

Textbook Of Pollen Analysis

This handbook provides a resource for those already familiar with some kinds of micro-particles who wish to learn more about others, or for those just starting out in the study of microremains who wish to have a broad understanding about microscopic archaeology. Topics covered in this handbook include diatom microfossils, starch granules, pollen grains, phytoliths, natural fibers, volcanic glass, minerals, insect remains, and feathers. Archaeological investigations increasingly rely on specialist identification of microscopic remnants found in sites. These micro-particles can provide information about the site environment and human activities that may not be apparent from artifacts and materials preserved on the macro-scale, and have given us new, and often high-profile, information about our past. The investigation of this "invisible archaeology" - that is, invisible to the naked eye - is still somewhat new, and generally each kind of micro-particle is studied individually. Researchers become experts in a narrow range of micro-particle types, but may be less familiar with, or even completely unaware of, the multitude of other forms that are frequently encountered in archaeological samples. This handbook's accessible approach is suitable for those at the beginner level.

This third volume in the Developments in Paleoenvironmental Research series deals with the major terrestrial, algal, and siliceous indicators used in paleolimnology. Other volumes deal with the acquisition and archiving of lake sediment cores, chronological techniques, and large-scale basin analysis methods (Volume 1), physical and geochemical parameters and methods (Volume 2), zoological techniques (Volume 4), and statistical and data handling methods (Volume 5). These monographs will provide sufficient detail and breadth to be useful handbooks for both seasoned practitioners as well as newcomers to the area of paleolimnology. Although the chapters in these volumes target mainly lacustrine settings, many of the techniques described can also be readily applied to fluvial, glacial, marine, estuarine, and peatland environments.

Palynology finds applications in various fields. Some of them are taxonomy, plant evolution, plant breeding programmes, biotechnology, microbiology of water, soil and air, the pharmaceutical industry, cosmetic industry, energy food industry, forensic science, aerobiology, allergy, epidemiology, meteorology, fossil fuel exploration and biodiversity.

Oxford Textbook of Nature and Public Health

A Study of the Quaternary

Paleoethnobotany

identification keys for the northwest European pollen flora extracted from Textbook of pollen analysis

The Science of Crime Scenes

Quaternary Palaeoecology, first published in 1980, discusses the methods and approaches by which Quaternary environments can be reconstructed from the fossil and sedimentary record. This knowledge is of great value as the Quaternary was a time of rapid ecological change, culminating in the present pattern and diversity of ecosystems. It is possible not only to relate these changes to fluctuating climates but also to infer what Man's early influence may have been. The authors describe how past flora and fauna can be reconstructed and how the numbers of fossils can be used to reconstruct past plant and animal populations and communities, and past environments. John Birks has researched in a variety of fields within Quaternary palaeoecology, including pollen analysis and vegetation history, environmental change, past climate reconstruction, and paleolimnology. Since the 1980s he has introduced and developed numerical methods and quantitative approaches into palaeoecology and paleolimnology. Besides research in Norway and the UK, he has also worked on palaeoecological problems in Svalbard, Sweden, Finland, Switzerland, Minnesota, and the Yukon. He served on the editorial boards of several journals and has published widely on many aspects of Quaternary palaeoecology. He is currently Professor of Quantitative Palaeoecology at the University of Bergen, Norway, and University College London, UK. Hilary Birks researches on palaeoecology and past climates primarily through the use of plant macrofossil analysis. She took up the study of plant macrofossils in Minnesota, USA in 1970, where she investigated the modern representation of plants in lake sediments by their fruits and seeds, and also worked on the paleolimnological record of recent eutrophication and late-glacial palaeoecology. Since then she has extended her macrofossil studies to the late-glacial of Scotland and western Norway, the full-glacial of Beringia (Alaska) and recent changes in North African lakes brought about by human activities. She is Professor of Palaeoecology at the University of Bergen, Norway and teaches palaeoecology at the University of Bergen and University College London, UK.

Pollen can be preserved for thousands of years in palaeontological and archaeological materials, thus providing a unique means of reconstructing the past. This is of particular interest to scientists given the current, intense interest in global climate change. Varying minutely in size and detail, each grain can be identified by light and electron microscopy. This volume, which will be valuable to both students and researchers alike, is a field and laboratory manual of pollen analysis that provides a wealth of information for the selection of sites, the collection and processing of samples, the identification of pollen (covering Northern Europe and North America), and the analysis and presentation of data. The bulk of the book consists of the most comprehensive pollen and spore key available.

Used in conjunction with the excellent light and electron micrographs, this key is an important aid for any palynologist wishing to identify pollen grains.

Textbook of Pollen AnalysisTextbook of Pollen AnalysisTextbook of Pollen AnalysisTextbook of Pollen AnalysisTextbook of Pollen Analysis

The Holocene

An Illustrated Guide to Pollen Analysis

Paleopalynology

Text-book of Modern Pollen Analysis

Second Edition

Raymond S. Bradley provides his readers with a comprehensive and up-to-date review of all of the important methods used in paleoclimatic reconstruction, dating and paleoclimate modeling. Two comprehensive chapters on dating methods provide the foundation for all paleoclimatic studies and are followed by up-to-date coverage of ice core research, continental geological and biological records, pollen analysis, radiocarbon dating, tree rings and historical records. New methods using alkenones in marine sediments and coral studies are also described. Paleoclimatology, Second Edition, is an essential textbook for advanced undergraduate and postgraduate students studying climatology, paleoclimatology and paleoceanography worldwide, as well as a valuable reference for lecturers and researchers, appealing to archaeologists and scientists interested in environmental change. * Contains two up-to-date chapters on dating methods * Consists of the latest coverage of ice core research, marine sediment and coral studies, continental geological and biological records, pollen analysis, tree rings, and historical records * Describes the newest methods using alkenones in marine sediments and long continental pollen records * Addresses all important methods used in paleoclimatic reconstruction * Includes an extensive chapter on the use of models in paleoclimatology * Extensive and up-to-date bibliography * Illustrated with numerous comprehensive figure captions

What role did plant resources have in the evolution of the human species? Why and how have plants been managed and transported to new environments? Where, how, and why were plants domesticated, and why do the patterns vary in different parts of the world? What is the relationship between the intensification of food production and the rise of complex societies? Numerous new studies are using starch granules discovered in archaeological contexts to answer these questions and improve our knowledge of past human behavior and environmental variation. Given the substantial body of successful research, the time has clearly come for a comprehensive description of ancient starch research and its potential for archaeologists. This book fills these roles by describing the fundamental principles underlying starch research, guiding researchers through the methodology, reviewing the results of significant case studies, and pointing the way to future avenues for research. The joint product of over two dozen archaeological scientists, Ancient Starch Research aims to bring the important new field of ancient starch analysis to the attention of a wider range of scholars and to provide them with the information needed to embark on their own research.

Plant Systematics is a comprehensive and beautifully illustrated text, covering the most up-to-date and essential paradigms, concepts, and terms required for a basic understanding of plant systematics. This book contains numerous cladograms that illustrate the evolutionary relationships of major plant groups, with an emphasis on the adaptive significance of major evolutionary novelties. It provides descriptions and classifications of major groups of angiosperms, including over 90 flowering plant families; a comprehensive glossary of plant morphological terms, as well as appendices on botanical illustration and plant descriptions. Pedagogy includes review questions, exercises, and references that complement each chapter. This text is ideal for graduate and undergraduate students in botany, plant taxonomy, plant systematics, plant pathology, ecology as well as faculty and researchers in any of the plant sciences. * The Henry Allan Gleason Award of The New York Botanical Garden, awarded for "Outstanding recent publication in the field of plant taxonomy, plant ecology, or plant geography" (2006) * Contains numerous cladograms that illustrate the evolutionary relationships of major plant groups, with an emphasis on the adaptive significance of major evolutionary novelties *Provides descriptions and classifications of major groups of angiosperms, including over 90 flowering plant families * Includes a comprehensive glossary of plant morphological terms as well as appendices on botanical illustration and plant description

An Introduction To Pollen Analysis

Environmental History of East Africa

Allergy and Allergen Immunotherapy

Pollen and Spores

Quaternary Ecology, Evolution, and Biogeography is an introduction on the study of the ecological and evolutionary processes that have shaped our present biosphere under the influence of glacial-interglacial cycles. Written by a renowned ecologist with paleoecological expertise, the book reviews the climactic changes that have occurred during the last million years, along with the responses of organisms and ecosystems. The book offers an understanding of the evolutionary origin of extant biodiversity, its biogeographical patterns, and the composition of modern ecological communities. In addition, it explores human evolution and the influence of our activities on the biosphere, especially in the last millennia. The valuable resource is intended for a wide audience, including researchers and students in natural sciences. It offers the latest information on how studying the past can contribute to our understanding of present climate issues for a better future.

Presents a full range of techniques--the newest and most sophisticated as well as the simple, inexpensive, and traditional ones--compiled from the published literature and from the unpublished notebooks and files of pollination biologists. Examines pitfalls and offers cautionary advice about design and implementation of various types of pollination experiments. An important compilation in a discipline fed by a variety of fields and heretofore lacking a single source "how-to" reference. Paper edition (unseen), \$17.50. Annotation copyright by Book News, Inc., Portland, OR

The Holocene provides students, researchers and lay-readers with the remarkable story of how the natural world has been transformed since the end of the last Ice Age around 15,000 years ago. This period has witnessed a shift from environmental changes determined by natural forces to those dominated by human actions, including those of climate and greenhouse gases.

Understanding the environmental changes - both natural and anthropogenic - that have occurred during the Holocene is of crucial importance if we are to achieve a sustainable environmental future. Revised and updated to take full account of the most recent advances, the third edition of this classic text includes substantial material on the scientific methods that are used to reconstruct and date past environments, as well as new concepts such as the Anthropocene. The book is fully-illustrated, global in coverage, and contains case studies, a glossary and more than 500 new references.

Quaternary Palaeoecology

Tracking Environmental Change Using Lake Sediments

Plant Systematics

Textbook of Pollen Analysis, Etc

Paleoclimatology

The Science of Crime Scenes, Second Edition offers a science-based approach to crime scenes, emphasizing that understanding is more important than simply knowing. Without sacrificing technical details, the book adds significantly to the philosophy and theory of crime scene science. This new edition addresses the science behind the scenes and demonstrates the latest methods and technologies with updated figures and images. It covers the philosophy of the crime scene, the personnel involved at a scene (including the media), the detection of criminal traces and their reconstruction, and special crime scenes, such as mass disasters and terroristic events. Written by an international trio of authors with decades of crime scene experience, this book is the next generation of crime scene textbooks. This volume will serve both as a textbook for forensic programs, and as an excellent reference for forensic practitioners and crime scene technicians with science backgrounds. Includes in-depth coverage of disasters and mass murder, terror crime scenes and CBRRN (Chemical, biological, radioactive and nuclear) - topics not covered in any other text Includes an instructor site with lecture slides, images and links to resources for teaching and training

Allergy and Allergen Immunotherapy: New Mechanisms and Strategies is a valuable and comprehensive book that covers allergy and causative allergens and provides diagnostic and therapeutic aspects as well. With chapters from internationally recognized experts in the field, the book provides a balanced approach to enumerating pollen allergens as well as allergy diagnosis and therapeutic management and safety assessment of genetically engineered food allergens. The book features a special section on allergic diseases and allergens from tropical countries, including such countries such as India, Sri Lanka, Iran, and South Korea, giving the book a global appeal. The book is broken in the following sections: Epidemiology, Pathophysiology, and Diagnosis of Allergy Aerobiology and Allergic Diseases Pollen Allergy in the Tropics and Temperate Regions Allergy in Children Food Allergy Evaluation Allergen Immunotherapy and Anti IgE The book deals not only on basics of allergy and allergen immunotherapy but also discusses indoor environments and safety considerations of genetically modified food allergens. The first of its kind volume from the Indian subcontinent that caters to the needs of clinicians, aerobiologists, environmentalists, and regulatory agencies as well, the volume will be of immense interest for clinicians and patients of allergy as well as diagnostic and therapeutic management of allergy in tropics.

The analysis of vegetation history is one of the prime objectives for vegetation scientists. In order to understand the recent composition of local floras and plant communities a second knowledge of species com position during recent millenia is essential. With the present concern over climate changes, due to human activities, an understanding of past vegeta tion distribution becomes even more important, since the correlation between climate and vegetation can often be used to predict possible impacts to crops and forests. I was very fortunate to receive the help of Drs. Webb and Huntley to compile this volume on vegetation history. They have collated an impres sive set of papers which together give an account of the vegetation history of most of the continents during the late-Tertiary and Quaternery periods. There are, however, gaps in the coverage achieved, most notably Africa, and Asia apart from Japan. The information in this book will nonetheless certainly be used widely by vegetation scientists for the regions covered in the book and much of it has relevance to the areas not explicitly described. The authors of the individual chapters have done their best to cover recent topics of interest as well as established facts. It is intended that a separate volume will be produced in the near future covering the vegetation history of Africa and Asia. I thank the editors of It fits well into the this volume for their commendable achievement.

Textbook of Pollen Analysis [by] Knut Faegri [and] Johs. Iversen. With a Chapter on Pre-Quaternary Pollen Analysis

Applications with Special Emphasis on Aerobiology and Allergy

Ancient Starch Research

Vegetation history

Arctic and Alpine Environments

AN INTRODUCTION TO POLLEN ANALYSIS by G. ERDTMAN. FOREWORD: It has long been the custom among those making pollen surveys to expose microscope slides coated with a suitable adhesive and examine them for the pollen grains caught. The counts of the various species are tabulated each day and at the end of the season drawn into a graph or pollen spectrum, as it is called , which gives a clear picture of the relative amounts of the different kinds of pollen which are floating in the air from day to day throughout the growing season If done in the north temperate zone such a spectrum will show the pollen of the early flowering trees, at first a trickle, as the junipers, alders and hazels flower, then a deluge as the birches, oaks and pines ami many other trees cast their pollen to the air. This is generally followed by a long stream of grass pollen, fluctuating from week to week as the various species come into flower, reach their zenith, then die out giving way to succeeding species And toward the end of the summer pollens of the late flowering weeds make their appearance, nowadays in most places com pletely dominated by that of the ragweed. If the record is repeated the following year the spectrum will be nearly the same The succession can be counted on to repeat itself with hittle change from year to year for many years to come, unless some cataclysm changes the surrounding vegetation which contributes to the pollen spectrum, for it is always a faithful representation of the surrounding vegetation...

Human beings have always been affected by their surroundings. There are various health benefits linked to being able to access to nature: including increased physical activity, stress recovery, and the stimulation of child cognitive development. The Oxford Textbook of Nature and Public Health provides a broad and inclusive picture of the relationship between our own health and the natural environment. All aspects of this unique relationship are covered, ranging from disease prevention through physical activity in green spaces to innovative ecosystem services, such as climate change adaptation by urban trees. Potential hazardous consequences are also discussed including natural disasters, vector-borne pathogens, and allergies. This book analyses the complexity of our human interaction with nature and includes sections for example epigenetics, stress physiology, and impact assessments. These topics are all interconnected and fundamental for reaching a full understanding of the role of nature in public health and wellbeing. Much of the recent literature on environmental health has primarily described potential threats from our natural surroundings. The Oxford Textbook of Nature and Public Health instead focuses on how nature can positively impact our health and wellbeing, and how much we risk losing by destroying it. The all-inclusive approach provides a comprehensive and complete coverage of the role of nature in public health, making this textbook invaluable reading for health professionals, students, and researchers within public health, environmental health, and complementary medicine.

This book provides complete coverage of all aspects of the study of all fossil palynomorphs yet studied. It is a profusely illustrated treatment. The book serves both as a student text and general reference work. Palynomorphs yield information about age, geological and biological environment, climate during deposition, and other significant factors about the enclosing rocks.

Extant spores and pollen are treated first, preparing the student for more difficult work with fossil sporomorphs and other kinds of palynomorphs. An appendix describes laboratory methods.

The glossary, bibliographies and index are useful tools for study of the literature.

Pollen Morphology and Plant Taxonomy: Angiosperms

Quaternary Ecology, Evolution, and Biogeography

Forensic Botany

Which plant?

Pollen Analysis

This book is a reprint of the fourth edition, published in 1989, of the Textbook of Pollen Analysis and is unique in its approach as it discusses both the practical and theoretical aspects of palynology. It uses palynological techniques as tools for solving problems in quaternary geology, ecology and archeology. This edition of this standard reference has the same objectives as the earlier ones but the objectives have been widened, particularly the archaeological. There are over 130 illustrations and the identification keys have been thoroughly revised and are now illustrated. "Will certainly benefit all in understanding the principles of pollen analysis. All students, palynologists and libraries should have it as a text book for reference." Marine Geology "Classic and much-used text book ... will remain an indispensable book for those interested in paleoecology and practicing pollen analysis." The New Phycologist

"Unsurpassed in its restriction to basic principles, breadth of coverage, clarity of expression and emphasis on ecology." Review of Paleobotany and Palynology

This new edition of the definitive work on doing paleoethnobotany follows the steady growth in the quantity and sophistication of paleoethnobotanical research. It features a rewritten chapter on phytolith analysis and a new chapter, Integrating Biological Data. It also includes new techniques, such as residue analysis, and new applications of old indicators, such as starch grains. An expanded examination of pollen analysis, more examples of environmental

reconstruction, and a better balance of Old and New World examples increase the versatility of this holistic view of paleoethnobotany. Paleoethnobotany, Second Edition presents the diverse approaches and techniques that anthropologists and botanists use to study human-plant interactions. It shows why anthropologists must identify plant remains and understand the ecology of human-plant interactions. Additionally, it demonstrates why botanists need to view the plant world from a cultural perspective and understand the strengths and weaknesses of the archaeological record.

Forensic Botany: A Practical Guide is an accessible introduction to the way in which botanical evidence is identified, collected and analysed in criminal cases. Increasingly this form of evidence is becoming more important in forensic investigation and yet there are few trained botanists able to assist in such cases. This book is intended to show how useful simple collection methods and standard plant analysis can be in the course of such investigations and is written in a clear and accessible manner to enhance understanding of the subject for the non-specialist. Clearly structured throughout, this book combines well known collection techniques in a field oriented format that can be used for casework. Collection of evidence differs from formal plant collection in that most professional plant collectors are gathering entire plants or significant portions of a plant for permanent storage and reference. Evidence frequently consists of fragments, sometimes exceedingly tiny. Exemplars (examples of reference plants) are collections of plants made in the manner a botanist would collect them. These collections are necessary to link or exclude evidence to or from a scene. Various methods that allow easy collection, transportation, and preservation of evidence are detailed throughout the book. This book is written for those who have no formal background working with plants. It can be used as a practical guide for students taking forensic science courses, law enforcement training, legal courses, and as a template for plant collection at any scene where plants occur and where rules or laws are involved. Veterinarians, various environmental agencies, anthropologists, and archeologists are examples of disciplines that are more recently in need of plant evidence. Veterinarians are becoming more active in pursuing cases of animals that have been abused or are victims of illegal killing. Anthropologists and archeologists are often called to help with body recovery in outdoor environments. Environmental agencies are increasingly forced to adopt rules for resource protection, are in need of a guide for procedures for plant evidence collection and application. The format of the book is designed to present the reader with all the information needed to conduct a botanical analysis of a crime scene; to highlight the forensic significance of the botanical evidence that may be present; how to collect that evidence in the correct manner and preserve and store that evidence appropriately- also shows how to conduct a laboratory analysis of the plants.

Textbook of Modern Pollen Analysis. Textbook of Pollen Analysis. Second Revised Edition ... With a Chapter ... by H.T. Waterbolk. With Illustrations.

Techniques for Pollination Biologists

Reconstructing Climates of the Quaternary

The role of nature in improving the health of a population

The Encyclopedia of Paleontology

Originally published in 1974, Arctic and Alpine Environments examines, the relatively simple ecosystems of arctic and alpine lands that still occupy extensive areas little disturbed by modern technology. The book argues that there is a necessity for carefully controlled development of the resources of these regions and suggests that there is a risk of irreversible disturbance without full understanding of these regions. This book provides a detailed documentation of cold-stressed arctic and alpine terrestrial environments and systematically deals with the present and past physical environment – climate, hydrology and glaciology; biota – treeline, vegetation, vertebrate zoology, and historical biogeography; abiotic processes – geomorphological and pedological and the role of man – bioclimatology, archaeology and technological impact, including radioecology. The book will appeal to academics and students of environmental and biological science, as well as providing a significant source for conservationists', government agencies and industrial organizations.

This open access book offers a fully illustrated compendium of glossary terms and basic principles in the field of palynology, making it an indispensable tool for all palynologists. It is a revised and extended edition of "Pollen Terminology. An illustrated handbook," published in 2009. This second edition, titled "Illustrated Pollen Terminology" shares additional insights into new and stunning aspects of palynology. In this context, the general chapters have been critically revised, expanded and restructured. The chapter "Misinterpretations in Palynology" has been extended with new research data and additional ambiguous terms, e.g., polyads vs. massulae; the chapter "Methods in Palynology" has been extensively enhanced with illustrated protocols showing the majority of the methods and techniques used when studying recent and fossil pollen with LM, SEM and TEM. Moreover, additional information about the description and publication of pollen data is provided in the chapter "How to Describe and Illustrate Pollen Grains." Various other parts of the general chapters have now been updated and/or extended with more comprehensive textual passages and new illustrations. The chapter "Illustrated Pollen Terms" now features new and more appropriate examples of each term, including additional LM micrographs. Where necessary, the entries for selected pollen terms have been refined by rewording or adding definitions, illustrations, and new micrographs. Lastly, new terms are included, such as "suprasculpture" and the prefix "nano-" for ornamentation features. The chapter "Illustrated Pollen Terms" is the main part of this book and comprises more than 300 widely used terms illustrated with over 1,000 high-quality images. It provides a detailed survey of the manifold ornamentation and structures of pollen, and offers essential insights into their stunning beauty.

Taxonomie und Nomenklatur, Palynologie, Pollenanalyse.

Textbook of Pollen Analysis, by Knut Faegri [and] Johs. Iversen. With a Chapter on Pre-Quaternary Pollen Analysis by H.T. Waterbolk

Identification Keys for the Northwest European Pollen Flora Extracted from Textbook of Pollen Analysis [by] Knut Faegri, Jons Iversen. 4th Ed. [by] Knut Faegri, Peter Emil Kaland, Knut Krzywinski

A Handbook of Procedures

New Mechanisms and Strategies

Handbook for the Analysis of Micro-Particles in Archaeological Samples

Scholarly work with lengthy entries followed by references for further reading. Many illustrations. Indexed.

A Practical Guide

Identification Keys for the Northwest European Pollen Flora : Extracted from Textbook of Pollen Analysis 4th Ed. [by] Knut Faegri, Johs. Iversen

Volume 3: Terrestrial, Algal, and Siliceous Indicators

Textbook of Pollen Analysis

Which Plant?