

Metallography And Microstructure Of Ancient And Historic Metals

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PRODUCED FROM THEIR OWN CRAFT INDUSTRIES TO ONES SUBSTANTIALLY RECONSTITUTED BY ACTIVE APPROPRIATION, MANIPULATION, AND USE OF FOREIGN GOODS. THESE MATERIAL

TRANSFORMATIONS TOOK PLACE DURING THE SAME TIME THAT ESCALATING HISTORICAL, POLITICAL, ECONOMIC, AND DEMOGRAPHIC INFLUENCES (SUCH AS EPIDEMICS, NEW TYPES OF LIVING

ARRANGEMENTS, INTERGROUP HOSTILITIES, NEW POLITICAL ALLIANCES, MISSIONIZATION AND CONVERSION, CHANGES IN SUBSISTENCE MODES, ETC.) DISRUPTED NATIVE SYSTEMS. EHRHARDT’S RESEARCH

ADDRESSES THE EARLY TECHNOLOGICAL RESPONSES OF ONE PARTICULAR GROUP, THE LATE PROTOHISTORIC ILLINOIS INDIANS, TO THE AVAILABILITY OF EUROPEAN-INTRODUCED METAL OBJECTS. TO

DO SO, SHE APPLIED A COMPLEMENTARY SUITE OF ARCHAEOMETRIC METHODS TO A SAMPLE OF 806 COPPER-BASED METAL ARTIFACTS EXCAVATED FROM SECURELY DATED DOMESTIC CONTEXTS AT

THE ILLINIWEK VILLAGE HISTORIC SITE IN CLARK COUNTY, MISSOURI. EHRHARDT’S SCIENTIFIC FINDINGS ARE INTEGRATED WITH OBSERVATIONS FROM HISTORICAL, ARCHAEOLOGICAL, AND ARCHIVAL

RESEARCH TO PLACE METAL USE BY THIS GROUP IN A BROAD SOCIAL CONTEXT AND TO CRITIQUE THE ACCULTURATION PERSPECTIVE AT OTHER CONTACT PERIOD SITES. IN REVEALING ACTUAL NATIVE

PRACTICE, FROM MATERIAL SELECTION AND PROCUREMENT TO ULTIMATE DISCARD, THE AUTHOR CHALLENGES TECHNOCENTRIC EXPLANATIONS FOR NATIVE MATERIAL AND CULTURAL CHANGE AT

CONTACT. **THE EXCAVATION OF THE PREHISTORIC BURIAL TUMULUS AT LOFKEND, ALBANIA** LORENC BEJKO 2015-12-31 THE BURIAL TUMULUS OF LOFKEND LIES IN ONE OF THE RICHEST ARCHAEOLOGICAL

AREAS OF ALBANIA (ANCIENT “ILLYRIA”), HOME TO A NUMBER OF BURIAL TUMULI SPANNING THE BRONZE AND IRON AGES OF LATER PREHISTORY. SOME WERE ROBBED LONG AGO, OTHERS WERE REUSED

FOR MODERN BURIALS; FEW WERE EXCAVATED UNDER SCIENTIFIC CONDITIONS. MODERN UNDERSTANDING OF THE PRE- AND PROTOHISTORY OF ILLYRIA HAS LARGELY BEEN SHAPED BY THE CONTENTS OF

SUCH BURIAL MOUNDS. WHAT INSPIRED THE SYSTEMATIC EXPLORATION OF LOFKEND BY UCLA WAS MORE THAN THE PROMISE OF AN UNPLUNDERED NECROPOLIS; IT WAS ALSO A CHANCE TO REVISIT

THE SIGNIFICANCE OF THIS TUMULUS AND ITS FELLOWS FOR THE EMERGENCE OF URBANISM AND COMPLEXITY IN ANCIENT ILLYRIA. IN ADDITION TO ARTIFACTS, THE RECOVERY OF SURVIVING PLANT

REMAINS, BONES, AND OTHER ORGANIC MATERIAL CONTRIBUTE INSIGHTS INTO THE ENVIRONMENTAL AND ECOLOGICAL HISTORY OF THE REGION. **ANCIENT METALS** DAVID A. SCOTT 2011

SCIENCE AND TECHNOLOGY IN HOMERIC EPICS S. A. PAIPETIS 2008-10-20 IN THE HOMERIC EPICS, IMPORTANT REFERENCES TO SPECIFIC AUTONOMOUS SYSTEMS AND MECHANISMS OF VERY

ADVANCED TECHNOLOGY, SUCH AS AUTOMATA AND ARTIFICIAL INTELLIGENCE, AS WELL AS TO ALMOST MODERN METHODS OF DESIGN AND PRODUCTION ARE INCLUDED. EVEN IF THOSE FEATURES OF

HOMERIC SCIENCE WERE JUST POETIC CONCEPTS (WHICH ON MANY OCCASIONS DOES NOT EXPLAIN THE ASTONISHING DETAILS OF DESIGN AND MANUFACTURE, LIKE THE ONES INCLUDED IN THE PRESENT

VOLUME), THEY SEEM TO PROVE THAT THESE ACHIEVEMENTS WERE WELL WITHIN HUMAN CAPABILITY. IN ADDITION, THE SUBSTANTIAL DEVELOPMENT OF MACHINE THEORY DURING THE EARLY POST-

HOMERIC AGE SHOWS THAT THE HOMERIC DESCRIPTIONS WERE A KIND OF PROPHETIC CONCEPTION OF THESE MACHINES, AND SCIENTIFIC RESEARCH MUST BE A QUEST FOR THE FUNDAMENTAL PRINCIPLES

OF KNOWLEDGE AVAILABLE DURING THE LATE BRONZE AGE AND THE DAWN OF THE IRON AGE. SUCH INVESTIGATIONS MUST OF NECESSITY BE STRONGLY INTERDISCIPLINARY AND ALSO PROCEED

CONTINUOUSLY IN TIME, SINCE, AS SCIENCE PROGRESSES, NEW ELEMENTS OF KNOWLEDGE ARE DISCOVERED IN THE HOMERIC EPICS, AMENABLE TO SCIENTIFIC ANALYSIS. THIS BOOK BRINGS TOGETHER

PAPERS PRESENTED AT THE INTERNATIONAL SYMPOSIUM SCIENCE AND TECHNOLOGY IN HOMERIC EPICS, WHICH TOOK PLACE AT ANCIENT OLYMPIA IN 2006. IT INCLUDES A TOTAL OF 41

CONTRIBUTIONS, MOSTLY ORIGINAL RESEARCH PAPERS, COVERING DIVERSE FIELDS OF SCIENCE AND TECHNOLOGY, IN THE MODERN SENSE OF THESE WORDS. **IRON AND STEEL IN ANCIENT TIMES** VAGN FABRITIUS BUCHWALD 2005

BAN CHIANG, NORTHEAST THAILAND, VOLUME 2B JOYCE C. WHITE 2019-01-24 THE FOUNDATION OF ANY ARCHAEOMETALLURGICAL STUDY IS STUDY OF EXCAVATED ASSEMBLAGES OF METALS

AND RELATED REMAINS. THIS VOLUME PRESENTS IN DETAIL HOW THE METALS AND SUCH REMAINS AS CRUCIBLES EXCAVATED FROM FOUR SITES IN NORTHEAST THAILAND HAVE BEEN STUDIED TO

UNDERSTAND THE PLACE OF METAL OBJECTS AND TECHNOLOGY IN THE ANCIENT PAST OF THIS REGION. IN ADDITION TO TYPOLOGICAL EXAMINATION, HUNDREDS OF TECHNICAL ANALYSES REVEAL THE

TECHNOLOGICAL CAPABILITIES, PREFERENCES, AND STYLES OF METAL ARTIFACT MANUFACTURERS IN THIS PART OF THAILAND. DETAILED EXAMINATION OF CONTEXTS OF RECOVERY OF METAL REMAINS

EMPLOYING A “LIFE HISTORY” APPROACH INDICATES THAT METAL OBJECTS IN THOSE SOCIETIES WERE USED PRIMARILY IN DAILY LIFE AND, ONLY OCCASIONALLY, AS GRAVE GOODS. THE MOST

SURPRISING FIND IS THAT CASTING OF COPPER-BASE ARTIFACTS TO FINAL FORM TOOK PLACE AT ALL THESE VILLAGE SITES DURING THE METAL AGE PERIOD, INDICATING A DECENTRALIZED FINAL

PRODUCTION STAGE THAT MAY PROVE TO BE UNUSUAL FOR METAL AGE SOCIETIES. THESE INSIGHTS ARE MADE POSSIBLE BY APPLYING THE METHODS AND THEORIES INTRODUCED IN THE FIRST VOLUME

OF THE SUITE OF VOLUMES THAT STUDY THE METAL REMAINS FROM BAN CHIANG IN REGIONAL CONTEST. **THAI ARCHAEOLOGY MONOGRAPH SERIES, 2B; UNIVERSITY MUSEUM MONOGRAPH, 150**

ANCIENT & HISTORIC METALS DAVID A. SCOTT 1994 THE SIXTEEN ESSAYS IN THIS VOLUME REFLECT A WIDE RANGE OF RESEARCH CONCERNING METHODS FOR METALS CONSERVATION,

PARTICULARLY IN RESPECT TO ANCIENT AND HISTORIC OBJECTS. THE VARIETY OF ISSUES DISCUSSED INCLUDES CONSIDERATIONS IN THE CLEANING OF ANCIENT BRONZE VESSELS; THE PROCESSES

INVOLVED IN BRONZE CASTING, FINISHING, PATINATION, AND CORROSION; STUDIES OF MANUFACTURING TECHNIQUES OF GOLD OBJECTS IN ANCIENT AFRICAN AND MEDIEVAL EUROPEAN METALWORKING;

TECHNIQUES OF MERCURY GILDING IN THE 18TH CENTURY; AN INVESTIGATION OF PATINA IN THE CLASSIFICATION OF BRONZE SURFACES FROM LAND AND LAKE ENVIRONMENTS; AN EXAMINATION OF

BRONZE OBJECTS FROM THE BENIN KINGDOM, NIGERIA; THE HISTORY OF RESTORATION OF THE MARCUS AURELIUS MONUMENT IN ROME; THE CORROSION OF IRON IN ARCHITECTURE; AND APPLICATIONS OF

RADIOGRAPHIC TOMOGRAPHY TO THE STUDY OF METAL OBJECTS. **METALLOGRAPHY IN ARCHAEOLOGY AND ART** DAVID A. SCOTT 2019-08-30 THIS BOOK PROVIDES A COMPREHENSIVE INTRODUCTION TO THE METALLOGRAPHIC STUDY OF ANCIENT METALS.

METALLOGRAPHY IS IMPORTANT BOTH CONCEPTUALLY AS A MICROSTRUCTURAL SCIENCE AND IN TERMS OF ITS APPLICATION TO THE STUDY OF ANCIENT AND HISTORIC METALS. METALLOGRAPHY IS A

WELL-ESTABLISHED METHODOLOGY FOR THE CHARACTERIZATION OF THE MICROSTRUCTURE OF METALS, WHICH CONTINUES TO BE SIGNIFICANT TODAY IN QUALITY CONTROL AND CHARACTERIZATION

OF METALLIC PROPERTIES. NOT ONLY DOES THE METALLOGRAPHIC EXAMINATION OF ANCIENT METALS PRESENT ITS OWN CHALLENGES IN TERMS OF SAMPLE SIZE AND INTERPRETATION OF EVIDENCE, BUT

IT MUST BE INTEGRATED WITH ARCHAEOLOGICAL DATA AND CULTURAL RESEARCH IN ORDER TO OBTAIN THE MOST MEANINGFUL RESULTS. ISSUES OF AUTHENTICATION AND THE ESTABLISHMENT OF

FAKES AND FORGERIES OF METALLIC ARTEFACTS OFTEN INVOLVE METALLOGRAPHIC EVIDENCE OF BOTH METAL AND PATINA OR CORROSION INTERFACE, AS AN ESSENTIAL COMPONENT OF SUCH A STUDY.

THE PRESENT VOLUME SETS OUT THE BASIC FEATURES OF RELEVANT METALLIC SYSTEMS, ENHANCED WITH A SERIES OF EXAMPLES OF TYPICAL MICROSTRUCTURAL TYPES, WITH ILLUSTRATIVE CASE

STUDIES AND EXAMPLES THROUGHOUT THE TEXT DERIVED FROM STUDIES UNDERTAKEN BY THE TWO AUTHORS. THIS BOOK PROVIDES A COMPREHENSIVE PRESENTATION OF METALLOGRAPHY FOR

ARCHAEOLOGISTS, ARCHAEOMETALLURGISTS, CONSERVATORS, CONSERVATION SCIENTISTS AND METALLURGISTS OF MODERN MATERIALS. **AMERICAN IRON, 1607-1900** ROBERT B. GORDON 2020-03-24 BY MASTERING FOUNDING, FINING, PUDDLING, OR BLOOM SMELTING, IRONWORKERS GAINED A DEGREE OF CONTROL OVER THEIR LIVES

NOT EASILY ATTAINED BY OTHERS. **METALS IN PAST SOCIETIES** SHADRECK CHIRIKURE 2015-03-18 THIS BOOK SEEKS TO COMMUNICATE TO BOTH A GLOBAL AND LOCAL AUDIENCE, THE KEY ATTRIBUTES OF PRE-INDUSTRIAL AFRICAN

METALLURGY SUCH AS TECHNOLOGICAL VARIATION ACROSS SPACE AND TIME, METHODS OF MINING AND EXTRACTIVE METALLURGY AND THE FABRICATION OF METAL OBJECTS. THESE PROCESSES WERE

TRANSFORMATIVE IN A PHYSICAL AND METAPHORIC SENSE, WHICH MADE THEM TOTAL SOCIAL FACTS. BECAUSE THE PRODUCTION AND USE OF METALS WAS AN ACCRETION OF VARIOUS CATEGORIES OF

PRACTICE, A CHAINE OPERATOIRE CONCEPTUAL AND THEORETICAL FRAMEWORK THAT SIMULTANEOUSLY CONSIDERS THE EMBEDDED TECHNOLOGICAL AND ANTHROPOLOGICAL FACTORS WAS USED. THE

BOOK FOCUSES ON AFRICA’S DIFFERENT REGIONS AS ROUGHLY DEFINED BY CULTURAL GEOGRAPHY. ON THE ONE HAND THERE IS NORTH AFRICA, EGYPT, THE EGYPTIAN SUDAN, AND THE HORN OF

AFRICA WHICH SHARE CULTURAL INHERITANCES WITH THE MIDDLE EAST AND ON THE OTHER IS AFRICA SOUTH OF THE SAHARA AND THE SUDAN WHICH DESPITE INTERACTING WITH THE FORMER IS

PUBLISHED BY THE GCI AND THE J. PAUL GETTY MUSEUM, THE BOOK DEALS WITH MANY PRACTICAL MATTERS RELATING TO THE MOUNTING, PREPARATION, ETCHING, POLISHING, AND MICROSCOPY OF METALLIC SAMPLES AND INCLUDES AN ACCOUNT OF THE WAY IN WHICH PHASE DIAGRAMS CAN BE USED TO ASSIST IN STRUCTURAL INTERPRETATION. THE TEXT IS SUPPLEMENTED BY AN EXTENSIVE NUMBER OF MICROSTRUCTURAL STUDIES CARRIED OUT IN THE LABORATORY ON ANCIENT AND HISTORIC METALS. THE STUDENT BEGINNING THE STUDY OF METALLIC MATERIALS AND THE CONSERVATION SCIENTIST WHO WISHES TO CARRY OUT STRUCTURAL STUDIES OF METALLIC OBJECTS OF ART WILL FIND THIS PUBLICATION QUITE USEFUL.

ARCHAEOLOGICAL METHOD AND THEORY LINDA ELLIS 2003-12-16 THIS ENCYCLOPEDIA BRINGS TOGETHER THE MOST RECENT SCIENTIFIC INFORMATION ON A COLLECTION OF SUBJECTS THAT ARE TOO OFTEN - AND INCONVENIENTLY - TREATED IN SEPARATE PUBLICATIONS. IT PROVIDES A SURVEY OF ARCHAEOLOGICAL METHOD AND THEORY, AS WELL AS THE APPLICATION OF PHYSICAL AND BIOLOGICAL SCIENCES IN ARCHAEOLOGICAL RESEARCH. EVERY ASPECT OF ARCHAEOLOGICAL WORK IS REPRESENTED, FROM THE DISCOVERY PROCESS TO THE ULTIMATE DISPOSITION OF MATERIALS. THUS THE READER WILL FIND ENTRIES ON SUBJECT MATTER COVERING: * DISCIPLINARY THEORY * LEGISLATION AFFECTING THE WORK OF ARCHAEOLOGISTS * PRE-EXCAVATION SURVEYING * EXCAVATION METHODOLOGY * ON-SITE CONSERVATION TECHNIQUES * POST-EXCAVATION ANALYSIS THE RAPID EVOLUTION OF ANALYTICAL TECHNOLOGY IS OFTEN SUPERFICIALLY TREATED OR NOT COVERED AT ALL IN TEXTBOOKS OR OTHER COMMONLY AVAILABLE SOURCES. HERE, THE LATEST REFINEMENTS IN TECHNIQUES SUCH AS RADIOMETRIC DATING, STABLE ISOTOPIC ANALYSIS, AND THE PCR TECHNIQUE OF DNA ANALYSIS ARE PRESENTED CLEARLY AND AUTHORITATIVELY. THE DISCUSSION OF THESE TECHNIQUES IS AMPLIFIED BY INCLUDING RESULTS OF THE WORK OF PROFESSIONALS CONDUCTING INTERDISCIPLINARY RESEARCH AND BY COVERING THE METHODOLOGI ENHANCEMENTS PROVIDED BY THE PHYSICAL AND NATURAL SCIENCES. CULTURAL PROPERTY LEGISLATION, REGARDLESS OF ITS COUNTRY OF ORIGIN, HAS AFFECTED HOW ARCHAEOLOGISTS CONDUCT THEIR WORK. THIS ENCYCLOPEDIA COVERS ALL MAJOR U.S. LEGISLATION DEVELOPED FOR THE PROTECTION OF CULTURAL PROPERTY, INCLUDING THE RECENT NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT, AND OFFERS A SUBSTANTIAL ARTICLE ON WORLDWIDE LEGISLATION CONCERNING THE REBURIAL OF HUMAN REMAINS AND ITS EFFECTS ON THE PRESENT AND FUTURE PRACTICE OF ARCHAEOLOGY. WITHOUT SOME SORT OF CONSERVATION PROGRAM AT THE POINT OF EXCAVATION, VALUABLE MATERIALS MAY BE INADVERTENTLY CONTAMINATED OR DESTROYED. MANY SIMPLE AND LOW-COST TECHNIQUES TO PROMOTE BOTH SAMPLE INTEGRITY AND LONG-TERM PRESERVATION FOR MAJOR CLASSES OF MATERIALS ARE DESCRIBED IN THIS VOLUME. TRADITIONAL TREATMENTS OF METHOD AND THEORY USUALLY FOCUS ON PREHISTORIC PERIODS AND ARE LIMITED IN THEIR GEOGRAPHIC RANGE. THIS VOLUME INCLUDES DISCUSSIONS BASED ON VARIOUS HISTORICAL PERIODS ON DIFFERENT CONTINENTS, AS REFLECTED IN ENTRIES SUCH AS HISTORICAL ARCHAEOLOGY, INDUSTRIAL ARCHAEOLOGY, MEDIEVAL ARCHAEOLOGY, AND CLASSICAL ARCHAEOLOGY.

CORROSION AND CONSERVATION OF CULTURAL HERITAGE METALLIC ARTEFACTS P DILLMANN 2013-07-31 THE CONSERVATION OF METALLIC ARCHAEOLOGICAL AND HISTORIC ARTEFACTS IS A MAJOR CHALLENGE WHETHER THEY ARE ANCIENT BRONZES OR RELICS OF OUR MORE RECENT INDUSTRIAL PAST. BASED ON THE WORK OF WORKING PARTY 21 CORROSION OF ARCHAEOLOGICAL AND HISTORICAL ARTEFACTS WITHIN THE EUROPEAN FEDERATION OF CORROSION (EFC), THIS IMPORTANT BOOK SUMMARISES KEY RECENT RESEARCH ON ANALYTICAL TECHNIQUES, UNDERSTANDING CORROSION PROCESSES AND PREVENTING THE CORROSION OF CULTURAL HERITAGE METALLIC ARTEFACTS. AFTER AN INTRODUCTORY PART ON SOME OF THE KEY ISSUES IN THIS AREA, PART TWO REVIEWS THE RANGE OF ANALYTICAL TECHNIQUES FOR MEASURING AND ANALYSING CORROSION PROCESSES, INCLUDING TIME RESOLVED SPECTROELECTROCHEMISTRY, VOLTAMMETRY AND LASER INDUCED BREAKDOWN SPECTROSCOPY. PART THREE REVIEWS DIFFERENT TYPES OF CORROSION PROCESSES FOR A RANGE OF ARTEFACTS, WHILST PART FOUR DISCUSSES ON-SITE MONITORING TECHNIQUES. THE FINAL PART OF THE BOOK SUMMARISES A RANGE OF CONSERVATION TECHNIQUES AND STRATEGIES TO CONSERVE CULTURAL HERITAGE METALLIC ARTEFACTS. CORROSION AND CONSERVATION OF CULTURAL HERITAGE METALLIC ARTEFACTS IS AN IMPORTANT REFERENCE FOR ALL THOSE INVOLVED IN ARCHAEOLOGY AND CONSERVATION, INCLUDING GOVERNMENTS, MUSEUMS AS WELL AS THOSE UNDERTAKING RESEARCH IN ARCHAEOLOGY AND CORROSION SCIENCE. SUMMARISES KEY RESEARCH ON ANALYTICAL TECHNIQUES FOR MEASURING AND ANALYSING CORROSION PROCESSES PROVIDES DETAILED UNDERSTANDING OF CORROSION PROCESSES AND CORROSION PREVENTION DISCUSSES ON-SITE MONITORING TECHNIQUES

THE METALLURGY OF ROMAN SILVER COINAGE KEVIN BUTCHER 2015-04-02 THE FINENESS OF ROMAN IMPERIAL AND PROVINCIAL COINAGE HAS BEEN REGARDED AS AN INDICATOR OF THE BROADER FISCAL HEALTH OF THE ROMAN EMPIRE, WITH THE APPARENT GRADUAL DECLINE OF THE SILVER CONTENT BEING TREATED AS EVIDENCE FOR WORSENING DEFICITS AND THE CONTRACTION OF THE SUPPLY OF NATURAL RESOURCES FROM WHICH THE COINS WERE MADE. THIS BOOK EXPLORES THE COMPOSITION OF ROMAN SILVER COINAGE OF THE FIRST CENTURY AD, RE-EXAMINING TRADITIONAL INTERPRETATIONS IN THE LIGHT OF AN ENTIRELY NEW PROGRAMME OF ANALYSES OF THE COINS, WHICH ILLUSTRATES THE INADEQUACY OF MANY EARLIER ANALYTICAL PROJECTS. IT PROVIDES NEW EVIDENCE FOR THE SUPPLY OF MATERIALS AND REFINING AND MINTING TECHNOLOGY. IT CAN EVEN PINPOINT LIKELY EPISODES OF RECYCLING OLD COINS AND, WHEN COMBINED WITH THE STUDY OF HOARDS, HINTS AT POSSIBLE STRATEGIES OF STOCKPILING OF METAL. THE CREATION OF RESERVES BEARS DIRECTLY ON THE QUESTION OF THE ADEQUACY OF REVENUES AND FISCAL HEALTH.

REVERSE ENGINEERING OF ANCIENT METALS PATRICIA SILVANA CARRIZO 2022-01-01 THIS BOOK EXAMINES ARCHAOMETALLURGY AND THE PRESERVATION OF ANCIENT MATERIALS FOR CULTURAL HERITAGE. THROUGH UNDERSTANDING THE INTERNAL STRUCTURES OF RELEVANT ANCIENT MATERIALS, THEIR CHEMICAL COMPOSITION, RESISTANCE, HARDNESS, ETC., THEIR CONSERVATION CAN BE MORE EFFECTIVELY ADDRESSED. PRESERVING CULTURAL ARTIFACTS, SUCH AS THOSE FROM BORDER SITES, FUNERARY CONTEXTS (BURIALS), RAILWAY LINES, CEREMONIAL SITES AND ROAD INFRASTRUCTURE, IS NECESSARY TO PROVIDE PERSPECTIVE TO A CULTURE'S TRAJECTORY. THIS BOOK ADDRESSES HOW REVERSE ENGINEERING CAN DISSEMINATE KNOWLEDGE OF A CULTURE'S HERITAGE BY OFFERING TECHNOLOGY THAT CAN HELP RESTORE ARTIFACTS SO THEY MAY BE DISPLAYED AND UTILIZED AS EDUCATIONAL OBJECTS.

ARCHAEOLOGICAL CHEMISTRY (3RD EDITION) A MARK POLLARD 2017-01-16 THIRD EDITION OF A COMPREHENSIVE TEXTBOOK, IDEAL FOR STUDENTS IN ARCHAEOLOGICAL SCIENCE AND CHEMISTRY, ARCHAEOLOGISTS, AND THOSE INVOLVED IN CONSERVING HUMAN ARTEFACTS.

CONSERVATION OF FURNITURE SHAYNE RIVERS 2007-06-07 THIS BOOK IS A COMPREHENSIVE RESOURCE COVERING THE PRINCIPLES AND PRACTICE OF THE CONSERVATION AND RESTORATION OF FURNITURE, AND OTHER DECORATIVE ART OBJECTS MADE WHOLLY OR PARTLY OF WOOD. IT INTEGRATES THEORY WITH PRACTICE TO SHOW THE PRINCIPLES WHICH GOVERN INTERACTION BETWEEN WOODEN OBJECTS, THE ENVIRONMENTAL AND CONSERVATION TREATMENTS AND THE FACTORS WHICH NEED TO BE TAKEN INTO ACCOUNT TO ARRIVE AT ACCEPTABLE SOLUTIONS TO CONSERVATION PROBLEMS. THE PRACTICAL KNOWLEDGE AND EXPERIENCE OF A TEAM OF CONSERVATORS ACTIVE IN THE FIELD ARE BOUGHT TOGETHER WITH THEORETICAL AND REFERENCE MATERIAL FROM DIVERSE SOURCES AND UNIFIED WITHIN A SYSTEMATIC FRAMEWORK. SPECIALIST CONSERVATORS FROM RELATED DISCIPLINES COVER DIVERSE MATERIALS OFTEN INCORPORATED INTO FURNITURE.

MAGAN – THE LAND OF COPPER CLAUDIO GIARDINO 2019-06-13 THIS VOLUME DESCRIBES THE GEOGRAPHY AND ENVIRONMENTS OF OMAN, ITS RICH COPPER ORE DEPOSITS AND THE ANCIENT MINING AND SMELTING TECHNIQUES, AND IT ALSO INCLUDES AN OVERVIEW OF THE PHYSICAL PROPERTIES OF THE DIFFERENT METALS EXPLOITED IN ANTIQUITY AND OF THE ANALYTICAL TECHNIQUES USED IN ARCHAOMETALLURGY.

RECENT ADVANCES IN THE SCIENTIFIC RESEARCH ON ANCIENT GLASS AND GLAZE FUXI GAN 2016 "THE AIM OF THE BOOK IS TO REPORT THE RECENT RESEARCH DEVELOPMENT OF ANCIENT GLASS AND GLAZING TECHNOLOGY AND THE HISTORICAL-CULTURAL EXCHANGE OF THE EAST AND WEST ALONG THE SILK ROAD. THE CONTENTS OF THIS BOOK ARE DEDICATED TO PROMOTE THE EXCHANGES BETWEEN RESEARCHERS IN BOTH SOCIAL AND SCIENTIFIC FIELDS. THE SCOPE OF THIS BOOK INCLUDES THE NEW ARCHAEOLOGICAL FINDINGS OF ANCIENT GLASS AND FAIENCE IN THE WORLD, THE RELATIONSHIP OF GLASSMAKING WITH GLAZING TECHNOLOGY, THE DEVELOPMENT AND APPLICATION OF MODERN TECHNIQUES USED FOR THE CHARACTERIZATION OF ANCIENT GLASS AND GLAZE, COMPOUND COLORANTS/OPACIFIERS AMONG ANCIENT GLASS, THE EARLY EXCHANGES OF CULTURE AND TECHNIQUES USED BETWEEN CHINA AND ELSEWHERE ALONG THE SILK ROAD, AND SO ON."-- PROVIDED BY PUBLISHER.

ANALYTICAL TECHNIQUES IN MATERIALS CONSERVATION BARBARA H. STUART 2007-03-19 THIS BOOK WILL INTRODUCE THE READER TO THE WIDE VARIETY OF ANALYTICAL TECHNIQUES THAT ARE EMPLOYED BY THOSE WORKING ON THE CONSERVATION OF MATERIALS. AN INTRODUCTION TO EACH TECHNIQUE IS PROVIDED WITH EXPLANATIONS OF HOW DATA MAY BE OBTAINED AND

INTERPRETED. EXAMPLES AND CASE STUDIES WILL BE INCLUDED TO ILLUSTRATE HOW EACH TECHNIQUE IS USED IN PRACTICE. THE FIELDS STUDIED INCLUDE: INORGANIC MATERIALS, POLYMERS, BIOMATERIALS AND METALS. CLEAR EXAMPLES OF DATA ANALYSIS FEATURE, DESIGNED TO ASSIST THE READER IN THEIR CHOICE OF ANALYTICAL METHOD.

COPPER AND BRONZE IN ART DAVID A. SCOTT 2002 THIS IS A REVIEW OF 190 YEARS OF LITERATURE ON COPPER AND ITS ALLOYS. IT INTEGRATES INFORMATION ON PIGMENTS, CORROSION AND MINERALS, AND DISCUSSES ENVIRONMENTAL CONDITIONS, CONSERVATION METHODS, ANCIENT AND HISTORICAL TECHNOLOGIES.

BARRY GOLDING 2017-02-26 THIS BOOK EXPLAINS HOW AND WHERE COPPER AND FOSSIL FUELS WERE FORMED AND THE LIKELY FUTURE FOR THE EXTRACTION OF COPPER AND COAL. THE COLOURFUL CHRONOLOGY OF OUR EFFORTS TO EXTRACT METALS FROM MINERALS AND ENERGY FROM FOSSIL FUELS IS PRESENTED FROM EARLIEST TIMES UNTIL THE PRESENT DAY. THE DIFFICULT CONCEPT OF HUMAN SUSTAINABILITY IS EXAMINED IN THE CONTEXT OF CONTINUALLY DECREASING REAL PRICES OF ENERGY AND METALS. THIS BOOK INTEGRATES THE LATEST FINDINGS ON OUR HISTORIC USE OF TECHNOLOGY TO CONTINUALLY PRODUCE CHEAPER METALS EVEN THOUGH ORE GRADES HAVE BEEN DECREASING. FURTHERMORE, IT SHOWS THAT THE RATE OF TECHNOLOGICAL IMPROVEMENT MUST INCREASE IF METALS ARE TO BE PRODUCED EVEN MORE CHEAPLY IN THE FUTURE.

SCIENTIFIC INVESTIGATIONS OF COPIERS, FAKES AND FORGERIES PAUL CRADDOCK 2009-02-04 THE FAKING AND FORGERY OF WORKS OF ART AND ANTIQUITIES IS PROBABLY NOW MORE EXTENSIVE THAN EVER BEFORE. THE FRAUDS ARE AIDED BY NEW TECHNOLOGIES, FROM INK JET PRINTERS TO EPOXY RESINS, AND DRIVEN BY THE ASTRONOMIC PRICES REALISED ON THE GLOBAL MARKET. THIS BOOK AIMS TO PROVIDE A COMPREHENSIVE SURVEY OF THE SUBJECT OVER A WIDE RANGE OF MATERIALS, EMPHASISING HOW THE FAKES AND FORGERIES ARE PRODUCED AND HOW THEY MAY BE DETECTED BY TECHNICAL AND SCIENTIFIC EXAMINATION. THE SUBJECT IS EXEMPLIFIED BY NUMEROUS CASE STUDIES, SOME TURNING OUT NOT TO BE AS CONCLUSIVE AS IS SOMETIMES BELIEVED. THE BOOK IS AIMED AT THOSE LIKELY TO HAVE A SERIOUS INTEREST IN THESE INVESTIGATIONS, BE THEY CURATOR, COLLECTOR, CONSERVATOR OR SCIENTIST. PAUL CRADDOCK HAS RECENTLY RETIRED FROM THE DEPARTMENT OF CONSERVATION, DOCUMENTATION AND SCIENCE AT THE BRITISH MUSEUM, WHERE HE WAS A MATERIALS SCIENTIST.

AN ARCHAEOLOGY OF SKILL MAIKEL H.G. KUIJPERS 2017-08-03 MATERIAL IS THE MOTHER OF INNOVATION AND IT IS THROUGH SKILL THAT INNOVATIONS ARE BROUGHT ABOUT. THIS CORE THESIS THAT IS DEVELOPED IN THIS BOOK IDENTIFIES SKILL AS THE LINCHPIN OF – AND MISSING LINK BETWEEN – STUDIES ON CRAFT, CREATIVITY, INNOVATION, AND MATERIAL CULTURE. THROUGH A DETAILED STUDY OF EARLY BRONZE AGE AXES THE QUESTION IS TACKLED OF WHAT IT INVOLVES TO BE SKILLED, PROVIDING AN EVIDENCE BASED ARGUMENT ABOUT LEVELS OF SKILL. THE UNIQUE CONTRIBUTION OF THIS WORK IS THAT IT LAYS OUT A THEORETICAL FRAMEWORK AND METHODOLOGY THROUGH WHICH AN EMPIRICAL ANALYSIS OF SKILL IS ACHIEVABLE. A SPECIFIC CHA[?] NE OP[?] RATOIRE FOR METAL AXES IS USED THAT COMPARES NOT ONLY WHAT TECHNIQUES WERE USED, BUT ALSO HOW THEY WERE APPLIED. A LARGE CORPUS OF AXES IS COMPARED IN TERMS OF WHAT SKILLS AND ATTENTION WERE GIVEN AT THE DIFFERENT STAGES OF THEIR PRODUCTION. THE IDEAS DEVELOPED IN THIS BOOK ARE OF INTEREST TO THE EMERGING TREND OF ‘MATERIAL THINKING’ IN THE HUMAN AND SOCIAL SCIENCES. AT THE SAME TIME, IT LOOKS TOWARDS AND AUGMENTS THE DEVELOPMENT IN CRAFT-STUDIES, RECOGNISING THE MANY DIFFERENT ASPECTS OF CRAFT IN CONTEMPORARY AND PAST SOCIETIES, AND THE PARTICULAR RELATIONSHIP THAT CRAFTSPEOPLE HAVE WITH THEIR MATERIAL. DRAWING TOGETHER THESE TWO DISTINCT FIELDS OF RESEARCH WILL STIMULATE (RE)THINKING OF HOW TO INTEGRATE PRODUCTION WITH DISCUSSIONS OF OTHER ASPECTS OF OBJECT BIOGRAPHIES, AND HOW WE LINK ARGUMENTS ABOUT VALUE TO SOCIAL MODELS.

ARCHAOMETALLURGY IN GLOBAL PERSPECTIVE BENJAMIN W. ROBERTS 2014-01-07 THE STUDY OF ANCIENT METALS IN THEIR SOCIAL AND CULTURAL CONTEXTS HAS BEEN A TOPIC OF CONSIDERABLE INTEREST IN ARCHAEOLOGY AND ANCIENT HISTORY FOR DECADES, PARTLY DUE TO THE MODERN DEPENDENCE ON TECHNOLOGY AND MAN-MADE MATERIALS. THE FORMAL STUDY OF ARCHAOMETALLURGY BEGAN IN THE 1970S-1980S, AND HAS SEEN A RECENT GROWTH IN TECHNIQUES, DATA, AND THEORETICAL MOVEMENTS. THIS COMPREHENSIVE SOURCEBOOK ON ARCHAOMETALLURGY PROVIDES AN OVERVIEW OF EARLIER RESEARCH AS WELL AS A REVIEW OF MODERN TECHNIQUES, WRITTEN IN AN APPROACHABLE WAY. COVERING AN EXTENSIVE RANGE OF ARCHAEOLOGICAL TIME-PERIODS AND REGIONS, THIS VOLUME WILL BE A VALUABLE RESOURCE FOR THOSE STUDYING ARCHAEOLOGY WORLDWIDE. IT PROVIDES A CLEAR, STRAIGHTFORWARD LOOK AT THE AVAILABLE METHODOLOGIES, INCLUDING: * SMELTING PROCESSES * SLAG ANALYSIS * TECHNICAL CERAMICS * ARCHAEOLOGY OF MINING AND FIELD SURVEY * ETHNOARCHAEOLOGY * CHEMICAL ANALYSIS AND PROVENANCE STUDIES * CONSERVATION STUDIES WITH CHAPTERS FOCUSED ON MOST GEOGRAPHIC REGIONS OF ARCHAOMETALLURGICAL INQUIRY, RESEARCHERS WILL FIND PRACTICAL APPLICATIONS FOR METALLURGICAL TECHNIQUES IN ANY AREA OF THEIR STUDY. BEN ROBERTS IS A SPECIALIST IN THE EARLY METALLURGY AND LATER PREHISTORIC ARCHAEOLOGY OF EUROPE. HE WAS THE CURATOR OF THE EUROPEAN COPPER AND BRONZE AGE COLLECTIONS AT THE BRITISH MUSEUM BETWEEN 2007 AND 2012 AND IS NOW A LECTURER IN PREHISTORIC EUROPE IN THE DEPARTMENT OF ARCHAEOLOGY AT THE DURHAM UNIVERSITY, UK. CHRIS THORNTON IS A SPECIALIST IN THE ANCIENT METALLURGY OF THE MIDDLE EAST, COMBINING ANTHROPOLOGICAL THEORY WITH ARCHAOMETRICAL ANALYSIS TO UNDERSTAND THE DEVELOPMENT AND DIFFUSION OF METALLURGICAL TECHNOLOGIES THROUGHOUT EURASIA. HE IS CURRENTLY A CONSULTING SCHOLAR OF THE UNIVERSITY OF PENNSYLVANIA MUSEUM, WHERE HE RECEIVED HIS PhD IN 2009, AND THE LEAD PROGRAM OFFICER OF RESEARCH GRANTS AT THE NATIONAL GEOGRAPHIC SOCIETY.

THE UGARITIC BAAL CYCLE MARK SMITH 2009-02-28 THE UGARITIC BAAL CYCLE, VOLUME II PROVIDES A NEW EDITION, TRANSLATION AND COMMENTARY ON THE THIRD AND FOURTH TABLETS OF THE BAAL CYCLE, THE MOST IMPORTANT RELIGIOUS TEXT FOUND AT UGARIT.

MICHAEL J. ALLEN 2012-06-09 THE CHALCOLITHIC, THE PHASE IN PREHISTORY WHEN THE IMPORTANT TECHNICAL DEVELOPMENT OF ADDING TIN TO COPPER TO PRODUCE BRONZE HAD NOT YET TAKEN PLACE, IS NOT A TERM GENERALLY USED BY BRITISH PREHISTORIANS AND WHETHER THERE IS EVEN A DEFINABLE PHASE IS DEBATED. IS THERE A BRITISH CHALCOLITHIC? BRINGS TOGETHER MANY LEADING AUTHORITIES IN 20 PAPERS THAT ADDRESS THIS QUESTION. PAPERS ARE GROUPED UNDER SEVERAL HEADINGS. DEFINITIONS, ISSUES AND DEBATE CONSIDERS WHETHER APPROPRIATE CRITERIA APPLY THAT DEFINE A DISTINCTIVE PERIOD (C. 2450 - 2150 CAL BC) IN CULTURAL, SOCIAL, AND TEMPORAL TERMS WITH PARTICULAR EMPHASIS ON THE ROLE AND STATUS OF METAL ARTEFACTS AND BEAKER POTTERY. CONTINENTAL PERSPECTIVES ADDRESSES VARIOUS ASPECTS OF COMPARATIVE REGIONS OF EUROPE WHERE A CHALCOLITHIC HAS BEEN DEFINED. AROUND BRITAIN AND IRELAND PRESENTS A SERIES OF LARGE-SCALE REGIONAL CASE STUDIES WHERE AUTHORS ARGUE FOR AND AGAINST THE ADOPTION OF THE TERM. THE FINAL SECTION ECONOMY, LANDSCAPES AND MONUMENTS , LOOKS AT ASPECTS OF ECONOMY, LAND-USE AND BURIAL TRADITION AND PROVIDES A DETAILED CONSIDERATION OF THE STONEHENGE AND AVEBURY LANDSCAPES DURING THE PERIOD IN QUESTION. THE VOLUME CONTAINS MUCH DETAILED INFORMATION ON SITES AND ARTEFACTS, AND COMPREHENSIVE RADIOCARBON DATASETS THAT WILL BE INVALUABLE TO SCHOLARS AND STUDENTS STUDYING THIS ENIGMATIC BUT PIVOTAL EPISODE OF BRITISH PREHISTORY.

BAN CHIANG, NORTHEAST THAILAND, VOLUME 2A JOYCE C. WHITE 2018-09-17 THE EMERGENCE AND ADOPTION OF METALLURGY IS ONE OF THE SEMINAL TOPICS OF INVESTIGATION IN THE HISTORY OF ARCHAEOLOGY, PARTICULARLY IN THE HISTORY OF ARCHAEOLOGICAL RESEARCH IN SOUTHEAST ASIA. THE SITE OF BAN CHIANG, THAILAND, IS A CENTRAL SITE IN DEBATES SURROUNDING THE CHRONOLOGY AND SIGNIFICANCE OF EARLY METALLURGY IN THE REGION. THIS BOOK IS THE FIRST IN A SERIES OF FOUR VOLUMES THAT REVIEW THE CONTRIBUTIONS OF BAN CHIANG AND THREE RELATED SITES IN NORTHEAST THAILAND EXCAVATED BY THE PENN MUSEUM TO AN UNDERSTANDING EARLY METALLURGY IN THAILAND. AS THE STUDY OF ARCHAOMETALLURGY IS A COMPLEX TOPIC THAT DRAWS ON NUMEROUS TECHNICAL AND SOCIAL SCIENCE DISCIPLINES, THIS INTRODUCTORY VOLUME PRESENTS IN SEVERAL CHAPTERS THE BACKGROUND NEEDED TO ASSESS THE METAL AND RELATED EVIDENCE PRESENTED IN THE SUBSEQUENT VOLUMES IN THIS SERIES. A HISTORY OF PERSPECTIVES ON THE ROLE OF METALS IN ANCIENT SOCIETIES GENERALLY AND SOUTHEAST ASIA, SPECIFICALLY, IS PROVIDED. OTHER CHAPTERS DEBUNK THE CONVENTIONAL PARADIGM FOR UNDERSTANDING METALS AND SOCIETY AND PROVIDE CURRENT THEORETICAL PERSPECTIVES AND NEW PARADIGMS FOR THE STUDY OF ANCIENT METALS. THE GEOLOGICAL BASIS FOR THE PRESENCE AND LOCATION OF METAL ORE RESOURCES IN THE REGION IS REVIEWED. THE FINAL CHAPTER PRESENTS A TECHNICAL OVERVIEW OF WAYS MATERIAL PROPERTIES OF ANCIENT METALS MAY BE STUDIED. WHILE PROVIDING A BACKGROUND TO THE STUDY OF METALS AT BAN CHIANG, THE VOLUME ALSO REVIEWS, SYNTHESIZES, AND REPOSITIONS THE METHOD AND THEORY FOR THE STUDY OF ARCHAOMETALLURGY GENERALLY. THAI ARCHAEOLOGY MONOGRAPH SERIES, 2A; UNIVERSITY MUSEUM MONOGRAPH, 149

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