuous analysis and recording of the pollutants is necessary for an adequate appraisal of the hazards of the pollutants and the effectiveness of any remedial measures undertaken.

In recent years a large amount of effort and talent has been directed toward the development of instrumentation to analyze the atmosphere for many different compounds and classes of compounds. The four papers in this Symposium represent a sample of the success that has attended these efforts. The major problems in some of these applications are related to the low concentrations of the pollutants and the difficulty of obtaining sufficient material with which to work. The solution of these problems has been achieved by developing methods of greater collection effectiveness or reaction sensitivity. In the extreme case, O'Konski is able to count and classify according to size the individual particles larger than one-fourth micron in an extremely dilute atmospheric aerosol. Similarly the new spectrographic and chromatographic methods permit the identification of minute quantities of organic compounds. It can be concluded that practically any analytical problem in air pollution is amenable to instrumental solution.

Subcommittee IV of ASTM Committee D-22 on Methods of Atmospheric Sampling and Analysis is charged with the task of critically evaluating the instruments for air pollution analysis. The papers in this Symposium present a great deal of background information and detail which will contribute to a better understanding of the tentative standards which the Committee is recommending to ASTM.