

Researchers pinpoint when the First Dynasty of kings ruled Early Egypt

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For the first time, a team of scientists and archaeologists has been able to set a robust timeline for the first eight dynastic rulers of Egypt. Until now there have been no verifiable chronological records for this period or the process leading up to the formation of the Egyptian state. The chronology of Early Egypt between 4500 and 2800 BC has been reset by building mathematical models that combine new radiocarbon dates with established archaeological evidence. Over 100 fresh radiocarbon dates were obtained for hair, bone and plant samples excavated at several key sites including the tombs of the kings and surrounding burials. The findings are published in the journal *Proceedings of the Royal Society A*.

Egypt was the first territorial state to be brought under one political ruler, and the new dating evidence suggests that this period of unification happened far more quickly than previously thought.

Until now scholars had relied on archaeological evidence alone, using the evolving styles of ceramics excavated at human [burial sites](#) to try to piece together the timings of key chronological events in the Predynastic period and the First Dynasty. For example, among the most significant pieces of evidence surviving today are two mud seals, excavated at the royal tombs at Abydos, containing lists in successive order of the First Dynasty kings.

Using the fresh [radiocarbon dates](#) combined with existing archaeological evidence, the research team's [mathematical model](#) pinpointed the likeliest date for each king's accession. The date for each king is thought

to be accurate to within 32 years (with 68% probability). The modelled timeline reveals lengths of reign that are approximately what you would expect in terms of lifespan, say the study authors

The Egyptian state is often defined as starting when King Aha acceded to the throne. According to the new model, this is likely to have happened between 3111 BC and 3045 BC (with 68% probability). It also shows that the Predynastic period – when inhabitants along the River Nile started to form permanent settlements and concentrate on crop farming – was shorter than previously thought. It had been widely assumed that the Predynastic period started around 4000 BC. However, this model suggests it was probably closer to 3800–3700 BC, and the Neolithic period that preceded it lasted longer and finished later.

Lead author of the study Dr Michael Dee, from the Research Laboratory for Archaeology at the University of Oxford, said: 'The origins of Egypt began a millennium before the pyramids were built, which is why our understanding of how and why this powerful state developed is based solely on [archaeological evidence](#). This new study provides new radiocarbon dating evidence that resets the chronology of the first dynastic rulers of Ancient Egypt and suggests that Egypt formed far more rapidly than was previously thought.'

The first kings and queens of Egypt in order of succession were Aha, Djer, Djet, Queen Merneith, Den, Anedjib, Semerkhet and Qa'a. They would have ruled over a territory spanning a similar area to Egypt today with formal borders at Aswan in the south, the Mediterranean Sea in the north and across to the modern-day Gaza Strip in the east.

Organic materials from key burial sites of the Badarian and Naqada periods and the First Dynasty were dated using the Oxford Radiocarbon Accelerator Unit (ORAU) at the Research Laboratory for Archaeology, Oxford. All the remains were from museum collections in Europe and

North America with freshly excavated seed samples from the Gaza Strip. The research was led by Professor Christopher Bronk Ramsey (Director, ORAU), Oxford, in collaboration with University College London and Cranfield University. The project was funded by the Leverhulme Trust.

More information: Dee, M. et al. An absolute chronology for early Egypt using radiocarbon dating and Bayesian statistical modelling, *Proceedings of the Royal Society A*, 4 September 2013.

Provided by Oxford University

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