activity of the proton $a+H$ is much greater than the strong mineral acids. The familiar pH scale is no longer useful in such evaluations; instead, a scale of Ho is used with Ho = −12 as a lower limit for identification as a super acid. Starting with a strong acid (such as sulfuric acid, Ho = −10), by adding to it a stronger acid to increase the ionization, Ho's up to −27 for 90% SbF_5 in HSO_3F may be achieved.

Following a discussion of the experimental techniques for acidity measurements of the protic acids, and experimental techniques applied to solid acids, the book discusses Brønsted superacids (such as $HClO_4$, $ClSO_3H$, HSO_3F and CF_3SO_3H), the perfluoroalkanesulfonic acids, the Lewis superacids (such as SbF_5, AsF_5, TaF_5 and NbF_5, conjugate Brønsted—Lewis superacids (including "Magic Acid", and other fluoroantimonic acids), and solid superacids (mixed oxides or chalcides as well as carbocations (trivalent and higher coordinate cations).

Heterocations in superacids are discussed in detail including onium ions, sulfonium ions, and ions containing Se and Te halonium ions, azonium ions, nitronium ions, nitrosonium ions, enium ions (nitrenium ions, borenium ions, oxenium ions, phosphenium ions, silicenium ions), homo- and heteropolycations, interhalogen cations, polyatomic cations of Group VI elements (incl. O, S, Se, Te), polyheteroatomic cations, and miscellenous cations. Included in the latter are cations containing H, Xe, and Kr.

Superacid catalyzed reactions (as used in conversion of saturated hydrocarbons, including the alkylation of aromatic hydrocarbons and halogenation, polymerization and phenol—dienone rearrangements) are covered in detail. The book has extensive references. Except for the notations on the instability of concentrated perchloric acid and perchlorates, little attention is given to the stability and potential handling and environmental aspects of disposal; in a second edition "safety and environmental" considerations would be useful.

H.H. FAWCETT

Toxic Susceptibility: Male/Female Differences, by Edward J. Calabrese, Wiley/Interscience, New York, 1985, 336 pages, $59.95.

While it has been suspected by some that exposures to chemicals, drugs, and other "agents" may have different effects on males as compared to females, this area of biology has not previously been well reviewed. This book, written by a member of the Division of Public Health, University of Massachusetts, is a critical assessment of the biomedical/toxicological literature concerning the occurrence and causes of sex differences in response to toxic agents in animals and humans. The number of toxic substances for which sex-related differences have been found to occur approach 200;

some have been shown to affect humans, while others are reflected by studies in one or more species of animals, principally rats and mice.

Major chapters consider sex differences in biochemical/physiological processes, pregnancy, sex differences to liver toxins, to renal toxins, discussions of major inorganic contaminants, to organic contaminants, to drugs, the effects of oral contraceptives (especially well documented for drugs, for carbon disulfide, and lead exposures), endogenous and related substances. The question of safety factors in setting human exposures is raised in view of the relatively little recognization of male vs. female effects.

This book is extremely carefully documented, with copious references, and will doubtlessly be a landmark reference point in this important, but frequently overlooked area of chemical safety.

H.H. FAWCETT

Design, Construction and Refurbishment of Laboratories, by R. Lees and A.F. Smith (Eds.) for the Laboratory of the Government Chemist, London, published by Ellis Horwood, Chichester, West Sussex, PO19 1EB, U.K., distributed by John Wiley & Sons, New York, NY, 1984, 375 pages, $69.95.

Recognizing that many laboratory personnel work in facilities designed years before which are often inadequate and even unsafe by modern standards, the Laboratory of the Government Chemist, U.K., co-sponsored with several technical and professional societies a conference in June 1982 titled Labdesign 82. The aim was to assemble experts from several disciplines with designers and providers of laboratories to review the state-of-the-art in laboratory design, arrangements, and utilization. The 36 chapters from the presented papers represent a wide variety of views, know-how, and factual data on design and operation of chemical, electrical, microbiological, radiochemical, and major engineering facilities of varied sizes and complexity.

Especially valuable in the opinion of this reviewer is the section on equipment, including six chapters on fume cupboards (or hoods), a subject which has received much attention in several countries but little agreement. Another important subject covered is the large-scale evaluation of fire-doors in a building at the University of Bristol, with conclusions which are considerably different than expected. Two short but excellent chapters on handling and disposal of toxic and flammable wastes conclude that each laboratory should provide its own facilities, such as incineration of the proper design and capacity, to serve the laboratory needs, as the most practical and economical approach. Chapters on electrical hazards, gases, and illumination highlight frequently overlooked essential services.

The volume is a major contribution to recent thinking on design, planning, and refurbishing of laboratory and related facilities, and should be of value,