

## Home Of The Ashfall Jacs

This book grows out of a 2001 workshop on "Emission of Chemical Species and Aerosols into the Atmosphere." The contents deal with inventories of emissions related to anthropogenic emissions or biomass burning; emissions from vegetation and soils; emissions of mineral and sea-salt aerosols; and emissions of sulphur compounds from the oceans. Concluding chapters show how atmospheric observations have been used to improve our knowledge of emissions.

The book also illustrates how bioavailability adjustments can be incorporated into risk assessments to generate risk-based cleanup values that are more site specific than those based on the default assumption of complete bioavailability. Although the book focuses on oral bioavailability of metals to human receptors, many of the basic principles described herein also can be applied to assessing bioavailability of organic compounds and for assessing bioavailability to ecological receptors."--BOOK JACKET.

Kate Winter teaches dog owners how to train their canine companions. During her spare time, accompanied by her Lab, Dakota, she explores the woods and beaches on foot or horseback. She's worried that something's happening in her relationship, but she can't get her girlfriend Trish to talk to her about it. Faith Hutchins recently lost her sight after a terrible outdoor accident. She's dealt with her anger, depression, and blindness primarily on her own. A seeing-eye dog would help alleviate her reliance on anyone else, but the guide dog school has been unsuccessful in providing her with one. On a mission to find someone who will train a dog specifically for her, she ultimately zeroes in on Kate. They say lightning never strikes the same place twice. But positive lightning is notoriously unpredictable and can ignite a fire when and where least expected . . . no matter who's in its path."

This book evaluates the effects of silver and silver compounds to the environment, including their uptake and accumulation in plants. Silver is a rare but naturally occurring metal, often found deposited as a mineral ore in association with other elements. Emissions from smelting operations, manufacture and disposal of certain photographic and electrical supplies, coal combustion, and cloud seeding are some of the anthropogenic sources of silver and silver compounds in the biosphere.

Volcanic plumes, made up of material that has explosively erupted from a volcano, are of fundamental importance to volcanology because their deposits record the past activity of a volcano. They also pose a wide range of hazards to humans and can have significant environmental effects. This book integrates observation, theory, and experimental studies and contains recent research ideas and results.

This book explains why complex systems research is important in understanding the structure, function and dynamics of complex natural and social phenomena. It illuminates how complex collective behavior emerges from the parts of a system, due to the interaction between the system and its environment. Readers will learn the basic concepts and methods of complex system research. The book is not highly technical mathematically, but teaches and uses the basic mathematical notions of dynamical system theory, making the book useful for students of science majors and graduate courses.

The author of this concise guide to unarmed combat and self-defence is a legend. W. E. Fairbairn (1885-1960) spent over thirty years in the tough environment of the Riot Squads of China's Shanghai Municipal Police. In order to lower levels of Police mortality at the hands of Chinese Tong, he studied ancient Chinese and Japanese martial arts, including Ju-jitsu, and was the first foreigner to be awarded a black belt in the discipline. He developed his own system which he called 'Defendu'. At the outbreak of the Second World War, he was recruited by Britain's Special Operations Executive as an Instructor in unarmed combat and expounded the deadly mysteries of attack and defence to scores of trainee agents about to be dropped into occupied Europe. His methods were approved and officially adopted throughout the British army. Fairbairn also developed weapons and defence aids such as bullet proof vests. He is best known as the co-inventor of the famous Sykes-Fairbairn knife. In this book he expounds his distilled experience of unarmed combat. Fully illustrated, it shows how to deliver deadly blows with hand, fist, knee and boot; wrist, bear- and strangle holds (and how to break them); how to throw an enemy, and how to break their backs; how to disarm a pistol-wielding attacker; and securing a prisoner. The book also contains a chapter on the use of the rifle in close combat by Captain P. N. Walbridge.

Window Rock, Arizona, is the last known location of Honor Roberts, who vanished when she was just thirteen. It was her only sanctuary from the Breed research that would surely have ended in her death—one such insidious experiment should, indeed, have killed her. That she lived is both a miracle—and a great mystery. Stygian's mission is to find Honor Roberts, no matter the cost. Now, with the help of Liza Johnson, assistant to the chief of the Navajo Nation, he is closer than ever to his goal. But will the discovery of Honor Roberts mean the destruction of the mating heat that has developed between Stygian and Liza?

Feldspar minerals make up 60% of the crust of the Earth. They are stable in the upper mantle, and are so abundant in the crust that they form the basis of the classification of igneous rocks. At the surface, feldspars weather to form clay minerals which are the most important mineral constituent of soils. The articles in this book review the chemical reactions of feldspars over the whole sweep of pressure and temperature regimes in the outer Earth, and describe the fundamental aspects of crystal structure which underlie their properties. The book covers intracrystalline reactions, such as order-disorder transformations and exsolution, and transfer of stable and radiogenic isotopes, which can be interpreted to provide insights into the thermal history of rocks. It is suitable for final year undergraduates or research workers.

This exciting book will explore how Blockchain (BC) technology has the potential to overcome challenges in the current cyber-physical system (CPS) environment. BC is a timestamp ledger of blocks that is used for storing and sharing data in a distributed manner. BC has attracted attention from practitioners and academics in different disciplines, including law, finance, and computer science, due to its use of distributed structure, immutability and security and privacy. However, applying blockchain in a cyber-physical system (CPS) is not straightforward and involves challenges, including lack of scalability, resource consumption, and delay. This book will provide a comprehensive study on blockchain for CPS. CPS and the existing solutions in CPS and will outline the limitations are presented. The key features of blockchain and its salient features which makes it an attractive solution for CPS are discussed. The fundamental challenges in adopting blockchain for CPS including scalability, delay, and resource consumption are presented and described. Blockchain applications in smart grids, smart vehicles, supply chain; and IoT Data marketplaces are explored. The future research directions to further improve blockchain performance in CPS is also provided.

Home of the Ashfall : a MemoirSilver Nanoparticles in the EnvironmentSpringer

Complexity is emerging as a post-Newtonian paradigm for approaching a large body of phenomena of concern at the crossroads of physical, engineering, environmental, life and human sciences from a unifying point of view. This book outlines the foundations of modern complexity research as it arose from the cross-fertilization of ideas and tools from nonlinear science, statistical physics and numerical simulation. It is shown how these developments lead to an understanding, both qualitative and quantitative, of the complex systems encountered in nature and in everyday experience and, conversely, how natural complexity acts as a source of inspiration for progress at the fundamental level.

This comprehensive book covers the environmental issues concerning silver nanoparticles (AgNPs). Following an introduction to the history, properties and applications, the environmental concerns of AgNPs is discussed. In the second chapter, the separation, characterization and quantification of AgNPs in environment samples are described in detail. In the remaining parts of the book, the authors focus on the environmental processes and effects of AgNPs, with chapters on the pathway into environment, fate and transport, toxicological effects and mechanisms, as well as the environmental bioeffects and safety-assessment of AgNPs in the environment. This book is designed to describe current understanding of the environmental aspects of AgNPs. It provides a valuable resource to students and researchers in environmental

science and technology, nanotechnology, toxicology, materials science and ecology; as well as to professionals involved in the production and consumption of AgNPs in various areas including catalysis, food products, textiles/fabrics, and medical products and devices. Jingfu Liu and Guibin Jiang are professors at State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences.

Over the past decade smart urban technologies have begun to blanket our cities, forming the backbone of a large intelligent infrastructure. Along with this development, dissemination of the smart cities ideology has had a significant imprint on urban planning and development. *Smart Cities and Innovative Urban Technologies* focuses on the concepts of smart cities and innovative urban technologies. It contains research that provides insight into spatial formations of information and communication technologies, and knowledge production practices from various perspectives—including analyses of public and private sectors together with NGOs and other stakeholders. It provides a state-of-the-art analysis from multidisciplinary point-of-view in urban studies. Contributions in this edited volume include theoretical developments as well as empirical analyses. This book will be of great use to various audiences including academics as well as practitioners, spatial developers, planners, and public administrators in order to increase understanding of the dynamics and factors effecting smart cities conceptual maturation and their physical emergence. Information generated in these chapters, particularly regarding the challenges and obstacles of smart cities and innovative urban technologies, are intended to be of benefit to the key local actors in making decision in their cities or/and peripheral locations. This book was originally published as a special issue of the *Journal of Urban Technology*.

**Personal essays.**

This book presents articles from the World Conference on Acoustic Emission 2019 (WCAE-2019) held at Guangdong, China. The latest research and applications of acoustic emission (AE) are explored, with a particular emphasis on detecting and processing AE signals, the development of AE instrument and testing standards, AE of materials, engineering structures and systems, including the processing of collected data and analytical techniques. Numerous case studies are also included. It brings together leading academicians and professionals in the field to foster collaboration and to enhance research in this important area, with wide ranging applications.

In *Digital Data Collection and Information Privacy Law*, Mark Burdon argues for the reformulation of information privacy law to regulate new power consequences of ubiquitous data collection. Examining developing business models, based on collections of sensor data - with a focus on the 'smart home' - Burdon demonstrates the challenges that are arising for information privacy's control-model and its application of principled protections of personal information exchange. By reformulating information privacy's primary role of individual control as an interrupter of modulated power, Burdon provides a foundation for future law reform and calls for stronger information privacy law protections. This book should be read by anyone interested in the role of privacy in a world of ubiquitous and pervasive data collection.

What light does nearly 25 years of scientific study of the Exxon Valdez oil spill shed on the fate and effects of a spill? How can the results help in assessing future spills? How can ecological risks be assessed and quantified? In this, the first book on the effects of Exxon Valdez in 15 years, scientists directly involved in studying the spill provide a comprehensive perspective on, and synthesis of, scientific information on long-term spill effects. The coverage is multidisciplinary, with chapters discussing a range of issues including effects on biota, successes and failures of post-spill studies and techniques, and areas of continued disagreement. An even-handed and critical examination of more than two decades of scientific study, this is an invaluable guide for studying future oil spills and, more broadly, for unraveling the consequences of any large environmental disruption. For access to a full bibliography of related publications, follow the Resources link at [www.cambridge.org/9781107027176](http://www.cambridge.org/9781107027176).

This book addresses the fabrication of responsive functional nanomaterials and their use in sustainable energy and environmental applications. Responsive functional nanomaterials can change their physiochemical properties to adapt to their environment. Accordingly, these novel materials are playing an increasingly important role in a diverse range of applications, such as sensors and actuators, self-healing materials, separation, drug delivery, diagnostics, tissue engineering, functional coatings and textiles. This book reports on the latest advances in responsive functional nanomaterials in a wide range of applications and will appeal to a broad readership across the fields of materials, chemistry, sustainable energy, environmental science and nanotechnology.

This book presents a comprehensive review of renewable energy-based sustainable drying techniques for developing countries. Aspiring towards a world with zero food waste, the book has provided discussion on sustainable drying techniques in terms of energy efficiency. The socio-economic condition of each developing country is unique; therefore, has specific technological requirements. As such, the book presents discussions on food waste scenario around the world, the socio-economic status of developing countries and their correlation with food. The book gives an overview of the quality aspects of drying, along with the required energy and time to retain these features. Additionally, a method of selecting drying techniques for developing countries, taking the cost and safety factor into consideration, has been discussed extensively. Also, the renewable and non-renewable energy resources of low income, lower-middle income, middle income, and high-income developing countries have been analyzed and presented. The book also highlights the available drying techniques that are currently being practiced by the consumers and industries of developing countries. The book recommends ten sustainable drying technologies for the developing countries and describes their working principle. Discussion on potential challenges for sustainable drying technology adoption is also presented. The book presents up-to-date research on sustainable drying techniques and their impact on developing countries to reduce food waste. Food waste is not only a humanitarian concern but also a threat to environmental sustainability. Currently, one-third of all produced food is being wasted, when nearly 805 million people - including children remain undernourished on a daily basis. In an effort to solve this crisis, a number of food preservations techniques are being practiced in food supply chain. Drying is one such preservation technique that prevents microbial proliferation, slows enzymatic reaction and preserves the physio-chemical properties of food. Albeit, drying is an effective means of food preservation; it is also highly energy-intensive. Developing countries do not have sufficient energy and financial resources to adopt conventional (expensive and high energy) drying techniques. As such, this is the first reference work dedicated to discussing the

prospects and challenges of sustainable (renewable energy based and inexpensive) drying techniques for developing countries in order to reduce food waste. Sustainable food drying techniques in developing countries: Prospects and Challenges is a singular work in the field of food preservation and affordable drying technology.

This book provides a bold vision and roadmap for creating great places. Imagining and designing urban environments where all people thrive is an extraordinary task, and in this compelling narrative, Cushing and Miller remind us that theory is a powerful starting point. Drawing on international research, illustrated case studies, personal experiences, as well as fascinating examples from history and pop culture, this practical book provides the reader with inspiration, guidance and tools. The first section outlines six critical theories for contemporary urban design - affordance, prospect-refuge, personal space, sense of place/genius loci, place attachment, and biophilic design. The second section, using their innovative 'theory-storming' process, demonstrates how designers can create great places that are inclusive, sustainable, and salutogenic. Creating Great Places is an insightful, compelling, and evidence-based resource for readers who want to design urban environments that inspire, excite, and positively transform people's lives.

This book aims to contribute to the conceptual and practical knowledge pools in order to improve the research and practice on the sustainable development of smart cities by bringing an informed understanding of the subject to scholars, policymakers, and practitioners. This book seeks articles offering insights into the sustainable development of smart cities by providing in-depth conceptual analyses and detailed case study descriptions and empirical investigations. This way, the book will form a repository of relevant information, material, and knowledge to support research, policymaking, practice, and transferability of experiences to address aforementioned challenges. The scope of the book includes the following broad areas, with a particular focus on the approaches, advances, and applications in the sustainable development of smart cities: • Theoretical underpinnings and analytical and policy frameworks; • Methodological approaches for the evaluation of smart and sustainable cities; • Technological developments in the techno-enviro nexus; • Global best practice smart city case investigations and reports; • Geo-design and applications concerning desired urban outcomes; • Prospects, implications, and impacts concerning the future of smart and sustainable cities.

Luke uncovers a plot to steal a famous painting and gets caught up in the gang's attempt to break a code that will lead them to a stash of Nazi gold.

Master the basic concepts and methodologies of digital signal processing with this systematic introduction, without the need for an extensive mathematical background. The authors lead the reader through the fundamental mathematical principles underlying the operation of key signal processing techniques, providing simple arguments and cases rather than detailed general proofs. Coverage of practical implementation, discussion of the limitations of particular methods and plentiful MATLAB illustrations allow readers to better connect theory and practice. A focus on algorithms that are of theoretical importance or useful in real-world applications ensures that students cover material relevant to engineering practice, and equips students and practitioners alike with the basic principles necessary to apply DSP techniques to a variety of applications. Chapters include worked examples, problems and computer experiments, helping students to absorb the material they have just read. Lecture slides for all figures and solutions to the numerous problems are available to instructors.

Bioavailability refers to the extent to which humans and ecological receptors are exposed to contaminants in soil or sediment. The concept of bioavailability has recently piqued the interest of the hazardous waste industry as an important consideration in deciding how much waste to clean up. The rationale is that if contaminants in soil and sediment are not bioavailable, then more contaminant mass can be left in place without creating additional risk. A new NRC report notes that the potential for the consideration of bioavailability to influence decision-making is greatest where certain chemical, environmental, and regulatory factors align. The current use of bioavailability in risk assessment and hazardous waste cleanup regulations is demystified, and acceptable tools and models for bioavailability assessment are discussed and ranked according to seven criteria. Finally, the intimate link between bioavailability and bioremediation is explored. The report concludes with suggestions for moving bioavailability forward in the regulatory arena for both soil and sediment cleanup.

The Encyclopedia of Soil Science provides a comprehensive, alphabetical treatment of basic soil science in a single volume. It constitutes a wide ranging and authoritative collection of some 160 academic articles covering the salient aspects of soil physics, chemistry, biology, fertility, technology, genesis, morphology, classification and geomorphology. With increased usage of soil for world food production, building materials, and waste repositories, demand has grown for a better global understanding of soil and its processes. Longer articles by leading authorities from around the world are supplemented by some 430 definitions of common terms in soil sciences.

From award-winning science journalist Linda Geddes, a fascinating and practical companion for expectant parents that makes sense of conflicting advice about pregnancy, birth, and raising babies. Can I eat peanuts during pregnancy? Do unborn babies dream? Can men get pregnancy symptoms too? How much do babies remember? How can I get my baby to sleep through the night? The moment she discovers she's pregnant, every woman suddenly has a million questions about the life that's developing inside her. Linda Geddes was no different, except that as a journalist writing for New Scientist magazine she had access to the most up-to-date scientific research. What began as a personal quest to find the truth behind headlines and information that didn't patronize or confuse is now a brilliant new book. In Bumpology, Geddes discusses the latest research on every topic that expectant parents encounter, from first pregnancy symptoms to pregnancy diet, the right birth plan, and a baby's first year.

Volume 39 of Reviews in Mineralogy and Geochemistry about Transformation Processes in Minerals summarises the current state of the art. The selection of transformation processes covered here is by no means comprehensive, but represents a coherent view of some of the most important processes which occur specifically in minerals. Contents: Rigid

unit modes in framework structures Strain and elasticity at structural phase transitions in minerals Mesoscopic twin patterns in ferroelastic and co-elastic minerals High-pressure structural phase transitions Order-disorder phase transitions Phase transformations induced by solid solution Magnetic transitions in minerals NMR spectroscopy of phase transitions in minerals Insights into phase transformations from Mössbauer spectroscopy Hard mode spectroscopy of phase transitions Synchrotron studies of phase transformations Radiation-induced amorphization

Emergence, Complexity, and Self-Organization have become vital focuses of interest not only in the fields of science and philosophy but also in the wider worlds of business and politics. This book presents a series of essays by thinkers who anticipated the significance of those issues and laid the foundations for their current importance. Readers of this book will encounter the important and varied figures of Immanuel Kant, John Stuart Mill, Charles Saunders Peirce, Henry Poincare, Henri Bergson, Alfred North Whitehead, and the British "Emergentists" Samuel Alexander, C. Lloyd Morgan, and C. D. Broad. They will also find essays by the South African thinker and statesman Jan Smuts, the American philosopher Arthur Lovejoy, the eminent physicist Erwin Schrodinger, two more recent thinkers on emergence, P. E. Meehl and Wilfred Sellars, and Ludwig von Bertalanffy, one of the founders of General Systems Theory. In their detailed and comprehensive introduction to the collection, editors Alicia Juarrero and Carl A. Rubino set the essays in contexts stretching from Heraclitus, Parmenides, Plato, Aristotle, and Hegel to some of the religious, scientific, and philosophical challenges we face today.

The subject of mineralogy is moving away from the traditional systematic treatment of mineral groups toward the study of the behaviour of minerals in relation to geological processes. A knowledge of how minerals respond to a changing geological environment is fundamental to our understanding of many dynamic earth processes. By adopting a materials science approach, *An Introduction to Mineral Sciences* explains the principles underlying the modern study of minerals, discussing the behaviour of crystalline materials with changes in temperature, pressure and chemical environment. The concepts required to understand mineral behaviour are often complex, but are presented here in simple, non-mathematical terms for undergraduate mineralogy students. After introductory chapters describing the principles of diffraction, imaging and the spectroscopic methods used to study minerals, the structure and behaviour of the main groups of rock-forming minerals are covered, and the role of defects in the deformation and transformation of a mineral are explained. The energy changes and the rate of transformation processes are introduced using a descriptive approach rather than attempting a complete and rigorous treatment of the thermodynamics and kinetics. Examples and case histories from a range of mineral groups are set in an earth science context, such that the emphasis of this book is to allow the student to develop an intuitive understanding of the structural principles controlling the behaviour of minerals. Selected, peer reviewed papers from the 2013 2nd International Conference on Energy and Environmental Protection (ICEEP 2013), April 19-21, 2013, Guilin, China

Molecular descriptors are mathematical values that describe the structure or shape of molecules, helping predict the activity and properties of molecules in complex experiments. This book describes the equations known as QSAR (quantitative structure-activity relationships) and QSPR (quantitative structure-property relationships), showing how they can be used productively in a wide range of industries.

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