

will significantly reduce approach and takeoff noise. It may be commercially feasible by 1973.

Noise control strategies listed in the ES&T article (by Peter A. Franklin and Daniel G. Page) include mufflers, sound-absorptive enclosures and design modifications for internal-combustion engines (the largest single source of noise complaints); isolation, through building modifications, of residential noise, such as that caused by TV sets and radios; mufflers and sound-proof enclosures for construction machinery, and alteration of routes taken by noisy mobile equipment or alteration of the sites of noisy stationary equipment.

There seem to be two possible approaches to securing the necessary changes. With noise imposed on citizens involuntarily, outside enforcement is necessary. On Feb. 29 the House voted 356 to 32 to give EPA the power to set stringent standards for noise from all new products, and the bill is likely to fare well in the Senate. It would control construction and transportation equipment, motors and engines, electrical and electronic equipment.

The other approach is public education. Bragdon points to the widespread mystique in the United States which says that a mechanical device is not efficient unless it is noisy. Vacuum cleaner companies, he says, have failed to sell new, quieter vacuum cleaners, because housewives will not believe they work as well. Motorcyclists often remove mufflers so they can have a greater feeling of power. And everyone is familiar with the impatient motorists who honk their horns unnecessarily in traffic. Enforcement of anti-noise ordinances is sometimes the answer to such problems, although that is often difficult if not impossible. More important is to create a widespread consciousness of the harm of excessive noise.

And more research needs to be done on the effects of noise. Researchers have already discovered numerous physiological (or psychosomatic) effects beyond damage to the organs of Corti. For instance, constriction of blood vessels is caused by noise as low as 90 dB, and in residents of modern civilizations the constriction lasts longer than among residents of simpler societies—perhaps reflecting lesser elasticity in the blood vessels of the former group (SN: 1/31/70, p. 132). Various kinds of noises have produced significant changes in the endocrine system, such as increased secretion of the pituitary hormone, oxytocin, or of adrenaline. ". . . The effects of sound," says John L. Fuller of the Jackson Laboratories in Bar Harbor, Me., "are insidious and not easily detectable." □

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MATHEMATICS AND THE STUDY OF SOCIAL RELATIONS—Patrick Doreian—Schocken Bks., 1972, 211 p., diagrams, \$8. Discusses levels of measurement in sociology and the application of mathematics in quantification of social phenomena; considers possible extensions of particular techniques and wider uses of mathematics within sociology.

MATHEMATICS MADE DIFFICULT—Carl E. Linderholm—World Pub. Co., 1972, 207 p., illus., \$6.95. Mathematician's entertaining introduction to mathematical thinking about problems in arithmetic, factors and fractions, algebra, topology and geometry.

MEMBERS OF TWO WORLDS: A Development Study of Three Villages in Western Sicily—Johan Galtung—Columbia Univ. Press, 1972, 302 p., diagrams, tables \$9.50. Using the tools of social science the study tries to explore the mechanisms of underdevelopment. Findings on attitudes, beliefs and opinions held by the people of three selected villages are in this study related to the social structure of those villages.

THE MOVING CONTINENTS—Frederic Golden—Scribner, 1972, 124 p., photographs, drawings by Ingrid Niccoll, \$6.95. A succinct and clear presentation of the findings about continental drift and the research that established these facts.

NEW DIRECTIONS IN ATOMIC PHYSICS, Vol. 1: Theory. Vol. 2: Experiment—Edward U. Condon and Oktay Sinanoglu, Eds.—Yale Univ. Press, 1972, 250 p., 163 p., diagrams, \$12.50, \$7.50. Topics are covered in depth, they include second quantization and modern group theory, electron correlation and relativistic effects in atoms, atomic beam developments, and applications in astrophysics.

THE NEW PROMETHEANS: Creative and Destructive Forces in Modern Science—Robert S. de Ropp—Delacorte Press, 1972, 288 p., drawings, \$7.95. Gives in seven chapters an interpretive history of modern science, the landmark discoveries of physicists, biochemists, geneticists, neurologists, and considers the power of these inventions for good or evil.

PLASTICS AND RUBBERS—Edward W. Duck—Philosophical Lib., 1971, 110 p., photographs, diagrams, tables, \$10. A condensed outline of the characteristics of polymers, the structure of plastic and rubbery polymers, polymerization reaction, plastics and rubber technology, and composite materials.

PROGRESS IN HUMAN NUTRITION: Symposia, Vol. 1: Biochemistry and Nutrition on Proteins and Biocatalysts. Dysnutrition in the Seven Ages of Man—Sheldon Margen and Nancy L. Wilson—Avi Pub. Co., 1971, 228 p., illus., tables, \$15. Papers cover both analysis of malnutrition in developing countries and description of undernutrition in the United States.

RABIES: Proceedings of Working Conference on Rabies sponsored by the Japan-United States Cooperative Medical Science Program

—Yasuiti Nagano and Fred M. Davenport, Eds.—Univ. Park Press, 1972, 406 p., illus., \$18.50. Topics range from last rabies outbreak in Japan, nature and properties of rabies virus, pre- and postexposure prophylaxis, and rabies immune globulin of human origin, to field control of animal rabies.

RECENT ADVANCES IN HUMAN TUMOR VIROLOGY AND IMMUNOLOGY—Waro Nakahara and others, Eds.—Univ. Park Press, 1972, 590 p., micrographs, diagrams, \$34.50. Symposium papers and discussions on problems of RNA virus, mechanism of Herpesvirus infection, research on nasopharyngeal cancer, EBV-induced membrane antigens, and factors of cell-mediated immunity.

SI CHEMICAL DATA—G. H. Aylward and T. J. V. Findlay—Wiley, 1972, 130 p., tables, paper, \$3.50. Reference source based on international system of units, contains data on fundamental constants; common conversion factors; properties of elements, inorganic, and organic compounds; shapes of molecules and ions; thermochemical data at 25°C; latent heats; and other data.

TECHNOLOGY AND SOCIAL CHANGE—Wilber E. Moore, Ed.—Quadrangle Bks., 1972, 236 p., \$6.95; paper, \$2.45. Articles selected from The New York Times.

WORLD DYNAMICS—Jay W. Forrester—Wright-Allen Press, 1971, 142 p., diagrams, \$9.75. Describes computer models of the worldwide stresses resulting from mutual interplay of demographic, industrial and agricultural subsystems, and analyzes various conclusions based on this system of global dynamics, in search of a global equilibrium.

TEXTBOOKS

FOUNDATIONS OF CLIMATOLOGY. TECHNOLOGY OF CLIMATOLOGY—E. T. Stringer—Freeman, 1972, 586 p., 539 p., diagrams, maps, \$17.50 each. The two volumes offer comprehensive treatment for reference. **FOUNDATIONS** gives detailed introduction to physical, dynamic, synoptic and geographical climatology. **TECHNIQUES** provides thorough grounding in applied atmospheric science for the advanced student of both climatology and meteorology.

MATHEMATICAL FOUNDATIONS FOR DESIGN: Civil Engineering Systems—Robert M. Stark and Robert L. Nicholls—McGraw-Hill, 1972, 566 p., diagrams, \$16.50. Text develops mathematical techniques commonly used in operations research and systems engineering, and applies them to examples of problem-solving in civil engineering applications.

MECHANISMS IN ORGANIC CHEMISTRY—Roger W. Alder, Ray Baker and John M. Brown—Wiley-Interscience, 1971, 378 p., diagrams, \$13.75. Advanced-level text deals with the mechanisms of reactivity; dissociate processes; synchronous, multicenter and associative reactions, and nucleophilic associative reactions.

PRINCIPLES OF ANIMAL PHYSIOLOGY—James A. Wilson—Macmillan, 1972, 842 p., illus., \$14.95. Comprehensive text presents basic concepts of animal functioning, from the cellular to the whole animal level including organ system operation. Themes of regulation and comparative physiology serve to unify the presentation.

PSYCHOLOGY, THE HYBRID SCIENCE—Frank B. McMahon—Prentice-Hall, 1972, 629 p., photographs, drawings, \$9.95. Introduces in a unified manner the major viewpoints in psychology, from experimental science, perceiving and learning, concepts of personality, to group behavior and abnormal behavior.

PSYCHOLOGY: Perspectives on the Hybrid Science—Frank B. McMahon, Ed.—Prentice-Hall, 1972, 285 p., illus., paper, \$3.95. An anthology designed to be used with **PSYCHOLOGY, THE HYBRID SCIENCE**, with readings keyed to individual chapters of the text.