

## Science News

from research organizations

### Ancient ostrich eggshell reveals new evidence of extreme climate change thousands of years ago

*Date:* July 8, 2021

*Source:* University of Exeter

*Summary:* Evidence from an ancient eggshell has revealed important new information about the extreme climate change faced by human early ancestors.

*Share:* [!\[\]\(17413706fd4997a1a4bdf85c6864eee1\_img.jpg\)](#) [!\[\]\(f419710cbe076aa30a9c6c031b5cbe84\_img.jpg\)](#) [!\[\]\(2726020a4107bdc9042b257034f90eb3\_img.jpg\)](#) [!\[\]\(9459655bf14a84f4d775e8d814cca8c9\_img.jpg\)](#) [!\[\]\(de47dbdca34225b222a4a87ac0e499b3\_img.jpg\)](#)

#### FULL STORY

Evidence from an ancient eggshell has revealed important new information about the extreme climate change faced by human early ancestors.

The research shows parts of the interior of South Africa that today are dry and sparsely populated, were once wetland and grassland 250,000 to 350,000 years ago, at a key time in human evolution.

Philip Kiberd and Dr Alex Pryor, from the University of Exeter, studied isotopes and the amino acid from ostrich eggshell fragments excavated at the early middle Stone Age site of Bundu Farm, in the upper Karoo region of the Northern Cape. It is one of very few archaeological sites dated to 250,000 to 350,000 in southern Africa, a time period associated with the earliest appearance of communities with the genetic signatures of *Homo sapiens*.

This new research supports other evidence, from fossil animal bones, that past communities in the region lived among grazing herds of wildebeest, zebra, small antelope, hippos, baboons and extinct species of *Megalotragus priscus* and *Equus capensis*, and hunted these alongside other carnivores, hyena and lions.

After this period of equitable climate and environment the eggshell evidence -- and previous finds from the site -- suggests after 200,000 years ago cooler and wetter climates gave way to increasing aridity. A process of changing wet and dry climates recognised as driving the turnover and evolution of species, including *Homo sapiens*.

The study, published in the *South African Archaeological Bulletin*, shows that extracting isotopic data from ostrich eggshells, which are commonly found on archaeological sites in southern Africa, is a viable option for open-air sites greater than 200,000 years old. The technique which involves grinding a small part of the eggshell, to a powder allows experts to analyse and date the shell, which in turn gives a fix on the climate and environment in the past.

Using eggshell to investigate past climates is possible as ostriches eat the freshest leaves of shrubs and grasses available in their environment, meaning eggshell composition reflects their diet. As eggs are laid in the breeding season across a short window, the information found in ostrich eggshell provides a picture of the prevailing environment and climate for a precise period in time.

Bundu Farm, where the eggshell was recovered is a remote farm 50km from the nearest small town, sitting within a dry semi-desert environment, which supports a small flock of sheep. The site was first excavated in the late 1990's the site with material stored at the McGregor Museum, Kimberley (MMK). The study helps fill a gap in our knowledge for this part of South Africa and firmly puts the Bundu Farm site on the map.

Philip Kiberd, who led the study, said: "This part of South Africa is now extremely arid, but thousands of years ago it would have been Eden-like landscape with lakes and rivers and abundant species of flora and fauna. Our analysis of the ostrich eggshell helps us to better understand the environments in which our ancestors were evolving and provides an important context in which to interpret the behaviours and adaptations of people in the past and how this ultimately led to the evolution of our species'.

---

### Story Source:

Materials provided by **University of Exeter**. *Note: Content may be edited for style and length.*

---

### Journal Reference:

1. P. Kiberd & A. Pryor. **Ostrich Eggshell Isotope Data from Bundu Farm, South Africa, and New Evidence On Middle Stone Age Environments in the Upper Karoo**. *South African Archaeological Bulletin*, 2021
- 

### Cite This Page:

MLA	APA	Chicago
-----	-----	---------

University of Exeter. "Ancient ostrich eggshell reveals new evidence of extreme climate change thousands of years ago." ScienceDaily. ScienceDaily, 8 July 2021.

<[www.sciencedaily.com/releases/2021/07/210708103628.htm](http://www.sciencedaily.com/releases/2021/07/210708103628.htm)>.

---

### RELATED STORIES

Resilience in the Face of Climate Change: Archaeological Investigations Reveal Human Adaptability in Ancient Turkey

Oct. 29, 2020 — An examination of two documented periods of climate change in the greater Middle East, between approximately 4,500 and 3,000 years ago, reveals local evidence of resilience and even of a flourishing ...

Human Influence on Climate Change Will Fuel More Extreme Heat Waves in US

Mar. 19, 2018 — Human-caused climate change will drive more extreme summer heat waves in the western US, including in California and the Southwest as early as 2020, new research ...

Pattern of Mammal Dwarfing During Global Warming

Mar. 15, 2017 — More than 50 million years ago, when the Earth experienced a series of extreme global warming events, early mammals responded by shrinking in size. While this mammalian dwarfism has previously been ...

Crop Domestication Is a Balancing Act: Some Ants Are Still Trying to Get It Right

Sep. 2, 2016 — The ancestors of leaf-cutter ants swapped a hunter-gatherer lifestyle for a bucolic existence on small-scale subsistence farms. A new study has revealed that living relatives of the earliest ...

## FROM AROUND THE WEB

---

*ScienceDaily shares links with sites in the TrendMD network and earns revenue from third-party advertisers, where indicated.*

### **When did modern humans emerge? 350,000-year-old tool discovered in Israel may challenge date for debut of Homo sapiens**

Dan Avery, Genetic Literacy Project, 2021

### **Human evolutionary timeline: Key moments in the emergence of our species | Genetic Literacy Project**

Brian Handwerk, Genetic Literacy Project, 2021

### **Human evolutionary timeline: Key moments in the emergence of our species**

Brian Handwerk, Genetic Literacy Project, 2021

### **50,000 years ago, the Negev desert was home to consorting humans and Neanderthals**

Idan Zonshine et al., Genetic Literacy Project, 2021

### **50,000 years ago, the Negev was home to consorting humans and Neanderthals**

Idan Zonshine et al., Genetic Literacy Project, 2021

### **SpeedX Gets CE Mark for Antibiotic-Resistant STD MDx**

360Dx, 2016

### **Industry Groups Lobby Congress Ahead of Final CMS National Coverage Policy on NGS Cancer Panels**

Turna Ray, 360Dx, 2018

### **Extinct human ancestor Homo erectus evolved in Africa—not Asia—new fossil study suggests | Genetic Literacy Project**

George Dvorsky et al., Genetic Literacy Project

---

Powered by **TREND MD**

## Free Subscriptions

---

Get the latest science news with ScienceDaily's free email newsletters, updated daily and weekly. Or view hourly updated newsfeeds in your RSS reader:

✉ Email Newsletters

📡 RSS Feeds

## Follow Us

---

Keep up to date with the latest news from ScienceDaily via social networks:

 [Facebook](#)

 [Twitter](#)

 [LinkedIn](#)

## Have Feedback?

---

Tell us what you think of ScienceDaily -- we welcome both positive and negative comments. Have any problems using the site? Questions?

 [Leave Feedback](#)

 [Contact Us](#)

[About This Site](#) | [Staff](#) | [Reviews](#) | [Contribute](#) | [Advertise](#) | [Privacy Policy](#) | [Editorial Policy](#) | [Terms of Use](#)

Copyright 2021 ScienceDaily or by other parties, where indicated. All rights controlled by their respective owners. Content on this website is for information only. It is not intended to provide medical or other professional advice. Views expressed here do not necessarily reflect those of ScienceDaily, its staff, its contributors, or its partners.

Financial support for ScienceDaily comes from advertisements and referral programs, where indicated.

— [CCPA: Do Not Sell My Information](#) — — [GDPR: Privacy Settings](#) —