

Chapter 2 The Earliest Human Societies Classzone

It has been 10 years since publication of the first edition of *Soils of the Past*. In that time the subject of paleopedology has grown rapidly, and established itself within the mainstream of geological research. Ancient soils contain vital mineralogical, geochemical, textural, and paleontological information about the continental environments in which they formed. Advances in isotope geochemistry and sequence-stratigraphic models allow more detailed reconstructions of environmental change from paleosols and new insights into diverse topics like atmospheric chemistry, global change, palaeoecology, geobiology and mass extinction. This fully updated second edition of *Soils of the Past* gives describes the main types of ancient soil, procedures for their recognition and study, their classification and, most significantly, a wide array of examples of how paleosols have been used for paleoenvironmental reconstruction. *Soils of the Past* is written for advanced undergraduates studying paleopedology as part of a degree in geology, environmental science, or physical geography, and for interested professional earth scientists. In the last few years however palaeopedology has become an established discipline in its own right, so the time is ripe for a new edition. This new book will be a good reflection of the current state of knowledge and be widely adopted. First edition was very well received and sold over 1500 copies when the subject was relatively new. The field has now grown enormously and the second edition should do considerably better. The new edition covers new developments in the field such as: Soils and Climate, stable isotope analysis of soils, soils and sequence stratigraphy. This edition represents the only available overview of the subject at this level. The Student Study Guides are important and unique components that are available for each of the books in *The World in Ancient Times* series. Each of the Student Study Guides is designed to be used with the main text at school or sent home for homework assignments. The activities in the Student Study guide will help students get the most out of their history books. Each student study guide includes a chapter-by-chapter two-page lesson that uses a variety of interesting activities to help a student master history and develop important reading and study skills.

A fascinating investigation of the origin of humans based on incredible new discoveries and advanced scientific technology Fifty thousand years ago, *Homo sapiens* was not the only species of humans in the world. There were also Neanderthals in what is now Europe, the Near East, and parts of Eurasia; *Hobbits* (*H. floresiensis*) on the island of Flores in Indonesia; Denisovans in Siberia and eastern Eurasia; and *H. luzonensis* in the Philippines. Tom Higham investigates what we know about these other human species and explores what can be learned from the genetic links between them and us. He also looks at whether *H. erectus* may have survived into the period when our ancestors first moved into Southeast Asia. Filled with thrilling tales of recent scientific discoveries, this book offers an engaging synopsis of our current understanding of human origins and raises new and interesting possibilities--particularly concerning what contact, if any, these other species might have had with us prior to their extinction. Frank Palmeri sees the conjectural histories of Rousseau, Hume, Herder, and other Enlightenment philosophers as a template for the development of the social sciences in the nineteenth and early twentieth centuries. Without documents or memorials, these thinkers, he argues, employed conjecture to formulate a naturalistic account of society's commercial and secular progression. Palmeri finds evidence of speculative frameworks in the political economy of Malthus, Martineau, Mill, and Marx. He traces the influence of speculative thought in the development of anthropology and ethnography in the 1860s, the foundational sociology of Comte and Spencer, and the sociology of religion pioneered by Weber, Durkheim, and Freud. Conjectural histories reveal a surprising ambivalence toward progress, modernity, and secularization among leading thinkers of the time, an attitude that affected texts as varied as Darwin's *Descent of Man*, Nietzsche's *Genealogy of Morality*, and the novels of Walter Scott, George Eliot, and H.G. Wells. Establishing the critical value of conjectural thinking in the study of modern forms of knowledge, Palmeri concludes his investigation with its return in the work of Foucault and in recent histories on early religion, political organization, and material life.

An authoritative exploration of why understanding evolution is crucial to human life today It is easy to think of evolution as something that happened long ago, or that occurs only in "nature," or that is so slow that its ongoing impact is virtually nonexistent when viewed from the perspective of a single human lifetime. But we now know that when natural selection is strong, evolutionary change can be very rapid. In this book, some of the world's leading scientists explore the implications of this reality for human life and society. With some twenty-three essays, this volume provides authoritative yet accessible explorations of why understanding evolution is crucial to human life—from dealing with climate change and ensuring our food supply, health, and economic survival to developing a richer and more accurate comprehension of society, culture, and even what it means to be human itself. Combining new essays with essays revised and updated from the acclaimed *Princeton Guide to Evolution*, this collection addresses the role of evolution in aging, cognition, cooperation, religion, the media, engineering, computer science, and many other areas. The result is a compelling and important book about how evolution matters to humans today. The contributors are Dan I. Andersson, Francisco J. Ayala, Amy Cavanaugh, Cameron R. Currie, Dieter Ebert, Andrew D. Ellington, Elizabeth Hannon, John Hawks, Paul Keim, Richard E. Lenski, Tim Lewens, Jonathan B. Losos, Virpi Lummaa, Jacob A. Moorad, Craig Moritz, Martha M. Muñoz, Mark Pagel, Talima Pearson, Robert T. Pennock, Daniel E. L. Promislow, Erik M. Quandt, David C. Queller, Robert C. Richardson, Eugenie C. Scott, H. Bradley Shaffer, Joan E. Strassmann, Alan R. Templeton, Paul E. Turner, and Carl Zimmer.

This volume represents the proceedings of the Irving Stone Memorial Symposium on "The Origin of Humans and Humanness." Scientists in the fields of anthropology, archaeology, biology and ecology were invited to discuss their research concerning the how's, where's and why's of the evolutionary history of humans. Using our knowledge of the behavior and reproduction of living primates, chapter 1 describes what made the earliest human-like animals of 4 million years ago different from their ape relatives. While showing how the science of paleontology works, the origin of our genus, *Homo*, is discussed in chapter 2. With emphasis on those humans who first made regular use of stone tools some 2 million years ago, chapter 3 interprets ancient human behavior and ecology from an archeological perspective. Tools from genetics, molecular biology, archaeology and paleontology are used to examine the origin of modern *Homo sapiens* in chapter 4. Chapter 5 looks at the artistry of Ice Age craftsmen. Finally, using computer methods, chapter 6 delves into the complex issue of how does human behavior change, and what is the relationship between biological and cultural evolution?

How can we improve support for teachers as they negotiate the pathways into the profession? This books highlights how strong networks of connections with other teachers and with resources have been shown to make a big difference. Online learning networks are one way to help pre-service and early career teachers to foster these connections and the greater community of teachers has an interest in helping new teachers to enter the profession. New technologies have allowed teachers to be connected

anywhere, anytime; this book discusses principles for the design and implementation of learning networks that can use this connectivity to improve support for beginning teachers. It addresses foundational principles of types of teacher communities (online and offline), types of knowledge relevant to beginning teachers, the idea of presence within a network and methodologies for studying and nurturing communities of teachers, providing recent examples of each.

This ambitious book probes our biological past to discover the kinds of lives that human beings have imagined were worth living. Bellah's theory goes deep into cultural and genetic evolution to identify a range of capacities (communal dancing, storytelling, theorizing) whose emergence made religious development possible in the first millennium BCE.

Tells the story of early human life using an incredible variety of primary sources. -- from back cover.

Primate Adaptation and Evolution is the only recent text published in this rapidly progressing field. It provides you with an extensive, current survey of the order Primates, both living and fossil. By combining information on primate anatomy, ecology, and behavior with the primate fossil record, this book enables students to study primates from all epochs as a single, viable group. It surveys major primate radiations throughout 65 million years, and provides equal treatment of both living and extinct species.
• Presents a summary of the primate fossils
• Reviews primate evolution
• Provides an introduction to the primate anatomy
• Discusses the features that distinguish the living groups of primates
• Summarizes recent work on primate ecology

The hominin fossil record documents a history of critical evolutionary events that have ultimately shaped and defined what it means to be human, including the origins of bipedalism; the emergence of our genus *Homo*; the first use of stone tools; increases in brain size; and the emergence of *Homo sapiens*, tools, and culture. The Earth's geological record suggests that some evolutionary events were coincident with substantial changes in African and Eurasian climate, raising the possibility that critical junctures in human evolution and behavioral development may have been affected by the environmental characteristics of the areas where hominins evolved. *Understanding Climate's Change on Human Evolution* explores the opportunities of using scientific research to improve our understanding of how climate may have helped shape our species. Improved climate records for specific regions will be required before it is possible to evaluate how critical resources for hominins, especially water and vegetation, would have been distributed on the landscape during key intervals of hominin history. Existing records contain substantial temporal gaps. The book's initiatives are presented in two major research themes: first, determining the impacts of climate change and climate variability on human evolution and dispersal; and second, integrating climate modeling, environmental records, and biotic responses. *Understanding Climate's Change on Human Evolution* suggests a new scientific program for international climate and human evolution studies that involve an exploration initiative to locate new fossil sites and to broaden the geographic and temporal sampling of the fossil and archeological record; a comprehensive and integrative scientific drilling program in lakes, lake bed outcrops, and ocean basins surrounding the regions where hominins evolved and a major investment in climate modeling experiments for key time intervals and regions that are critical to understanding human evolution.

There are some issues in human paleontology that seem to be timeless. Most deal with the origin and early evolution of our own genus – something about which we should care. Some of these issues pertain to taxonomy and systematics. How many species of *Homo* were there in the Pliocene and Pleistocene? How do we identify the earliest members of the genus *Homo*? If there is more than one Plio-Pleistocene species, how do they relate to one another, and where and when did they evolve? Other issues relate to questions about body size, proportions and the functional adaptations of the locomotor skeleton. When did the human postcranial “Bauplan” evolve, and for what reasons? What behaviors (and what behavioral limitations) can be inferred from the postcranial bones that have been attributed to *Homo habilis* and *Homo erectus*? Still other issues relate to growth, development and life history strategies, and the biological and archeological evidence for diet and behavior in early *Homo*. It is often argued that dietary change played an important role in the origin and early evolution of our genus, with stone tools opening up scavenging and hunting opportunities that would have added meat protein to the diet of *Homo*. Still other issues relate to the environmental and climatic context in which this genus evolved.

Based on a comprehensive review of human and societal evolution the book develops an approach to conscious, self-guided evolution. In the course of the evolutionary journey of our species, there have been three seminal events. The first happened some seven million years ago, when our humanoid ancestors entered on the evolutionary scene. Their journey toward the second crucial event lasted over six million years when - as the greatest event of our evolutionary history - *Homo sapiens sapiens*, started the revolutionary process of cultural evolution. Today, we have arrived at the threshold of the third major event, 'the revolution of conscious evolution,' when it becomes our responsibility to enter into the evolutionary design space and guide the evolutionary journey of our species. The book tells the story of the first six million years of the journey in just enough detail to understand how evolution had worked in times when it was primarily biological, driven by natural selection. With the human revolution some fifty thousand years ago, with the emergence of self-reflective consciousness, the evolutionary process transformed from biological into cultural. From this point on, the book follows the journey with detailed attention, in order to learn how cultural evolution works. The book is organized in three parts. Part One commences with an exposition of a brief history of the evolutionary idea through time with a focus on a review of the science of general evolution and specifically social and societal evolution. Next, the book unfolds the 'evolutionary story' of our species from the time when the first humanoids entered the evolutionary scene to our current era. Part Two develops a systems view of evolution, explores the ways and means of how evolution works, characterizes evolutionary consciousness and develops the idea of conscious evolution. Part Three builds upon the knowledge developed in the first two parts and sets forth the key conditions of conscious, self-guided evolution, elaborating the core condition, which is the acquisition of evolutionary competence through evolutionary learning. The focus of this part is on an approach to the design of evolutionary guidance systems that our families, neighborhoods, communities, organizations, social and societal systems can use to design the future they aspire to attain. The work is set aside from other statements in three important ways. It provides: (1) a comprehensive review of how evolution has worked with a focus on socio-cultural evolution, (2) an explanation of evolutionary consciousness and the conditions of engaging in conscious evolution, and (3) most significantly, it develops a detailed approach and a methodology to the design of evolutionary guidance systems.

"In 1859, Charles Darwin proposed a mechanism for biological evolution in his most famous work, *On the Origin of Species*. However, *Origin* makes little mention of humans. Despite this, Darwin thought deeply about humans and in 1871 published *The Descent of Man*, his influential and controversial book in which he applied evolutionary theory to humans and detailed his theory of sexual selection. February 2021 will mark the 150th anniversary of its publication. In *A Most Interesting Problem*, twelve leading anthropologists, biologists, and journalists revisit *The Descent*. Following the same organization as the first edition of *Descent* - less the large section on sexual selection -- each author reviews what Darwin wrote in *Descent*, comparing his words to what we now know now. There are chapters on evidence for human evolution, our place in the family tree, the origins of civilization, human races, intelligence, and sex differences. An introduction by Darwin biographer and historian Janet Browne provides context for *Descent* and a conclusion by Science magazine journalist Ann Gibbons looks to the future of the study of human evolution. All the chapters are written with a broad audience in mind. Ultimately, readers learn that Darwin was remarkably prophetic in some of his predictions, such as that the earliest human fossils would be discovered in Africa. But he was wrong in other areas, particularly in regards to variations between the sexes and races. Thus, *A Most Interesting Problem* is not so much a celebration of Darwin as it is a tribute to how science works, how scientific ideas are tested, and the role of evidence in helping structure narratives of human origins. The reader is left with a view of how far we have come in our quest for understanding human origins, biological variation, behavior, and evolution"--

Hailed as a breakthrough in the understanding of human evolution, *The History and Geography of Human Genes* offers the first full-scale reconstruction of where human populations originated and the paths by which they spread throughout the world. By mapping the worldwide geographic distribution of genes for over 110 traits in over 1800 primarily aboriginal populations, the authors charted migrations and devised a clock by which to date evolutionary history. This monumental work is now available in a more affordable paperback edition without the myriad illustrations and maps, but containing the full text and partial appendices of the authors' pathbreaking endeavor.

Recent neuroscience research makes it clear that human biology is cultural biology - we develop and live our lives in socially constructed worlds that vary widely in their structure values, and institutions. This integrative volume brings together interdisciplinary perspectives from the human, social, and biological sciences to explore culture, mind, and brain interactions and their impact on personal and societal issues. Contributors provide a fresh look at emerging concepts, models, and applications of the co-constitution of culture, mind, and brain. Chapters survey the latest theoretical and methodological insights alongside the challenges in this area, and describe how these new ideas are being applied in the sciences, humanities, arts, mental health, and everyday life. Readers will gain new appreciation of the ways in which our unique biology and cultural diversity shape behavior and experience, and our ongoing adaptation to a constantly changing world.

This book provides the first analysis and synthesis of the evidence of the earliest inhabitants of Asia before the appearance of modern humans 100,000 years ago. Asia has received far less attention than Africa and Europe in the search for human origins, but is no longer considered of marginal importance. Indeed, a global understanding of human origins cannot be properly understood without a detailed consideration of the largest continent. In this study, Robin Dennell examines a variety of sources, including the archaeological evidence, the fossil hominin record, and the environmental and climatic background from Southwest, Central, South, and Southeast Asia, as well as China. He presents an authoritative and comprehensive framework for investigations of Asia's oldest societies, challenges many long-standing assumptions about its earliest inhabitants, and places Asia centrally in the discussions of human evolution in the past two million years.

Ancestral DNA, Human Origins, and Migrations describes the genesis of humans in Africa and the subsequent story of how our species migrated to every corner of the globe. Different phases of this journey are presented in an integrative format with information from a number of disciplines, including population genetics, evolution, anthropology, archaeology, climatology, linguistics, art, music, folklore and history. This unique approach weaves a story that has synergistic impact in the clarity and level of understanding that will appeal to those researching, studying, and interested in population genetics, evolutionary biology, human migrations, and the beginnings of our species. Integrates research and information from the fields of genetics, evolution, anthropology, archaeology, climatology, linguistics, art, music, folklore and history, among others Presents the content in an entertaining and synergistic style to facilitate a deep understanding of human population genetics Informs on the origins and recent evolution of our species in an approachable manner

Today many school students are shielded from one of the most important concepts in modern science: evolution. In engaging and conversational style, *Teaching About Evolution and the Nature of Science* provides a well-structured framework for understanding and teaching evolution. Written for teachers, parents, and community officials as well as scientists and educators, this book describes how evolution reveals both the great diversity and similarity among the Earth's organisms; it explores how scientists approach the question of evolution; and it illustrates the nature of science as a way of knowing about the natural world. In addition, the book provides answers to frequently asked questions to help readers understand many of the issues and misconceptions about evolution. The book includes sample activities for teaching about evolution and the nature of science. For example, the book includes activities that investigate fossil footprints and population growth that teachers of science can use to introduce principles of evolution. Background information, materials, and step-by-step presentations are provided for each activity. In addition, this volume: Presents the evidence for evolution, including how evolution can be observed today. Explains the nature of science through a variety of examples. Describes how science differs from other human endeavors and why evolution is one of the best avenues for helping students understand this distinction. Answers frequently asked questions about evolution. *Teaching About Evolution and the Nature of Science* builds on the 1996 National Science Education Standards released by the National Research Council--and offers detailed guidance on how to evaluate and choose instructional materials that support the standards.

Comprehensive and practical, this book brings one of today's educational challenges into focus in a balanced and reasoned discussion. It will be of special interest to teachers of science, school administrators, and interested members of the community. This book represents an important meeting ground in the primatology field by exploring the various primate models that have been used in the reconstruction of early human behavior. While some models are based on the proposition that a key behavioral feature such as hunting, eating of seeds or monogamous mating led to the evolutionary separation of apes and humans, other models suggest that one primate species, such as the baboon or chimpanzee, best exemplifies the behavior of our early ancestors.

Several contributors to the book take the position that no single primate is a good model and contend instead that a model must be eclectic. One of the more innovative essays suggests that ancestral behavioral states can, in fact, be derived by comparing the behavior of all living hominid (ape and human) species. Additionally, several other contributors analyze and discuss the concept of model-making, noting deficiencies in earlier models while offering suggestions for future development. Although it is true that a powerful conceptual model for reconstructing hominid behavior does not yet exist, *The Evolution of Human Behavior: Primate Models* suggests ways one may be constructed based on behavioral ecology and evolutionary theory.

Recounts the world-famous paleoanthropologist's attempts to solve the mystery of human evolution, using evidence uncovered during his recent forays into the fossil-rich regions of Eastern Africa. TV tie-in. 35,000 first printing. \$35,000 ad/promo. Tour. *Transitions* brings alive History and Civics for learners and transforms these subjects into an exciting journey. The books strictly follow the guidelines of the Inter State Board for Anglo-Indian Education and the ICSE Board. The series fosters a sense of history in young learners by reconstructing the past and introduces young minds to people and events from the past. It also makes students feel responsible towards their surroundings and fellow beings.

The essential tools and methodologies for real-world patient education *Human Disease and Health Promotion* offers a comprehensive introduction to health advocacy and patient education in a real-world context. Covering the epidemiology and pathology of major communicable and non-communicable diseases, this book details up-to-date health promotion strategies and communication approaches designed to engage diverse populations. These methodologies can inform health promotion efforts. You'll learn how to partner with the patient to navigate healthcare systems and services and how to manage the relationship to avoid patient dependence and advocate burn-out. An extensive guide to common diseases includes details on mechanism, treatment, epidemiology, pathology, and attendant psychosocial implications, and prevention and control are emphasized to the

degree that the patient has the capacity to obtain, process, and understand the information and services needed to make appropriate health decisions. Rich in examples, tools, and exercises, this text includes access to a downloadable workbook that provides additional exercises to reinforce concepts and build essential practical skills. Public health education and advocacy is an enormous undertaking with many variables. This book helps provides a real-world picture of the depth and breadth of the field, with clear guidance toward current theory and practice. Apply current health literacy theories and participatory patient education strategies Design, implement, and evaluate programs targeting various groups Analyze and apply new technologies in patient education and health advocacy Understand the mechanisms, treatments, and epidemiology of common diseases Nine out of ten adults may lack the skills needed to manage their health and prevent disease, and over half find it a challenge to self-manage chronic diseases and use health services appropriately. Human Disease and Health Promotion helps you develop your role as health educator and advocate so you can connect patients with the care and information they need.

Explores the insights that fossil hominin teeth provide about human evolution, linking findings with current debates in palaeoanthropology.

Sanitation and intestinal health is something we often take for granted today. However, people living in many regions of the developing world still suffer with debilitating diseases due to the lack of sanitation. Despite its clear impact upon health in modern times, sanitation in past populations is a topic that has received surprisingly little attention. This book brings together key experts from around the world to explore fascinating aspects of life in the past relevant to sanitation, and how that affected our ancestors. By its end readers will realize that toilets were in use in ancient Mesopotamia even before the invention of writing, and that flushing toilets with anatomic seats were a technology of ancient Greece at the time of the minotaur myth. They will see how sanitation compared in ancient Rome and medieval London, and will take a virtual walk around the sanitation of York at the time of the Vikings. Readers will also understand which intestinal parasites infected humans in different regions of the world over different time periods, what these parasites tell us about early human evolution, later population migrations, past diet, lifestyle, and the effects of sanitation technology. There is good evidence that over the millennia people in the past realized that sanitation mattered. They invented toilets, cleaner water supplies, drains, waste disposal and sanitation legislation. While past views on sanitation were very different to those of today, it is clear than many past societies took sanitation much more seriously than was previously thought.

Biodiversity—the genetic variety of life—is an exuberant product of the evolutionary past, a vast human-supportive resource (aesthetic, intellectual, and material) of the present, and a rich legacy to cherish and preserve for the future. Two urgent challenges, and opportunities, for 21st-century science are to gain deeper insights into the evolutionary processes that foster biotic diversity, and to translate that understanding into workable solutions for the regional and global crises that biodiversity currently faces. A grasp of evolutionary principles and processes is important in other societal arenas as well, such as education, medicine, sociology, and other applied fields including agriculture, pharmacology, and biotechnology. The ramifications of evolutionary thought also extend into learned realms traditionally reserved for philosophy and religion. The central goal of the In the Light of Evolution (ILE) series is to promote the evolutionary sciences through state-of-the-art colloquia—in the series of Arthur M. Sackler colloquia sponsored by the National Academy of Sciences—and their published proceedings. Each installment explores evolutionary perspectives on a particular biological topic that is scientifically intriguing but also has special relevance to contemporary societal issues or challenges. This tenth and final edition of the In the Light of Evolution series focuses on recent developments in phylogeographic research and their relevance to past accomplishments and future research directions.

50 Great Myths of Human Evolution uses common misconceptions to explore basic theory and research in human evolution and strengthen critical thinking skills for lay readers and students. Examines intriguing—yet widely misunderstood—topics, from general ideas about evolution and human origins to the evolution of modern humans and recent trends in the field Describes what fossils, archaeology, and genetics can tell us about human origins Demonstrates the ways in which science adapts and changes over time to incorporate new evidence and better explanations Includes myths such as “Humans lived at the same time as dinosaurs;” “Lucy was so small because she was a child;” “Our ancestors have always made fire;” and “There is a strong relationship between brain size and intelligence” Comprised of stand-alone essays that are perfect for casual reading, as well as footnotes and references that allow readers to delve more deeply into topics

For the twelfth edition of this classic textbook, the whole text has been reviewed and revised to take into account new developments in the study and teaching of anatomy. Chapters on the central nervous system, digestive system, and respiratory system have been almost entirely rewritten. A completely new feature is the addition of an atlas of anatomical structure using radiographs and tomographs (CT scans).

The origins of religion and ritual in humans have been the focus of centuries of thought in archaeology, anthropology, theology, evolutionary psychology and more. Play and ritual have many aspects in common, and ritual is a key component of the early cult practices that underlie the religious systems of the first complex societies in all parts of the world. This book examines the formative cults and the roots of religious practice from the earliest times until the development of early religion in the Near East, in China, in Peru, in Mesoamerica and beyond. Here, leading prehistorians and other specialists bring a fresh approach to the early practices that underlie the faiths and religions of the world. They demonstrate the profound role of play ritual and belief systems and offer powerful new insights into the emergence of early civilization.

Anthropology and Global History explains the origin and development of human societies and cultures from their earliest beginnings to the present—utilizing an anthropological lens but also drawing from sociology, economics, political science, history, and ecological and religious studies.

Animals and Human Society provides a solid, scientific, research-based background to advance understanding of how animals impact humans. As a resource for both science and non-science majors (including students planning to major in or studying animal science, pre-veterinary medicine, animal behavior, conservation biology, ecotoxicology, epidemiology and evolutionary biology), the book can be used as a text for courses in Animals and Human Society or Animal Science, or as supplemental material for an Introduction to Animal Science. The book offers foundational background to those who may have little background in animal agriculture and have focused interest on companion animals and horses. Animals have had profound effects on people from the earliest times, ranging from zoonotic diseases, to the global impact of livestock, poultry and fish production, to the influences of human-associated animals on the environment (on extinctions, air and water pollution, greenhouse gases, etc.), to the importance of animals in human evolution and hunter-gatherer communities. The volume introduces livestock production (including poultry and

