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**KEY=IN - PAOLA BOND**

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## Numerical Analysis of Blade-Formation Interactions in Excavation

**LAP Lambert Academic Publishing** The efficiency and costs of mining operations greatly depend on the efficient design and use of excavators. The performance of these capital-intensive excavators requires thorough understanding of the physical and design factors that affect the formation-cutting tool interaction process. The current body of knowledge, based on experimental and analytical methods, provides limited understanding of these factors, which limits the accurate design and performance of excavators. The soil constitutive equations used in most of the available finite element (FE) models also fail to adequately capture the elastic and plastic behaviors of soil formations. This book reviews some of the models of cutting blade-formation, with their merits and limitations. The book also presents a research initiative which uses FE techniques to model the soil-tool interaction phenomenon, with appropriate focus on the behavior of soils during excavation. This is a pioneering effort in developing FE model of the soil-dozer blade interaction using the modified Cam Clay elasto-plastic law.

# Finite Element Analysis of Blade-formation Interactions in Excavation

"The efficiency and costs of mining operations greatly depend on the efficient design and use of excavators. The performance of these capital-intensive excavators requires thorough understanding of the physical and design factors that affect the formation-cutting tool interaction process. The current body of knowledge, based on experimental and analytical methods, provides limited understanding of these factors, which limits the accurate design and performance of excavators. The soil constitutive equations used in most of the available finite element (FE) models also fail to adequately capture the elastic and plastic behaviors of soil formations. This research initiative uses FE techniques to model the soil-tool interaction phenomenon, with appropriate focus on the behavior of soils during excavation. This is a pioneering effort in developing FE model of the soil-dozer blade interaction using the modified Cam Clay elasto-plastic law. The model is validated with results from previous experimental and analytical methods. The results provided soil forces, a progressive developed failure zone, displacement fields and stress distribution along the tool surface. The sensitivity analysis of changes in blade angle on cutting force showed that, the cutting force increases with increasing blade angle. The cutting depth of the blade had a similar effect on blade cutting force. Increasing the depth of cut increases the required cutting force. Increasing the coefficient of friction at the soil blade interface increases the blade cutting force. Reducing the coefficient of friction at the soil blade interface from 0.3 to 0.05 reduces the cutting force by 22.3%. The percentage represents the maximum potential savings in blade cutting force. This research initiative advances the frontiers of soil-tool interactions, during excavations, to expand the limited knowledge in this critical area"--Abstract, leaf iii.

## Statistics for Mining Engineering

**CRC Press** Many areas of mining engineering gather and use statistical information, provided by observing the actual operation of equipment, their systems, the development of mining works, surface subsidence that accompanies underground mining, displacement of rocks surrounding surface pits and underground drives and longwalls, amongst others. In addition, th

## When Worlds Collide

# Hunter-Gatherer World-System Change in the 19th Century Canadian Arctic

**University of Arizona Press** Interactions between societies are among the most powerful forces in human history. However, because they are difficult to reconstruct from archaeological data, they have often been overlooked and understudied by archaeologists. This is particularly true for hunter-gatherer societies, which are frequently seen as adapting to local conditions rather than developing in the context of large-scale networks. When Worlds Collide presents a new model for discerning interaction networks based on the archaeological record, and then applies the model to long-term change in an Arctic society. Max Friesen has adapted and expanded world-system theory in order to develop a model that explains how hunter-gatherer interaction networks, or world-systems, are structured—and why they change. He has utilized this model to better understand the development of Inuvialuit society in the western Canadian Arctic over a 500-year span, from the pre-contact period to the early twentieth century. As Friesen combines local archaeological data with more extensive ethnographic and archaeological evidence from the surrounding region, a picture emerges of a dynamic Inuvialuit world-system characterized by bounded territories, trade, warfare, and other forms of interaction. This world-system gradually intensified as the impacts of Euroamerican colonial activities increased. This intensification, Friesen suggests, was based on pre-existing Inuvialuit social and economic structures rather than on patterns imposed from outside. Ultimately, this intense interacting network collapsed near the end of the nineteenth century. When Worlds Collide offers a new way to comprehend small-scale world-systems from the point of view of indigenous people. Its approach will prove valuable for understanding hunter-gatherer societies around the globe.

## Culture History and Convergent Evolution

## Can We Detect Populations in Prehistory?

**Springer Nature** This volume brings together diverse contributions from leading archaeologists and paleoanthropologists, covering various spatial and temporal periods to distinguish convergent evolution from cultural transmission in order to see if we can discover ancient human populations. With a focus on lithic technology, the book analyzes ancient materials and cultures to systematically explore the

theoretical and physical aspects of culture, convergence, and populations in human evolution and prehistory. The book will be of interest to academics, students and researchers in archaeology, paleoanthropology, genetics, and paleontology. The book begins by addressing early prehistory, discussing the convergent evolution of behaviors and the diverse ecological conditions driving the success of different evolutionary paths. Chapters discuss these topics and technology in the context of the Lower Paleolithic/Earlier Stone age and Middle Paleolithic/Middle Stone Age. The book then moves towards a focus on the prehistory of our species over the last 40,000 years. Topics covered include the human evolutionary and dispersal consequences of the Middle-Upper Paleolithic Transition in Western Eurasia. Readers will also learn about the cultural convergences, and divergences, that occurred during the Terminal Pleistocene and Holocene, such as the budding of human societies in the Americas. The book concludes by integrating these various perspectives and theories, and explores different methods of analysis to link technological developments and cultural convergence.

## Maritime Information Review

## Scientific and Technical Aerospace Reports

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

## Technical Report

## Some Aspects of Snow, Ice and Frozen Ground

## Animal Bones and Archaeology

## Recovery to Archive

This handbook provides advice on best practice for the recovery, publication and archiving of animal bones and teeth from Holocene archaeological sites (ie from approximately the last 10,000 years). It has been written for local authority archaeology advisors, consultants, museum curators, project managers, excavators and zooarchaeologists, with the aim of ensuring that approaches are suitable and cost-effective.

# Applied Mechanics Reviews

## Bulletin of the Atomic Scientists

The Bulletin of the Atomic Scientists is the premier public resource on scientific and technological developments that impact global security. Founded by Manhattan Project Scientists, the Bulletin's iconic "Doomsday Clock" stimulates solutions for a safer world.

## Nuclear Science Abstracts

## The Dash Reeves Site

## A Middle Woodland Village and Lithic Production Center in the American Bottom

**University of Illinois Press** This newest addition to the American Bottom Archaeology series reports on the Dash Reeves site, an extensive Middle Woodland habitation site that represents a major floodplain village and locality for the production of stone tools. The village area consists of clusters of pits and a dense refuse heap containing hundreds of diagnostic Middle Woodlands artifacts: an extensive collection of lamellar blades and blade cores, projectile points, Hill Lake ceramics, a diversity of flake, blade, and core tools, and several exotic Hopewell-like pieces, including earspool and human figurine fragments. Inhabited between 150 A.D. and 300 A.D., during the Hill Lake phase, Dash Reeves appears to have been an important locus of interaction with peoples far to the south. The production of blades at Dash Reeves, especially those made of local colorful red and blue Ste. Genevieve cherts, possibly served as the focal point of a far-reaching blade-exchange system in the Midwest. America, the American Bottom Archaeology series documents the excavation of sites affected by the construction of Interstate Highway 270 on the Mississippi River floodplain in Illinois counties across the river from St. Louis. The series is cosponsored by the Federal Highway Administration and the Illinois Department of Transportation. Volumes on individual sites are supplemented by a summary volume on the FAI-270 Project's contribution to the culture history of the Mississippi River Valley.

# Monthly Catalog of United States Government Publications America, History and Life

Provides historical coverage of the United States and Canada from prehistory to the present. Includes information abstracted from over 2,000 journals published worldwide.

# Dissertation Abstracts International The humanities and social sciences. A

# Journal of Vertebrate Paleontology The Archaeology of Prehistoric Arabia

# Adaptation and Social Formation from the Neolithic to the Iron Age

**Cambridge University Press** This book provides the first extensive coverage of the archaeology of the Arabian peninsula from c. 9000 to 800 BC. Providing a wealth of detail on the environmental and archaeological record, it argues that this ancient region was in many ways very different from the surrounding states in Egypt and Mesopotamia. It examines the adaptation of humans to Arabia's environment and the eventual formation of a unique society that flourished for millennia.

# TEXTBOOK OF BIOCHEMISTRY, BIOTECHNOLOGY, ALLIED AND

# MOLECULAR MEDICINE

**PHI Learning Pvt. Ltd.** The Fourth Edition of the compendium pools together the knowledge and experience of experts from all over the world, who are engaged in teaching and research in the field of biochemistry, medical sciences and allied disciplines. Comprising 20 sections, the present edition of the book has been substantially revised incorporating the latest research and achievements in the field. Beginning appropriately with chemical architecture of the living systems, role and significance of biochemical reactions, organization of specialised tissues, and importance of food and nutrition, the book explores beyond traditional boundaries of biochemistry. The knowledge of various organ systems has been expanded covering their normal function, ailments and dysfunction. A chapter on Eye and Vision explaining molecular basis of cataract and glaucoma have been added. Also, the book introduces stem cells and regenerative therapy and defines molecules associated with pleasure, happiness, stress and anxiety. A Section on Gastrointestinal and Biliary System elaborates on physiology and dysfunction including fatty liver and its implications, and hepatitis viruses. The knowledge of Human Genetics and Biochemical Basis of Inheritance has been appropriately expanded to reflect the latest advances in various domains. Besides DNA fingerprinting for identity establishment, the Section discusses epigenetics, micro-RNA and siRNA including their role in gene expression, chromatin modification and its association with human diseases, and genetic engineering. It also explores emerging areas such as metabolomics and proteomics; synthetic biology; and dual use technology in bioterrorism. Due emphasis has been given to the Section on Cell Replication and Cancer. Emergence of the use of probiotics in human health has also been highlighted. Besides, an entire Section has been devoted to male and female reproductive systems, fertilization, implantation, pregnancy, lactation, and assisted reproductive technology. Immunology, including vaccines and immunization, has been given due attention with latest updates in this fast growing area. Modern medicine, despite its stupendous advances cannot provide cure for all ailments. Thus, the new edition provides knowledge of alternative medicine systems—Ayurveda, Homeopathy, Unani, Yoga and Herbal Medicine. Incorporating vast information on the latest and emerging areas, the book will be of immense value to the students of medical sciences not only in their preclinical years, but also in all phases of medical course including postgraduate education and practice. Besides, it will also serve as a valuable source to the students of biochemistry and human bi

## Emergence and Diversity of Modern Human Behavior in Paleolithic Asia

**Texas A&M University Press** Despite the obvious geographic importance of eastern Asia in human migration, its discussion in the context of the emergence and

dispersal of modern humans has been rare. Emergence and Diversity of Modern Human Behavior in Paleolithic Asia focuses long-overdue scholarly attention on this under-studied area of the world. Arising from a 2011 symposium sponsored by the National Museum of Nature and Science in Tokyo, this book gathers the work of archaeologists from the Pacific Rim of Asia, Australia, and North America, to address the relative lack of attention given to the emergence of modern human behavior as manifested in Asia during the worldwide dispersal from Africa.

## Archaeology in Practice

### A Student Guide to Archaeological Analyses

**John Wiley & Sons** Archaeology in Practice: A Student Guide to Archaeological Analyses offers students in archaeology laboratory courses a detailed and invaluable how-to manual of archaeological methods and provides insight into the breadth of modern archaeology. Written by specialists of material analyses, whose expertise represents a broad geographic range. Includes numerous examples of applications of archaeological techniques. Organized by material types, such as animal bones, ceramics, stone artifacts, and documentary sources, or by themes, such as dating, ethics, and report writing. Written accessibly and amply referenced to provide readers with a guide to further resources on techniques and their applications. Enlivened by a range of boxed case studies throughout the main text.

## Nuclear Science Information of Japan. Oral Presentation

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### Announcements & Index

### Selected Water Resources

### Abstracts

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Ireland and the Council for National  
Academic Awards

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The Archaeology of the Bronze Age  
Levant

**Cambridge University Press** An up-to-date, systematic depiction of Bronze Age societies of the Levant, their evolution, and their interactions and entanglements with neighboring regions.

Proceedings ... International  
Conference on Ground Control in  
Mining

The Iron Age in Wessex

Recent Work

Published to coincide with the 18th Annual Conference of the Association Francais d'etude de l'age du fer, which took place in 1994 in Winchester, this book brings together 32 essays (in English) exploring some of the most recent work in Wessex archaeology.

# Stone Trees Transplanted? Central Mexican Stelae of the Epiclassic and Early Postclassic and the Question of Maya 'Influence'

**Archaeopress Publishing Ltd** Stelae dating to the Epiclassic and Early Postclassic from Tula, Xochicalco, and other sites in Central Mexico have been cited as evidence of Classic Maya 'influence' on Central Mexican art during these periods. This book re-evaluates these claims via detailed comparative analysis of the Central Mexican stelae and their claimed Maya counterparts.

## Selected Water Resources

## Abstracts

## Keywords Index to U.S. Government Technical Reports

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## ASCE Combined Index

Indexes materials appearing in the Society's Journals, Transactions, Manuals and reports, Special publications, and Civil engineering.

## Masters of the Steppe: The Impact of the Scythians and Later Nomad Societies of Eurasia

## Proceedings of a conference held at

# the British Museum, 27-29 October 2017

**Archaeopress Publishing Ltd** This book presents 45 papers presented at a major international conference held at the British Museum during the 2017 BP exhibition 'Scythians: warriors of ancient Siberia'. Papers include new archaeological discoveries, results of scientific research and studies of museum collections, most presented in English for the first time.

## Monthly Catalog of United States Government Publications

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