Index

Abortion, 185–186	occupational exposure to, 72
Acheson-Lilienthal report, 116-	and smoking, 78
117	Aspirin, 206-207
Aerosols, 141	Asselstine, James, 114
acidic, 15–18	Asthma
and greenhouse effect, 153	aerosols and, 17
Agent Orange, 128	climate and, 161–162
Agriculture. See Food production	
AIDS, 216–217	Bacteria, diversity in, 196
Air pollution, 13-25. See also specific-	Bats, 212, 214
pollutants.	Bears, 199
and epidemics, 13-14	Belief systems, 3–4
indoor, 19–24	Benzene, and leukemia, 78
regulation of, 24–25	Benzenehexachlorides, in food, 52
Albuquerque, Edson, 197	Beyond Beef campaign, 179
Aldicarb, in water, 40	Biomass burning, 24
Animals	Birds, extinction of, 212, 214
and climate, 164–165	Birth control, 184–185
extinction of. See Species extinction	Birth rates, 177–178
studies of, 7–9	Black foot disease, 38
Aquifers, pollution of, 32-33	Blindness, 144–146
Aquitards, 32	Bronchitis
Argentine hemorrhagic fever, 216	climate and, 161–162
Arms control, 133	sulfur dioxide and, 17
Arsenic	Bronchoconstriction, 17-18
in air, 23	Brown, Lester, 176
in food, 63	
in water, 37–38	Cadmium
Asbestos	in food, 60-61
in air, 23	in water, 38–39

and food production, 162-165 Cancer and infectious diseases, 158-161 air pollution and, 23 and respiratory diseases, 161-162 arsenic and, 38, 63 and sea level, 165 from cadmium and, 61 cytarabine for, 210-211 and water supply, 165 immunotoxins for, 208-209 Clinical studies, 7-9 models for, 8 Coal, and respiratory problems, 13 nitrosating agents and, 35-36 Cochrane, Thomas, 109 nuclear radiation and, 93, 96-99, Cone snails, 201-202 111-114 Conus toxins, 201–202 occupational exposures and, 72-75 Copper, in food, 63–64 pesticides and, 40, 52-55 Coral reefs, 203 radon and, 43 Curares, 205 in sharks, 200 Cytarabine, 210-211 taxol for, 208-209 ultraviolet radiation and, 143-147 Daly, John, 197 Dart-poison frogs, 197-198 vinblastine for, 205 DDT, in water, 40 volatile organic compounds and, 42 Carbon dioxide Death rates, and population growth, and greenhouse effect, 152-153 177–178 and temperature-related deaths, 155 Defoliation, in war, 127-128 Deforestation, 3 Carbon monoxide, 21–23 Carrying capacity, of environment, 3, and food supplies, 212 179-182 infectious diseases from, 213, Cassel, Christine, 173 216 Cataracts, 144-145 from population growth, 176 Caulfield, Catherine, 99 species extinction from, 194-195, 217 Cellular immune system, 146–148 Chagas' disease, 159, 214 in war, 130 Demographic transition, 176 Charybdotoxins, 202-203 Demographic trap, 176 Children air pollution and, 19 De Morbis Artificium Diatriba lead and, 59 (Ramazzini), 13 Dengue virus methemoglobinemia in, 35 Chlorine climate and, 158, 160 in drinking water, 44 species extinction and, 214 and ozone, 140-141 Dependency ratio, 182 Chlorofluorocarbons Desertification and infectious diseases, 159 and greenhouse effect, 152-153 population growth and, 179 and ozone, 140–141 Chloroform, in drinking water, 44 Development, economic, 4 Cholera, and climate, 159-160 Digitalis, 207 Dioxins, in air, 23 Cholinesterase depression, 41 Clean Air Act, 16, 24–25 Diversity, biological, 195–196 Climate, 151-154 Dolphins, 218 direct effects of, 155-157 Dose-response assessment, 7 Doses, 5-6 and disasters, 166

Index 240

Drinking water pollution of, 31–44 treatment of, 44 Drought, and infectious diseases, 159 D-Tubocurarine, 204–205

Earth in the Balance (Gore), 187
Eastern equine encephalitis (EEE), 214
Eco-terrorism, 130
Educational strategies, 4
Ehrlich, Paul, 209
Electromagnetic radiation, 94–95
Emission controls, for vehicles, 21
Epidemiology
courses in, 5
and occupational diseases, 78–79, 82
Erikson, Kai, 94
Exposure, assessment of, 5, 7
Extinction. See Species extinction
Eye problems, 144–146

Family planning, 184–185 Farm animals, climate and, 164-165 Farming, sustainable, 56 Federal Food, Drug, and Cosmetics Act, 52 Fish, and pollution, 34, 62 Fishing, and species extinction, 212 Floods, climate changes and, 166 Food, contamination of, 49–64 Food production and climate, 162–165 and population growth, 178-179 and species extinction, 212 and ultraviolet radiation, 148-149 and water pollution, 34, 39-40 Foreign aid, and population, 186–187 Frogs, 197-198, 217-218 Fungicides, in water, 39 Furans, in air, 23

Global nature of environmental problems, 2–3 Global warming, 151–153 Gofman, John W., 93, 96 Gore, Albert, 187 Grazing, 179 Greenhouse effect, 152–153 Groundwater, contamination of, 43

Halogenated solvents, water pollution from, 41-42 Hazard identification, 7 Hazardous-waste sites, 41, 43, 50, 63 Hazard surveillance, 85 Heat stroke, 157 Heavy metals in food, 57-64 occupational surveillance of, 86 in water, 36-39 Hepatitis B virus (HBV), 76 Herbicides military use of, 128 in water, 39 Hexachlorobenzene, in food, 57 Historical cohort mortality studies, 82 Histories, occupational, 83–85 HIV, 216–217 Hodgkin's Disease, 205 Hoffman, Felix, 206 Hydrocarbons, 20, 23, 57

Immune system humoral, 146 and malnutrition, 50 in sharks, 200 and ultraviolet radiation, 146-148 Immunotoxins, 208-209 Industrialization, 2 and air pollution from, 14 and population growth, 176 and water pollution, 34 Infant mortality, 178, 184 Infectious diseases and infections and climate, 158-161 from occupational exposures, 76 in sharks, 200 from species extinction, 213-216 streptomycin for, 206 and ultraviolet radiation, 147-148 Injuries, occupational, 76 Insecticides, 50-56 Intelligence and lead, 59 Irradiation, of food, 63-64

Nitrous oxide, and greenhouse effect, Jameton, Andrew, 173 152-153 Noble, R. L., 205 King, Maurice, 184 Koshland, D. E., 193 Noise exposure, occupational, 77 Kyasanur Forest disease, 216 Nonrenewable resources, and population, 177 Lead Nuclear power in food, 57-60 accidents involving, 113-114 and malnutrition, 50 and food, 56 radiation from, 111-116 in water, 36-37 Lindane, 52 routine hazards of, 112-113 Literacy, and population growth, 183 wastes from, 115-116 Lung diseases, 75 and proliferation of weapons, 116-Lyme disease, 214–215 117 Lymphatic filariasis and climate, 158 Nuclear weapons, 124–125, 131–132 assessing health effects of, 110-111 "Magic bullet," 209 and food, 56 Malaria nuclear power and, 116-117 climate and, 158, 160 production of, 98-105 quinine for, 204–205 testing of, 105-110 species extinction and, 215-216 Nyerere, Julius, 184 Malthus, Thomas, 171 Manufacturing, 2-3 Occupational diseases, 71-73 Markers, biological, 88 clinical regulation of, 77-78 epidemiologic analysis of, 78-79, 82 Maternal mortality, 180-181 Mathematical models, 8 extent of, 73 Mechanistic models, 8 in future, 88-89 occupational histories and, 83-85 Medical schools, 5, 72 Medvedev, Zhores, 98 prevention of, 86-88 Melanoma, 143-147 recognition of, 77-78 Mental health, climate and, 166 Sentinel Health Events in, 78-83 surveillance of, 85-86 Mercury in food, 61-62 toxicologic evaluations of, 83 in water, 38-39 types of, 74-77 Methane, and global warming, 151-Occupational injuries, 76 Opium, 207 Methemoglobinemia, water pollution Our Common Future (World Commission on Environment and Developand, 35 Miners, respiratory problems in, 13 ment), 172 Morphine, 207 Ozone Morse, Stephen, 215 depletion of. See Ultraviolet radiation Mosquitoes, 213 exposure to, 20-21 Myers, Charles, 197 and food production, 164 and greenhouse effect, 153 Neurobehavior, lead and, 59

Index 242

Paint, lead in, 58

export of, 55

Pesticides

Nitrates and nitrites, in water, 34-36

Nitrogen, oxides of, 20-21

Nitrosamines, in water, 35-36

food contamination from, 50-56 Psoralens, 207-208 water pollution from, 39-40 Pest management, integrated, 53 Quinine and quinidine, 204-205 Petroleum products, in water, 41-42 Pharmacokinetic models, 9 Radiation, 93-94. See also Electromag-Photochemical oxidants, 19-20 netic radiation; Ultraviolet radiation Photokeratis, 146 assessing health effects of, 110-111 Physicians biology of, 94–96 and population growth, 173, 187epidemiologists and, 97-99 188 genetic damage from, 99 role of, 9-10 linear, no-threshold hypothesis of, 96 skills needed in, 5-6 new information on, 99-100 training of, 5 from nuclear power, 111-116 Phytoplankton, 142, 148 supralinear hypothesis of, 96 Pipes, lead in water from, 36-38 from weapons, 100-110, 132 Pit vipers, 202–203 Radioactive fallout, and food, 56 Plutonium, 116 Radioactive substances, and water, 42 Polyarthritis, 159 Radioactive wastes, transuranic, 115 Polybrominated biphenyls (PBBs), 57 Radionuclides, in food, 56 Polychlorinated biphenyls (PCBs), 57 Radon, in water, 42-43 Polycyclic aromatic hydrocarbons Rain (PAHs), 23 acid, 17, 62, 217 Polyhalogenated aromatic hydrocarand climatic changes, 165 bons, 57 Rain forests, 3 infectious diseases and, 213 Pope, Alexander, 193 Population growth, 171–173 species extinction and, 195 aging and, 182 war and, 130 in cities, 181 Ramazzini, B., 13 climate and, 167 Refugees demographic transition in, 176 from population growth, 182 demographic trap in, 176 from war, 125 and desertification, 179 Renewable resources, and population, and food supplies, 178-179 maternal mortality and, 180-181 Respiratory problems. See also Air polmomentum of, 177-178 lution overcrowding from, 181-182 climate and, 161-162 physicians and, 173, 187-188 ultraviolet radiation and, 148 policies and, 186-187 Ricin, 208-209 rate of, 174-175 Rift Valley fever, 160 refugees from, 182 Risks and species extinction, 195 analysis and assessment of, 6-9 stabilization of, 182-186 characterization of, 7 vs. technology, 179 communication of, 9 teen pregnancy and, 180 models for, 8 war and, 130-131 from radiation, 102, 110-111 Prostaglandins, 202 Ross River virus, 159 Proteinuria, 61 Rosy periwinkle, 205 Pseudopterosins, 202 RU 486 pill, 186

Safe Drinking Water Act, 31 Salicin, 206 Schistosomiasis, and climate, 158 Sea level, rise of, 165 Seals, 218 Selection bias, 97 Sentinel Health Event (SHE), 78-83 Sharks, 199-200 Shellfish, pollution in, 62 Skin, cancers and disorders of, 63, 75, 143-147 Smog, 17, 20 Smoking, and asbestos, 78 Snow, John, 31 Snowblindness, 146 Species extinction, 193–196 of bears, 199 of dart-poison frogs, 197–198 ecosystem equilibria upset by, 212and loss of medical models, 196-202 and loss of medicines, 203-211 of sharks, 199-200 war and, 130 Species, indicator, 218 Sponges, 210-211 Squalamine, 200 Stagnation, of air, 13 Stewart, Alice, 97 Storms, climatic changes and, 166 Streptomycin, 206 Strokes, temperature increases and, 155 Sulfur dioxide, 15-18 Sunlight, and photochemical oxidants, 20

Taxol, 208–209
Taylor, Hugh R., 145
Technology, vs. population growth, 179
Temperature rise, 151–153
Terrorism, 130
Tetrodotoxins, 202
Thunderstorms, and asthma, 161–162
Time-to-tumor models, 8
Tolerance distribution models, 8
Toxic waste. See Hazardous-waste sites
Trihalomethanes, in drinking water, 44

Tseng, W. P., 38 Tuberculosis, medicine for, 205

Ultraviolet radiation, 139–143 cancer from, 143–144 and cellular immune system, 146–148 eye problems from, 144–146 food production affected by, 148–149 immune system affected by, 146–148 as respiratory irritant, 148 Uranium, 116 Urbanization, 181

Venoms, 201–203 Vinblastine, 205 Vincristine, 205 Viruses, HIV, 216–217 Volatile organic compounds, in water, 41–42

Waksman, S., 205 Walsh, Peter, 159 War, 123-124. See also Nuclear weapons aerial bombardment in, 125 deforestation in, 130 despoliation in, 127-128 estimating consequences of, 130-132 international law of, 133-134 land mines in, 126 and nuclear weapons, 124–125, 131– pollution as strategy in, 127–128 Wells, water, 35 Whales, 218 Wilson, E. O., 193, 195 Wilson's disease, 64

X rays, 96-97

Yellow fever climate and, 158, 160 species extinction and, 214 Yew trees, 208–209

Index 244