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WHAT'S NEW IN SCIENCE?

Oldest whale bone tools discovered.

Humans were making tools from whale bones as far back as 20,000 years ago, according to a study conducted by scientists from the Institute of Environmental Science and Technology of the University Autònoma de Barcelona (ICTA-UAB), the French National Centre for Scientific Research (CNRS), and the University of British Columbia. This discovery broadens our understanding of early human use of whale remains and offers valuable insight into the marine ecology of the time.

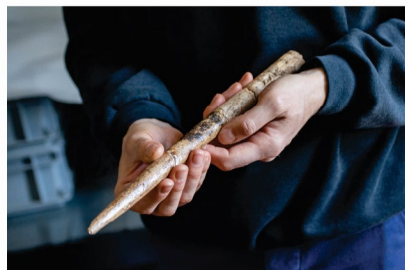
Whales, the largest animals on Earth, were an important source of food and materials such as oil and bone. For this reason, they are believed to have played a key role in the survival of many coastal human groups. However, tracing the origins of human-whale interactions is challenging, as coastal archaeological sites are especially fragile and vulnerable to rising sea levels, making it difficult to preserve evidence of early human-marine mammal relationships.

The research, led by Jean-Marc Pétillon (CNRS) along with ICTA-

UAB scientist Krista McGrath and published in Nature Communications, analyzes 83 bone tools excavated from sites around the Bay of Biscay in Spain, along with 90 additional bones from Santa Catalina Cave, also located in the province of Biscay. The authors used mass spectrometry and radiocarbon dating to identify the species and age of the samples.

"Our study reveals that the bones came from at least five species of large whales, the oldest of which date to approximately 19,000-20,000 years ago. These represent some of the earliest known evidence of humans using whale remains as tools," says Jean-Marc Pétillon, senior author of the research.

In addition, chemical data extracted from the bones suggest that the feeding habits of these ancient whales differed slightly from those of their modern counterparts, pointing to potential changes in behavior or the marine environment. Overall, this discovery not only enhances our understanding of early human use of whale remains but also sheds light on the role whales played in past ecosystems.



Main Source:-

<https://www.sciencedaily.com/releases/2025/05/250527124110.htm>



Timings

Tuesday to Sunday
& Public Holidays
9.30 am to 4.30 pm

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SCIENCE FACT JULY 2025

1 July 1929	:	American Biologist Gerald Edelman (Co-winner of the 1972 Nobel Prize in Physiology/ Medicine for work on the immune system) was born.
2 July 1862	:	English Physicist William Henry Bragg (Co-winner of the 1915 Nobel Prize in Physics for their services in the Analysis of Crystal Structure by means of X- rays) was born.
2 July 1906	:	German -born nuclear Physicist Hans Bethe (Winner of the 1967 Nobel Prize in Physics for his work on the theory of stellar nucleosynthesis) was born.
4 July 2005	:	Successful collision of NASA's satellite "Deep Impact" with comet into the space was held at the distance 13.04 million km from the Earth.
6 July 1885	:	Louis Pasteur had successfully tested the vaccine against rabies on human.
8 July 1895	:	Russian Physicist Igor Tamm (Co-winner of the 1958 Nobel Prize in Physics for the discovery and the interpretation of the Cherenkov effect) was born.
9 July 1894	:	Soviet Physicist Pyotr Leonidovich Kapitsa (Co-winner of the 1978 Nobel Prize in Physics for his basic inventions and discoveries in the area of low-temperature Physics) was born.
9 July 1926	:	American-born physicist Ben Roy Mottelson (Co-winner of the 1975 Nobel Prize in Physics for his work on the non- spherical geometry of atomic nuclei) was born.
10 July 1902	:	German Chemist Kurt Alder (Co-winner of the 1950 Nobel Prize in Chemistry for their discovery and development of the diene synthesis) was born.
10 July 1920	:	American Physicist Owen Chamberlain (Co- winner of the 1959 Nobel Prize in Physics for the discovery of the antiproton, a sub atomic antiparticle) was born
11 July	:	World Population Day. (by U.N.)
12 July 1913	:	American Physicist Willis Lamb (Winner of the 1955 Nobel Prize in Physics for his discoveries concerning the fine structure of the Hydrogen Spectrum) was born.
12 July 1928	:	American Chemist Elias James Corey (Winner of the 1990 Nobel Prize in Chemistry for his development of the theory and methodology of organic synthesis, specially retrosynthetic analysis) was born.
14 July 1965	:	The 'Mariner 4' flyby of Mars takes the first close-up photos of another planet.
15 July 1921	:	American Chemist Robert Bruce Merrifield (Winner of the 1984 Nobel Prize in Chemistry for the invention of solid phase peptide synthesis) was born.
16 July 1888	:	Dutch Physicist Fritz Zernike (Winner of the 1953 Nobel Prize in Physics for his invention of the phase- contrast microscope) was born.
18 July 1853	:	Dutch Physicist Hendrik Lorentz (Co- winner of the 1902 Nobel Prize in Physics for the discovery and theoretical explanation of the Zeeman effect) was born.
18 July 1980	:	Launching of Indian satellite "Rohini RS-1" into the Space.
19 July 1938	:	Indian astrophysicist Jayant Narlikar was born.
21 July 1969	:	Neil Armstrong and Edwin Buzz Aldrin become the first men to walk on the Moon, during the Apollo 11 mission.
24 July 1969	:	Successful landing of "Appolo-11" in the pacific Ocean.
26 July 1963	:	Syncom 2, the world's first geosynchronous satellite, is launched from Cape Canaveral on a Delta B booster.
28 July 1925	:	American Scientist Baruch S. Blumberg (Co-winner of the 1976 Nobel Prize in Physiology/ Medicine for his work on the Hepatitis B virus) was born.
29 July 1898	:	American Physicist Isidor Isaac Rabi (Winner of the 1944 Nobel Prize in Physics for his discovery of nuclear magnetic resonance) was born.
31 July 1918	:	American Chemist Paul D. Boyer (Co-winner of the 1997 Nobel Prize in Chemistry for research on the enzymatic mechanism underlying the biosynthesis of adenosine triphosphate) was born.

U.N. – United Nations

WHO – World Health Organization

UNESCO – United Nations Educational Scientific & Cultural Organization

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Ans:- 1. c 2. c 3. a 4. d

SCIENTIFIC QUESTION

Is Time Travel Possible?

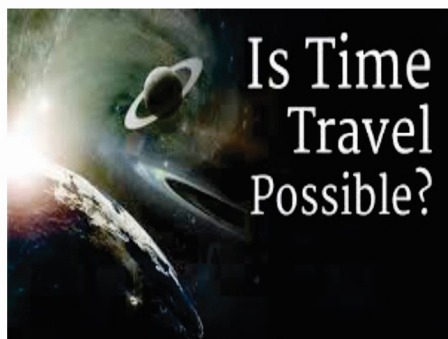
We all travel in time! We are all traveling in time at approximately the same speed: 1 second per second.

Telescopes help us see stars and galaxies that are very far away. It takes a long time for the light from faraway galaxies to reach us. So, when we look into the sky with a telescope, we are seeing what those stars and galaxies looked like a very long time ago. However, when we think of the phrase "time travel," we are usually thinking of traveling faster than 1 second per second. That kind of time travel sounds like something we only see in movies or science fiction books. Could it be real? Science says yes!

A famous scientist named Albert Einstein came up with an idea about how time works called, relativity. This theory says that time and space are linked together. Einstein also said our universe has a speed limit: nothing can travel faster than the speed of light (186,000 miles per second).

We can't use a time machine to travel hundreds of years into the past or future. That kind of time travel happens only in books and movies. But the math of time travel *does* affect the things we use every day.

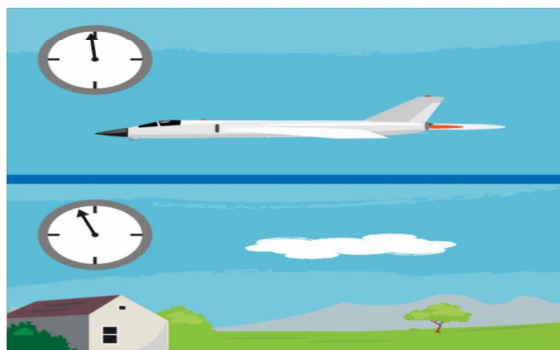
For example, we use GPS satellites to help us figure out how to get to new places. NASA scientists also use a high-accuracy version of GPS to keep track of where satellites are in space. These GPS relies on



time-travel calculations to help us get around town? GPS satellites orbit around Earth very quickly at about 8,700 miles (14,000 kilometers) per hour. This slows down GPS satellite clocks by a small fraction of a second. However, the satellites are also orbiting Earth about 12,550 miles (20,200 km) above the surface. This actually *speeds up* GPS satellite clocks by a slighter larger fraction of a second.

Here's how: Einstein's theory also says that gravity curves space and time, causing the passage of time to slow down. High up where the satellites orbit, Earth's gravity is much weaker. This causes the clocks on GPS satellites to run *faster* than clocks on the ground.

The combined result is that the clocks on GPS satellites experience time at a rate slightly faster than 1 second per second. Luckily, scientists can use math to correct these differences in time.



If scientists didn't correct the GPS clocks, there would be big problems. GPS satellites wouldn't be able to correctly calculate their position or yours. The errors would add up to a few miles each day, which is a big deal. GPS maps might think your home is nowhere near where it actually is!

Thus, time travel is indeed a real thing. But it's not quite what we probably see in the movies. Under certain conditions, it is possible to experience time passing at a different rate than 1 second per second and there are important reasons why we need to understand this real-world form of time travel.

SCIENTIST OF THE MONTH

Dr. Shreeram Shankar Abhyankar

Dr. Shreeram Shankar Abhyankar, born on 22 July 1930 in Ujjain, Madhya Pradesh was an Indian American mathematician. He did B.Sc from the Royal Institute of Science of University of Mumbai in 1951. He received M.A in 1952 and Ph.D in 1955 from Harvard University in the United States.

Dr. Abhyankar was appointed the Marshall Distinguished Professor of Mathematics at Purdue in 1967. His research topics include algebraic geometry (particularly resolution of singularities, a field in which he made significant progress over fields of finite characteristic), commutative algebra, local algebra, valuation theory, theory of functions



of Several complex variable, quantum electrodynamics, circuit theory, invariant theory, combinatorics, computer aided design and robotics.

Dr. Abhyankar received the Herbert Newby McCoy Award from Purdue University in 1973, Fellow of the Indian Academy of Sciences, Editorial board member of the Indian Journal of Pure and Applied Mathematics, Chauvenet Prize from the Mathematical Association of America in 1978, Honorary Doctorate Degree by the University of Angers, France in 1998 and Fellow of the American Mathematical Society in 2012. He died on 2 November, 2012.

Main Source: https://en.wikipedia.org/wiki/Shreeram_Shankar_Abhyankar

KNOW THE ENTERING SPACE GALLERY EXHIBIT

International Space Laws – Background

The concept of this Space laws arose for the first time when Soviet Russia launched its first Satellite, Sputnik-I. To maintain peace and cooperation, till date Scientists and International Lawyers met several times and formed these space laws. These space laws are actually five international treaties and five sets of principles signed to use outer space in a peaceful way. These treaties and principles have been developed under the auspices of the United Nations.

This exhibit is located in the Entering Space Gallery on the first floor of the Science Centre, situated between the Fun Science Gallery and the Power of Play Gallery.



Quiz

1. Which phenomenon of light gives rise to the Tyndall effect?
a. Reflection b. Refraction c. Diffusion d. Division
2. What is the time difference between Sunset and apparent Sunset?
a. 2 seconds b. 20 seconds c. 2 minutes d. 20 minutes
3. Which color of light is scattered the most by the atmosphere?
a. Blue b. Yellow c. Green d. Red
4. Which color of light has the slowest velocity in a Prism?
a. Red b. Green c. Blue d. Purple

Main Source: Navneet MCQs Science and Technologies. Std 10