BOOK REVIEWS


As stated in the preface, the authors mention that this short monograph is concerned with isotopes of common lead, and interpretation of lead isotope abundances and their applications which would be of interest to the geologist. Accordingly, the book is divided into eight short chapters with subheadings, and 12 appendices of lead isotope abundance values given in 119 pages. The chapter titles include: Introduction, measurement of lead isotope ratios, the age of the Earth, dating of galenas by means of their isotopic constitutions, anomalous leads, case histories (three are given), extension of the Holmes-Houtermans model, and lead-uranium-thorium methods of age determinations.

The small book is well organized and each topic is clearly presented. When ideas of the authors are stated, they admit that other scientists may dispute them, especially as to the source of lead.

In conclusion, the book is well worth reading for those interested in interpretation of lead isotope methods and their applications to geology.

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The bulletin consists of a brief résumé of the geology, paragenesis, and localities of minerals occurring in the Triassic Trap Rock of New Jersey. The minerals were examined in a collection from the American Museum of Natural History, New York. A statement on the zeolite group is also included by the author. This is followed by a brief description of 60 minerals with optical properties given for non-opaque ones. A list of discredited minerals and unconfirmed occurrences concludes this bulletin.

The publication is well illustrated with black and white geologic map showing mineral localities and many photographs of mineral specimens. Bulletin 64 is well suited for mineralogists interested in collecting from the Trap Rock deposits of New Jersey.

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This volume contains the complete texts of 38 reports presented at the Ninth Annual Conference on Applications of X-ray Analysis, held August 10-12, 1960, in Denver, Colorado, and sponsored by the University of Denver.

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Isotope masses are weighted by their relative abundances and then add to give the average atomic mass. Note-isotope mass both varies in neutron numbers and is weighted by its relative abundance to give the average atomic mass. Isotopes are atoms with the same atomic number, or number of protons and electrons, but different masses. The different masses are due to different numbers of neutrons. The relative natural abundance of each isotope shows the predominance of each. When calculating the average atomic mass of the element, the mass of each isotope is weighted by its relative abundance. By assuming that the isotopes of silicon are observed in their natural relative abundances, 36 and the fact that the 28 Si + peak has no significant overlaps in this system, it is possible to determine the relative contributions to these peaks. This deconvolution was performed by extracting a region of interest from the dataset containing an area of the grain boundary or along the length of a dislocation. ...

Surface ionization mass spectrometry has been developed to measure isotopic abundances and concentrations of silver in commercial high-purity metals, environmental materials such as rocks and plants, and 109Ag and 107Ag spikes. A minute amount of silver is extracted into a dithizone chloroform solution from a nitric acid solution of above samples. Lead isotopes were used very early in the development of isotopic analyses to determine the age of the meteorites and the Earth (Patterson, 1956). It is also while measuring lead isotopic compositions of various Earth materials that Patterson discovered the extent of Pb contamination the Pb tetraethyl added to gasoline as an antiknock agent (e.g. Patterson, 1965). From the human health perspective, this was a very important discovery as Pb accumulates in organisms and has many negative health outcomes, especially on the neurological system. His work eventually led to the removal of Pb from gas... In these equations, T is the age of the Earth, and t corresponds to the time elapsed since removal of a common Pb sample from its source. Physical properties associated with isotopes. Effect of isotopes on atomic and molecular spectra. Molecular vibrations. Importance in the study of polyatomic molecules. Contrasts in the behaviour of the helium isotopes extend to the liquid and solid states and are attributable to the effects of both mass and nuclear structure. The figure shows which states or phases of helium are stable—i.e., which ones actually occur at various temperatures and pressures. Once of interest mainly to academic physicists and chemists, the methods of NMR now find widespread application in medical imaging facilities. In a simple experiment for NMR, a tubeful of liquid methane, 12C1H4, at low temperature, might be set between the poles of a very strong external magnet.