

Buchbesprechungen

Boron and Refractory Borides. Ed. by V.I. Matkovich. Berlin-Heidelberg-New York: Springer 1977. 656 pp., 270 figs., DM 180,-; \$ 79.20.

Anyone interested in the element boron or refractory materials derived from this element will be delighted by the wealth of detailed information that is presented in this book. The material essentially reflects the state of the art as discussed at a 1972 meeting in Tbilisi, USSR. The contributions by 52 authors (33 separate articles) are grouped into three major sections, i.e., concerning theoretical aspects, preparation and general properties, and thirdly special applications. Most of the articles are written quite concise but are still extremely informative. As may be expected for any compilation of data involving that many contributors to a relatively limited topic, some duplication is apparent. Some articles are extremely specialized while others should find a wide range of interested readers, e.g., on the classification of borides, and on transition-metal borides. The entire works are presented in English. Unfortunately, some of the translations did not turn out too well and could stand improvement. Furthermore, numerous typing errors as well as consistent misspellings should have been eliminated in the proofs. Nevertheless this book is a very worthwhile addition to an institution's library; the rather stiff price for this compilation of (neatly typed) photo-reproduced articles is likely to limit purchases for a personal library.

K. Niedenzu (Lexington, Kentucky, USA)

Die ersten drei Minuten. Der Ursprung des Universums. Von S. Weinberg. München: Piper 1977. 240 S., 8 Abb., DM 29,80.

This is a translation of a fascinating description of the 'Big Bang,' the singularity from which our Universe developed some 10^{10} years ago, directed toward the intelligent and truth-seeking non specialist. The numerical accuracy ascribed to five consecutive 'tableaux' differing half a unit in log T (the absolute temperature T decreasing from 10^{11} to 10^9 K) and slightly above one unit in log t is impressive, though this scenario has a certain anti relativistic flavor by allowing the time t to be far smaller

than the ratio (R/c) . With an actual R above 10^{26} m and a mass not far from 10^{52} kg the first scene at $t=0.01$ s still had R around a light-year (10^{16} m). A universal high refractive index intensifies this argument. The book is centered around the discovery in 1965 of the isotropic background radiation corresponding to 3 K, and a recent detection of a weak anisotropy (Phys. Rev. Letters 39, 898 (1977)) can be used to evaluate the actual velocity of the earth $10^{-3} c$ relative to a frame of reference provided by this residual radiation. The zeroth diapositive is difficult to design: there may be a higher limit to T around 10^{13} K because of an infinitely divergent number of kinds of 'elementary' particles, including free quarks (of which a few may have been conserved) and the story starts at the point where muons and mesons no longer are important. It must be noted that only helium was synthesized during this early step; the heavier elements are formed later in stellar interiors and dispersed as dust by supernova explosions. The book has a preface by the President of the Max-Planck-Gesellschaft, Prof. Reimar Lüst, presenting a powerful apology for fundamental research without direct applications, and it ends with a useful dictionary, six mathematical appendices, and a thorough bibliography. Even the professional scientist can learn a lot of unexpected details, and the major goal of informing the interested general reader is definitely obtained.

C.K. Jørgensen (Geneva)

The Metallic Elements. By R.V. Parish. London-New York: Longman 1977. 254 pp., £ 7.95.

This book combines a systematic description of the chemistry of nearly 80% of the known elements with a simple theoretical explanation of their behaviour. Parish has been able to cover this in 250 pages only by limiting himself to discussion of the elemental metals, their halides and oxides, and aqueous-solution chemistry. The theoretical discussion is based largely on the ionic model, although separate chapters treat ligand-field theory, metallic bonding, and non-stoichiometry. It is pleasing to see the heavier metals given

more prominence than usual, and to find discussions of metal extraction processes and the influence of both pH and dissolved oxygen on electrode potentials. A great deal of data is presented in tabular form. I found this a readable and practical introduction, and would recommend it to students commencing their study of inorganic chemistry. A.F. Williams (Geneva)

Crop Protection Agents. Their Biological Evaluation. Ed. by N.R. McFarlane. London-New York-San Francisco: Academic Press 1977. 638 pp., £ 19.50.

Der Band enthält 42 Vorträge von etwa 70 Autoren aus Industrie, Hochschulinstituten und staatlichen Organisationen, die 1975 auf einer internationalen Konferenz über die biologischen Prüfmethode von Pflanzenschutzmitteln in Wageningen gehalten wurden. Die Bandbreite reicht von den sehr ausführlich behandelten Insektiziden in Landwirtschaft und Hygiene über Herbizide und Pflanzenwachstumsregulatoren bis zu den Fungiziden. Zwei Plenarvorträge beschäftigen sich mit allgemeinen Problemen der „Screenologie“ (J.T. Brauholtz, ICI) und Trends von Gesetzgebung und Registrierung (N. van Tiel, Niederländischer Pflanzenschutzdienst). Spezielle Testmethoden für bestimmte tierische Schädlinge oder Insektizidklassen und einige Herbizid-Screeningsysteme aus Industrielaboratorien werden dargestellt (H.R. Gerber, Ciba-Geigy; H.P. Allen, ICI; und andere). Neben der Vorstellung eines Datenverarbeitungssystems (R. Bevan, Wellcome Research), Beiträgen über neue Pyrethroide (P.E. Burt; M. Elliott et al.) und einer Struktur-Wirkungsanalyse von Phosphorsäureestern (W. Steurbent et al., Gent) fehlt auch nicht der modische Wachstumspessimismus eines Außenseiters (R.S. Scorer, London). Ein kinetisches Modell der Insektizidwirkung in vivo, erläutert am Beispiel des Carbamats Methomyl (N. McFarlane, Shell), und die Beschreibung eines elektrophysiologischen Tests für synaptisch wirkende Insektizide gehören zu den zahlreichen Originalarbeiten, die den Band für in der Entwicklung und Prüfung von Pflanzenschutzmitteln tätige Forscher nützlich machen.

W. Draber (Wuppertal)