

New evidence about when, where, and how chickens were domesticated

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Comparison of chicken tarsometatarsi from: A) Mogador (Becker 2013); B) modern broiler; C) Iron Age Weston Down (photograph by J. Best), showing healthy bone on the left and fractured bone on the right (CKN8) (graphic by S. Doherty). Credit: *Antiquity* (2022). DOI: 10.15184/aqy.2021.90

New research transforms our understanding of the circumstances and timing of the domestication of chickens, their spread across Asia into the west, and reveals the changing way in which they were perceived in societies over the past 3,500 years.

Experts have found that an association with rice farming likely started a process that has led to chickens becoming one of the world's most numerous animals. They have also found evidence that chickens were initially regarded as exotica, and only several centuries later used as a source of "food."

Previous efforts have claimed that chickens were domesticated up to 10,000 years ago in China, Southeast Asia, or India, and that chickens were present in Europe over 7,000 years ago.

The new studies show this is wrong, and that the driving force behind chicken domestication was the arrival of dry rice farming into southeast Asia where their wild ancestor, the red jungle fowl, lived. Dry rice farming acted as a magnet drawing wild jungle fowl down from the trees, and kickstarting a closer relationship between people and the jungle fowl that resulted in chickens.

This domestication process was underway by around 1,500 BC in the Southeast Asia peninsula. The research suggests that chickens were then transported first across Asia and then throughout the Mediterranean along routes used by early Greek, Etruscan and Phoenician maritime traders.

During the Iron Age in Europe, chickens were venerated and generally not regarded as food. The studies have shown that several of the earliest chickens are buried alone and un-butchered, and many are also found

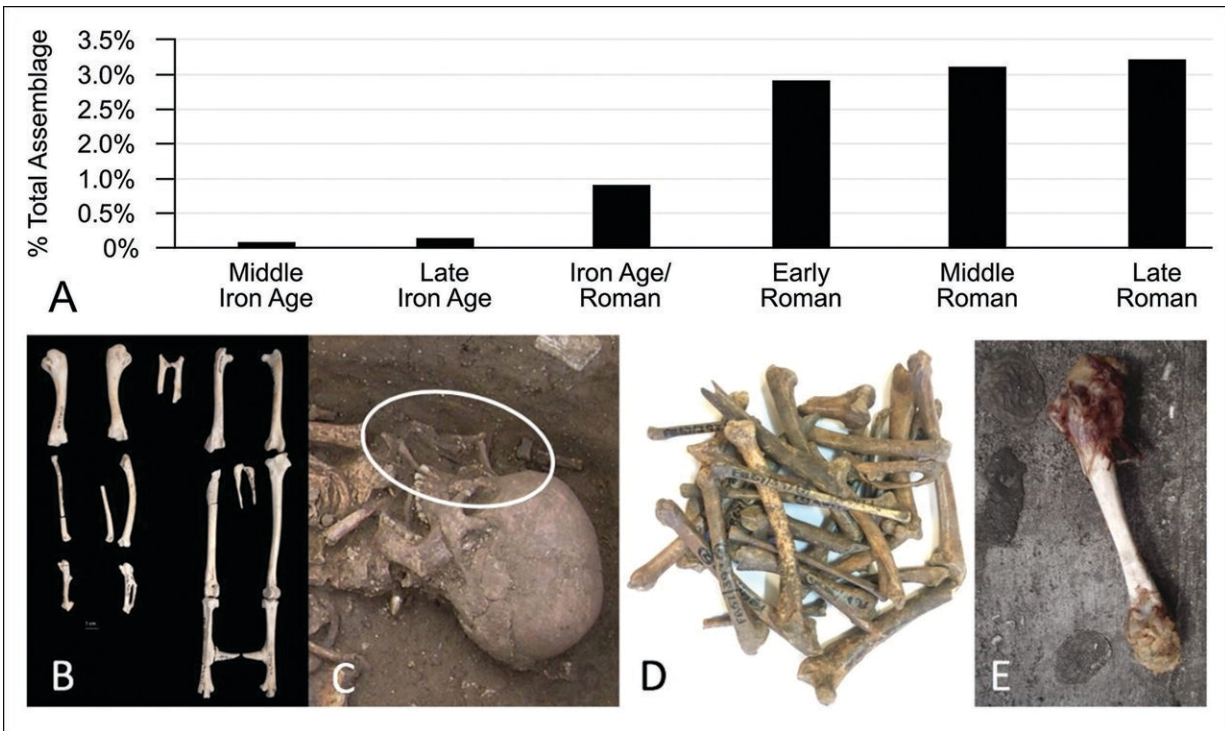
buried with people. Males were often buried with cockerels and females with hens. The Roman Empire then helped to popularize chickens and eggs as food. For example, in Britain, chickens were not regularly consumed until the third century AD, mostly in urban and military sites.

The international team of experts re-evaluated chicken remains found in more than 600 sites in 89 countries. They examined the skeletons, burial location and historical records regarding the societies and cultures where the bones were found. The oldest bones of a definite domestic chicken were found at Neolithic Ban Non Wat in central Thailand, and date to between 1,650 and 1,250 BC.

The team also used radiocarbon dating to establish the age of 23 of the proposed earliest chickens found in western Eurasia and north-west Africa. Most of the bones were far more recent than previously thought. The results dispel claims of chickens in Europe before the first millennium BC and indicate that they did not arrive until around 800 BC. Then, after arriving in the Mediterranean region, it took almost 1,000 years longer for chickens to become established in the colder climates of Scotland, Ireland, Scandinavia and Iceland.

The two studies, published in the journals *Antiquity* and *The Proceedings of the National Academy of Sciences*, were carried out by academics at the universities of Exeter, Munich, Cardiff, Oxford, Bournemouth, Toulouse, and universities and institutes in Germany, France and Argentina.

Professor Naomi Sykes, from the University of Exeter, said: "Eating chickens is so common that people think we have never not eaten them. Our evidence shows that our past relationship with chickens was far more complex, and that for centuries chickens were celebrated and venerated."



The association between (A) zooarchaeological representation (Skelton 2019) and depositional context. Earliest chickens were rare and often individually buried, as at (B) Middle Iron Age Houghton Down (CKN9). As chicken populations increased, they moved from being incorporated into human-chicken co-burial, as at (C) Roman Broughton (Yorkshire), to foodstuff, as at (D) Fishbourne Roman Palace. Today, chickens are so omnipresent that they are simply litter on the streets (E) (figure by S. Doherty). Credit: *Antiquity* (2022). DOI: 10.15184/aqy.2021.90

Professor Greger Larson, from the University of Oxford, said: "This comprehensive re-evaluation of chickens firstly demonstrates how wrong our understanding of the time and place of chicken domestication was. And even more excitingly, we show how the arrival of dry rice agriculture acted as a catalyst for both the [chicken](#) domestication process and its global dispersal."

Dr. Julia Best, from Cardiff University said: "This is the first time that [radiocarbon dating](#) has been used on this scale to determine the significance of chickens in early societies. Our results demonstrate the need to directly date proposed early specimens, as this allows us the clearest picture yet of our early interactions with chickens."

Professor Joris Peters, from LMU Munich and the Bavarian State Collection of Palaeoanatomy, said: "With their overall highly adaptable but essentially cereal-based diet, sea routes played a particularly important role in the spread of chickens to Asia, Oceania, Africa and Europe."

Dr. Ophélie Lebrasseur, from the CNRS/Université Toulouse Paul Sabatier and the Instituto Nacional de Antropología y Pensamiento Latinoamericano, said: "The fact that chickens are so ubiquitous and popular today, and yet were domesticated relatively recently is startling. Our research highlights the importance of robust osteological comparisons, secure stratigraphic dating and placing early finds within their broader cultural and environmental context."

Professor Mark Maltby, from Bournemouth University, said, "These studies show the value of museums and the importance of archaeological materials to reveal our past."

More information: Best, J. et al, Redefining the timing and circumstances of the chicken's introduction to Europe and north-west Africa, *Antiquity* (2022). [DOI: 10.15184/aqy.2021.90](https://doi.org/10.15184/aqy.2021.90)

Peters, J. et al, The biocultural origins and dispersal of domestic chickens, *Proceedings of the National Academy of Sciences* (2022). www.pnas.org/cgi/doi/10.1073/pnas.2121978119

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