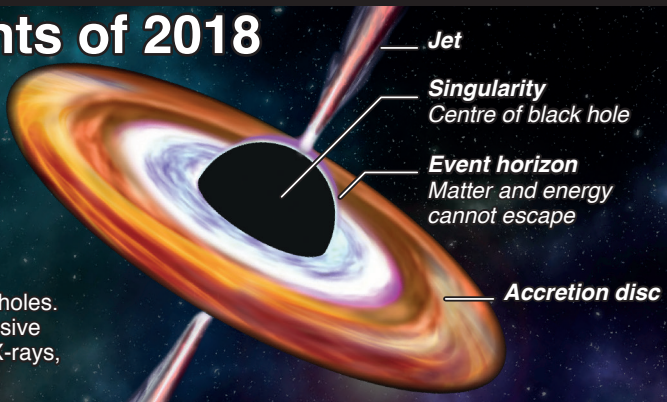


Scientific achievements of 2018

BRIGHTEST OBJECT IN THE UNIVERSE

JULY: Astronomers using the **Very Long Baseline Array (VLBA)** system of 10 radio telescopes discover the brightest object in our universe. The **quasar**, named P352-15, is 13 billion light-years away from Earth and started when the cosmos was less than one billion years old – just seven percent of its age today.

Quasars are galaxies that orbit supermassive black holes. An **accretion disc** of superheated gas, swirling at massive speeds, generates jets of electromagnetic radiation – X-rays, optical, infrared and radio



WARM-BLOODED FISH DISCOVERED



MARCH: A researcher from the National Oceanic and Atmospheric Administration discovers that the common **opah** (*Lampris guttatus*) is warm-blooded.

The aptitude to internally generate heat boosts the predator's abilities in cold deep waters. Previously, scientists believed that birds and mammals were the only vertebrates with warm hearts

ANCIENT STEROIDS REVEAL EARLIEST ANIMAL

SEPTEMBER: Scientists from the Australian National University, Russia and Germany find cholesterol molecules in an ancient fossil. The steroids reveal that the earliest animal in the geological record lived on Earth 558 million years ago.

Called **Dickinsonia**, the sea creature grew up to 1.4 metres wide and was part of the Ediacaran fauna that lived 20 million years before the **Cambrian Explosion** of animal life



WEARABLE DIABETES SELF-CARE DEVICE

MARCH: Researchers at Radboud University Medical Centre in the Netherlands develop a wearable biosensor which measures beat-to-beat variation in heart rate to detect hypoglycemia – low blood sugar – in type 1 diabetes.

Wireless technology transmits heart rate data from a commercially available biosensor to a mobile device.

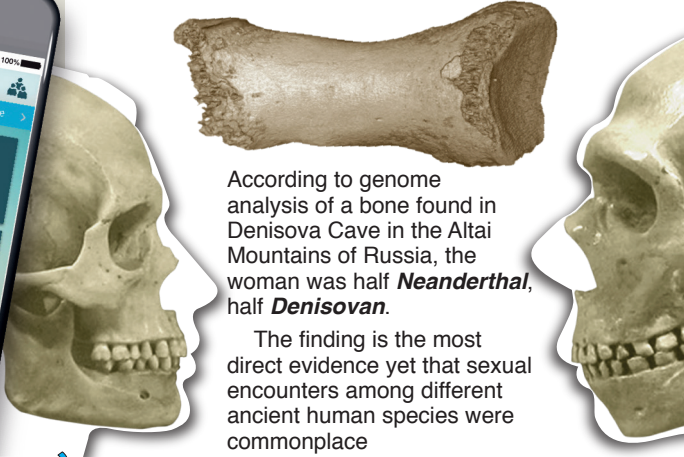
The researchers detected 70 percent of low blood sugar events, using an algorithm they developed themselves.

When untreated, severe hypoglycemia can lead to seizures, loss of consciousness or even death



ANCIENT HUMAN HYBRID

AUGUST: Paleogeneticists of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, discover that a woman who died 90,000 years ago was parented by two different species of human



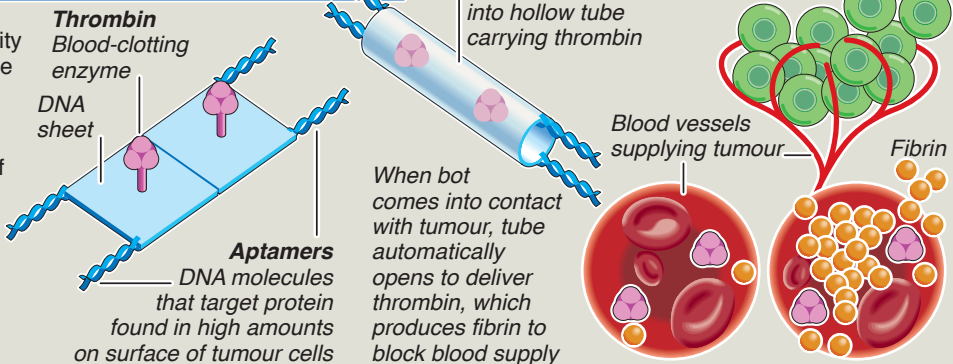
According to genome analysis of a bone found in Denisova Cave in the Altai Mountains of Russia, the woman was half **Neanderthal**, half **Denisovan**.

The finding is the most direct evidence yet that sexual encounters among different ancient human species were commonplace

DNA NANOBOTS* KILL CANCER CELLS

FEBRUARY: Researchers from Arizona State University and China's National Centre for Nanoscience and Technology inject tiny, nanometre-sized robots made from folded sheets of DNA into the bloodstream of mice.

The bots target blood vessels around cancerous tumours and inject them with blood-clotting drugs to cut off their blood supply



*A nanobot device ranges in size between 0.1-10 micrometres – a micrometre is one-millionth of a metre, the size of a red blood cell