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PURSUING PATH OF PLASTIC POLLUTION ACROSS THE WAVES



Much of the world's marine plastics waste ends up littering beaches.

Simulations of plastic particles' travels on ocean currents can help scientists to identify sources of coastal pollution.

Much of the plastic waste in the oceans ends up on beaches, where it can degrade into long-lasting particles or be eaten by animals. Knowing the origins of coastal plastic can help people to stop it at its source.

Mikael Kaandorp and his colleagues at Utrecht University in the Netherlands developed a method for tracking the source of beach plastic. They combined information about known sources of plastic pollution, such as fisheries, with simulations of how plastic particles drift on ocean currents.

Using this method, the authors traced the plastics on a sample beach in the southwest Netherlands to a range of sources, including the eastern coast of the United Kingdom, the Dutch coast, fisheries in the English Channel and rivers that feed the region. Which source was most important varied with time – for instance, in winter, plastics from the Dutch coast were carried northwards, away from that particular beach.

The method could help those working to reduce the accumulation of plastic debris on beaches.

Geophys. Res. Lett. **49**, e2021GL097214 (2022)

GIFT FROM ABOVE: THE ORIGINS OF KING TUT'S DAGGER

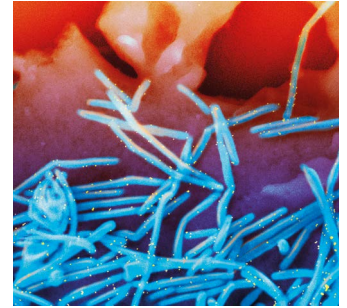
Chemical analysis of an iron dagger found in King Tutankhamen's tomb has identified the type of meteorite from which the metal was derived – and suggests the knife might have been a gift from another ruler.

Tut reigned in the fourteenth century BC, before iron working was common in Egypt. Previous research identified an iron–nickel meteorite as the probable source of the blade's metal, but little was known about how the dagger was manufactured.

Tomoko Arai at the Chiba Institute of Technology in Narashino, Japan, and her colleagues mapped the metal's elements by shining X-rays along the blade and analysing the resulting fluorescence. They found that the nickel was distributed in a cross-hatched pattern typical of a group of meteorites called octahedrites. The blade must have been forged at a relatively low temperature to retain the pattern and other meteorite-specific features, they say.

The elemental composition of the hilt suggests that its decorative stones were glued on with lime plaster, which was uncommon in Egypt at that time. The authors speculate that the dagger was foreign – and might be the knife mentioned in ancient diplomatic correspondence as a gift to Tutankhamen's grandfather from an Anatolian king.

Meteorit. Planet. Sci. <https://doi.org/hg9k> (2022)



COMMON-COLD VIRUS THAT CAN TURN KILLER IS TAMED

In a small trial in humans, an easily taken drug tamped down levels of a common respiratory virus that can prove deadly for infants and older people.

Sneezing, fever, cough: the pathogen called respiratory syncytial virus (RSV; pictured in blue) provokes them all. Most adults catch RSV repeatedly throughout their lives with no lasting damage. But the virus is the second-biggest cause of death in children under the age of one worldwide.

Seeking a safe and effective therapy, Alaa Ahmad at Enanta Pharmaceuticals in Watertown, Massachusetts, and his colleagues deliberately infected almost 180 healthy volunteers with RSV. Two-thirds of the study participants drank a liquid containing a compound called EDP-938; the rest took a placebo.

Compared with people in the control group, participants who took the drug reported milder symptoms. On the third day after exposure, viral load – a measure of the body's viral levels – was four to six times higher in the placebo group than in the group that took the drug. Assessment of participants' used tissues showed that “mucus production” was roughly 70% lower in the drug group than in the placebo group.

N. Engl. J. Med. **386**, 655–666 (2022)