
Contents

<i>List of Contributors</i>	x1
<i>Preface</i>	xiii
<i>Contents of Other Volumes</i>	xv

Part A EFFECTS ON PHYSICAL AND ECONOMIC SYSTEMS

1. Effects on the Physical Properties of the Atmosphere

Elmer Robinson

I. Introduction	1
II. Mathematical Concepts of Visibility	3
III. Meteorological Aspects of Visibility	27
IV. Air Pollution Effects on Weather and Atmospheric Conditions	37
V. Conclusions	60
References	61

2. Effects on Economic Materials and Structures

John E. Yocom and James B. Upham

I. Introduction	65
II. Mechanisms of Deterioration in Polluted Atmospheres	66
III. Factors that Influence Atmospheric Deterioration	67
IV. Methods of Measuring Atmospheric Deterioration	69
V. Materials Damage	74
VI. Economics of Air Pollution Effects	108
References	112

3. Effects on Indoor Air Quality

John E. Yocom, William A. Coté, and Ferris B. Benson

I. Introduction	117
II. Factors Influencing Indoor Air Quality	118
III. Indoor-Outdoor Air Quality Relationships	120
IV. Effects of Indoor Generation of Pollutants and Other Factors on Indoor Air Quality	132
References	153

PART B EFFECTS ON BIOLOGICAL SYSTEMS

4. Effects on Vegetation: Native, Crops, Forests

Walter W. Heck and C. Stafford Brandt

I. Introduction	158
II. Air Pollution Effects on Vegetation	161
III. Factors Affecting the Response of Vegetation to Air Pollutants	176
IV. Effects of Air Pollutants on Biomass and Yield	185
V. Dose-Response of Vegetation to Air Pollutants	194
VI. Vegetation as a Biological Monitor for Air Pollutants	203
VII. Economic Evaluation of Response	212
VIII. Vegetation as a Sink for Air Pollutants—Greenbelts	215
IX. Reduction of Air Pollution Injury to Vegetation	218
References	220

5. Biological Effects of Air Pollutants

David L. Coffin and Herbert E. Stokinger

I. Photochemical Oxidants	232
II. Ozone	233
III. Nitrogen Dioxide	264
IV. Sulfur Oxides	289
V. Carbon Monoxide	305
VI. Particulate Material	312
VII. Interaction of Air Pollutants and Biological Agents	324
VIII. Real and Synthetic Atmospheres	336
IX. Air Pollution and Domestic Animals	341
References	345

6. Organic Particulate Pollutants—Chemical Analysis and Bioassays for Carcinogenicity

Dietrich Hoffmann and Ernst L. Wynder

I. Introduction	362
II. Standard Laboratory Conditions	364

III. Fractionation	365
IV. Neutral Fraction	368
V. Acidic Fraction	414
VI. Basic Fraction	418
VII. Bioassay	423
VIII. Outlook	445
References	445

7. Effects of Air Pollution on Human Health

John R. Goldsmith and Lars T. Friberg

I. Introduction	458
II. Acute Air Pollution Effects and Their Detection	469
III. Combined Effects of Sulfur Oxides and Black Suspended Matter	483
IV. Effects of Gaseous Pollutants	493
V. Particulate Pollutants and Their Effects	531
VI. Air Pollution as a Causal Factor in Chronic Disease	553
References	590

PART C AIR POLLUTION LITERATURE RESOURCES

8. Literature Resources

Peter Halpin

I. State of the Literature	612
II. Primary Resources	613
III. Secondary Resources	649
IV. Tertiary Resources	657
V. Newsletters	659
VI. Translations	659
VII. Audiovisual Materials	660
VIII. The Information Network	661
IX. Bibliographies, Directories, and Guides	661
References	662