

LEGACY of DISCOVERY in HUMAN ORIGINS



“Lucy,” a 3.2-million-year-old fossil skeleton, was discovered in 1974 and recognized as a new human ancestor species—*Australopithecus afarensis*—in 1978.

Exploring the future of our past

Where do we come from? What sets us apart from other species? How does the deep past inform us about our complex relationship to a changeable planet? Human origins researchers study the natural processes by which we became human. It is a broad, transdisciplinary endeavor that unites research on the evolutionary biology, behavior and culture of our extinct ancestors, living populations of humans and our primate cousins.

In July 1997, the Institute of Human Origins (IHO) moved from Berkeley, California, to Arizona State University. Led by Founding Director Donald Johanson, who discovered the famous “Lucy” skeleton in 1974, IHO has been moving the science of human origins forward through groundbreaking discoveries of fossil and archaeological evidence for the emergence of our species over six million years of evolutionary history.

Now, under Director William Kimbel, IHO has attracted many more high-achieving scientists with an expanded agenda—linking the study of the past to lessons from the behavior and genetics of modern primate and human societies. IHO is achieving a position of preeminence in these vital areas of inquiry as well.

IHO scientists are embedded in ASU’s School of Human Evolution and Social Change, launched in 2006. Through the school, anthropologists and archaeologists come together with experts in health, biology, environmental science, applied math and other disciplines to examine the origins and implications of human uniqueness. Their work helps us reimagine the best solutions to some of our most pressing challenges, such as reducing conflict, creating sustainability and improving health.



ASU students find a bone in the dusty hills of Hadar, Ethiopia—the site where the 3.2 million-year-old fossil skeleton “Lucy” and more than 400 specimens of her species have been found.



The large cave opening at Pinnacle Point in South Africa looks out onto the confluence of the Indian and southern Atlantic Oceans. ASU scientists working at the site study how climate-driven shifts in resource use and demography may have led to the emergence of conflict and cooperation.



ASU doctoral student Chalachew Seyoum found jaw fragments with teeth in Ethiopia in 2013. The 2.8-million-year-old fossils help to fill in the 200,000-year gap in our knowledge of the evolutionary transition from *Australopithecus* to *Homo*.



These spear points replicate stone tools made by ancient human ancestors more than 500,000 years ago.

Along the southernmost coast of South Africa at Pinnacle Point, high cliffs hug a rocky coast. The cliffs protected coastal caves from people and animals that could have disturbed artifacts left by early modern humans from 160,000 to 50,000 years ago. For the last 15 years, an international team led by ASU archaeologist Curtis Marean has explored and excavated these caves, making key discoveries about how our ancestors lived.

Earliest human evidence 1997

A team led by IHO Director William Kimbel describes the discovery of a 2.35-million-year-old upper jaw from Hadar, Ethiopia. Associated with crude stone artifacts, it is the oldest specimen of the genus *Homo* known up to that time.

A place for modern minds 2000

ASU anthropologist Curtis Marean launches international field research on modern human origins at Pinnacle Point, South Africa. Discoveries made at the site point to complex cognition at a surprisingly early period in modern humans.

Forging stone tools 2009

Early modern humans living on the southern tip of Africa 72,000 years ago used fire to increase the quality and efficiency of their stone tool manufacturing, reports an international team of researchers, including three from IHO.

Baby Selam 2000

IHO postdoctoral scholar Zeresenay Alemseged, working at the 3.3-million-year-old site of Dikika, Ethiopia, discovers an infant skull and skeleton of Lucy's species, *Australopithecus afarensis*. Known as "Selam," the fossil is one of the most complete specimens of an early human ancestor.

Introducing seafood 2007

New research shows that hunter-gatherers on the coast of South Africa were consuming shellfish and other seafood 164,000 years ago—far earlier than previously documented. An international research team, including Marean, announce this discovery along with evidence of pigment use and bladelets (very small blades) at the Pinnacle Point site.

Sticks and stones 2012

IHO postdoctoral scholar Jayne Wilkins heads a team describing the earliest evidence for the hafting of stone tips to wooden spears, creating a compound hunting tool, dated to 500,000 years ago in South Africa—200,000 years earlier than previously thought.

Core clues 2013

Earth scientist Christopher Campisano co-leads a \$10 million international field project to drill deep cores in ancient rift valley lake sediments. The cores reveal a detailed record of environmental change over some six million years of human evolution in eastern Africa. The goal of this research is to study the connections between past climate and human evolution in Africa's Rift Valley.

New oldest human fossil 2015

Scientists report the discovery of the earliest fossil evidence of the human genus, *Homo*. The lower jaw with teeth, discovered at Ledi-Geraru, Ethiopia, is dated to 2.8 million years ago, predating previously known fossils of the *Homo* lineage by almost 400,000 years. IHO researchers Reed, Campisano and Kimbel lead the team reporting the discovery.

The savannah diet 2013

Carbon isotopes preserved in ancient teeth help a research team, including Kimbel and IHO Research Associate Kaye Reed, to identify the diet of African human ancestors from 4.5 to 1.5 million years ago. Based on the concept "you are what you eat," they show that by 3.5 million years ago, our ancestors first expanded their diets to include plant-food resources that grow in open grassy environments, which we, almost alone among primates, continue to consume today.

The roots of human uniqueness 2014

A team coordinated by IHO Director William Kimbel receives a \$4.9 million, three-year grant from the John Templeton Foundation for research on the evolutionary foundations of human uniqueness. The largest award for human origins research of its type, the grant funds 11 projects and educational outreach on how complex cognition, cumulative culture and advanced cooperation evolved in the human lineage.