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treatment are reviewed. An attractive feature is that mean and standard deviation are described without reference to any particular type of distribution, and then binomial, Poisson, and normal distributions are introduced as important cases. The standard definitions and formulas are given and the theory of errors includes something about least squares, curve fitting, and internal and external consistency. The booklet includes examples and exercises for the student as well as an index and bibliography which enhance its usefulness as a concise reference text.

Energy and Society. By Fred Cottrell. 330 pp. McGraw-Hill Book Company, Inc., New York, 1955. \$6.00.
Man and Energy. By A. R. Ubbelohde. 247 pp. (Hutchinson, England) George Braziller, Inc., New York, 1955. \$5.00. *Reviewed by Charles Süsskind, University of California.*

Both of the two recent works that emphasize the usefulness of available energy and energy converters as yardsticks by which the effectiveness and relative strength of geographical regions, of sovereign nations, and indeed of entire civilizations can be measured reflect the authors' original reasons for setting down their thoughts on paper to a greater extent than either man probably intended. Dr. Cottrell is a professor of government and sociology at Miami University (Ohio). His book is an enlargement of lecture notes which unhappily appear to have been assembled by a hand more adept at newspaper editing than textbook writing: headings and subheadings have been inserted in a manner that represents an obvious effort to improve "readability" rather than an orderly and logical arrangement of subject matter. Still, the author comes close to achieving his stated aim of providing a framework for a discussion of the relation between energy, social change, and economic development. He diagnoses the great ills that have arisen during recent transitions from low- to high-energy societies as being due to the fact that the increase in the flow of energy is greater than the corresponding change or shift in socio-political values which the citizens are capable or willing to undergo without psychological or physical coercion. But even if the two rates of change were equal, the transition would inevitably bring about the enlargement and concentration of political power. In a high-energy society, the state necessarily takes over certain new tasks, such as enforcing contracts, protecting the individual and his family (the welfare state), regulating production (e.g., of food and drugs) and the professions (through licensing), providing subsidies and education, and managing immense business enterprises. Yet Cottrell pours cold water on optimistic estimates that high-energy society constitutes an improved opportunity for creating the universal, supranational state. He enumerates an impressive list of factors such as vested interests, ideological diversity, the decline of trade between low- and high-energy areas, economic regionalism, the demands of the welfare state, and geographic considerations

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(especially as related to the location of known coal reserves), all accentuated by the introduction of advanced technology, that make the achievement of the "one-world" millenium actually less likely in the near future than at any time since the Industrial Revolution.

Ubbelohde's book, on the other hand, had its inception in a series of talks on the British Broadcasting Corporation's famed high-brow "Third Programme", and although they have been evidently watered down for publication, the book still retains much of the *ex cathedra* flavor that characterizes many a university lecturer's approach to broadcasting. Thermodynamics is the author's specialty, and he examines mankind's progress toward the ideal technological state (for which he coins the somewhat unfortunate name *Tektopia*) chiefly in the light of the history of thermodynamics, which he manages to make very interesting indeed. American readers might be irked by the author's apparent provincialism in relying excessively on British examples to make many of his points, although this fault can have its charming side, too. Thus, the caption under an illustrative cartoon (unsigned, though one does detect the fine hand of David Langdon) of a citizen warming himself at an inefficient fireplace reads "Heating the World at Large with Britain's Energy Reserves. Not only does much of the heat of badly designed open fires go up the chimney. Incompletely burnt fuel rises with the hot gases, and later plagues the inhabitants of the larger cities by coming down on them as SMOG, or Coals of Vengeance, upon their heads."

Curiously, although the publication of both books was obviously occasioned by the advent of nuclear fission as a possible source of useful energy (as acknowledged on the book jackets), that subject is given very short shrift by both authors. This dismissal might portend a distaste for grappling with the problem, possibly because the amount of data available to the authors is still so small as to make any deduction largely speculative; but the reader is left with the vague impression that their knowledge, like that of Gilbert and Sullivan's model of a modern major general, "has only been brought down to the beginning of the century".

Combustion Processes. Edited by B. Lewis, R. N. Pease, H. S. Taylor. 662 pp. Princeton U. Press, Princeton, N. J., 1956. \$12.50. Reviewed by Henry Wise, Stanford Research Institute.

The advent of jet propulsion has stimulated a rapid advance in the study of combustion phenomena. To this research effort the physicist, the chemist, the fluid dynamicist, and the engineer have made valuable contributions. Consolidation of the voluminous scientific literature which has been published on the theoretical and experimental aspects of combustion processes represents therefore a formidable task. *Combustion Processes*, the second volume in the series *High-Speed Aerodynamics and Jet Propulsion*, deals with the fundamental aspects of combustion. Essentially this text is designed to acquaint the engineer with the principal