neglected area off human health makes this volume a significant positive factor for both academia and industry.

HOWARD H. FAWCETT

The Elements beyond Uranium, by G.T. Seaborg and W.D. Loveland, Wiley/Interscience, New York, NY, 1991, ISBN 0-471-89062-6, 359 pp., $49.95.

This is the twelfth volume on transuranium elements since 1949 and reflects current status and background on the 50th anniversary of the discovery of elements 93 through 110. Dr Glenn Seaborg, one of the co-discovers of plutonium and nine additional elements, is a Nobel prize winner. Professor Walter Loveland, co-author, is a professor of chemistry at Oregon State University.

Transuranic elements 93 to 109 (110 is in doubt) resulted from extensive investigations which included a re-orienting of the whole periodic chart. These efforts are reviewed with sufficient depth to present the basic approach to chemists, engineers and physicists. Born in the joint quest for both peaceful atomic energy and the Manhattan Project, the new knowledge has increased greatly our view of the 1872 table of Mendeleev and its application in modern chemistry.

Although highly authoritative and with 494 references, the volume contains data and information useful even to the layman; practical discussions on nuclear power from nuclear fission (which produces worldwide about 140 tons of plutonium annually); military applications and industrial applications. Now that the nuclear "threat" has been largely neutralized, perhaps renewed research will result in a better understanding of transuranic elements (more can be postulated), and it is hoped this volume will be a useful guide.

HOWARD H. FAWCETT

Laser Safety Comes to Light, 20 min, $\frac{1}{2}$" VCR tape, accompanied by training manual, *Laser Safety Guide, Guide for Selection of Laser Eye Protection*, and ANSI Z136.1 - 1991 American National Standard for the Safe Use of Lasers (95 pp.) available from Coherent Auburn Group, 2301 Lindbergh St., Auburn, CA 95603.

The growing application of lasers in a variety of occupations and applications make this collection of tapes, standard and training manual a most useful addition to the safety and hygiene literature. The information is presented in a clear manner, and the real danger of certain laser exposures to the eyes and skin are well projected. The use of chemicals, such as chlorine, fluorine and

hydrogen chloride may present problems in exhausting the gases if an incident occurs resulting in a release of the chemicals. Electrical hazards (high voltage) are also present, and the proper enclosure of the equipment, with proper respect and use of safe operation procedures, are stressed. This package of training aids should be used wherever lasers are used.

HOWARD H. FAWCETT

Safety Considerations in Microscale Chemical Laboratories, by Ruth A. Hathaway, Symposium at the 197th National Meeting of the Division of Chemical Health and Safety, American Chemical Society. Available from Ms. Ruth Hathaway, 1810 Georgia, Cape Girardeau, MO 63701, no ISBN, 43 pp., $7.50 (CHAS members) $10.00 (others).

As Dr Alamino, Chair of the DCHAS has noted in the Preface, safety, environmental issues and associated costs have had a significant impact on the laboratory phase of chemistry instruction in recent years. The evolution of microscale laboratory techniques and procedures has enabled institutions faced with large capital expenditures for compliance-mandated improvements to continue to offer chemistry laboratory courses. This publication reflects the latest information on the use of microscale laboratory techniques as part of a comprehensive chemistry curriculum. The safety of the student and the environment are emphasized in the presentations.

The evolution of microscale equipment, as presented by Dr Hathaway, who also chaired the symposium, traces the development of equipment since 1866, including the writings of Haushofer in 1885, the microbalance in 1886, the 0.2–0.5 mm diameter and 2–3 long capillary tubes, and the microvoltameter in 1908. The editor asks whether microscale chemistry gives the student a proper and balanced view of a compound. A total of 54 references document this introductory chapter.

Dr David Shaw then presents 'Using microscale experiments in general chemistry: An experiment to determine heat of neutralization'. He reported on his efforts to study the applications of microscale experiments in general chemistry courses; the jury is still out on these efforts, documented by four references.

The "Safety of microscale general chemistry experiments" was handled by Dr Michael Hampton and Dr Jerry Mills. They note that small quantities of sample, with plastic apparatus, are the accepted practices, reducing the hazard even when known hazards are being studied. The subject of "Laboratory design and waste disposal in the undergraduate microscale organic laboratory" was explored by Dr Kenneth Williamson, while Dr George Wahl presented a view of the 'Microscale organic laboratory at a large state university', giving 11 ref-