

► 1930s. Using several different methods, the team estimates the jaw and teeth to be 177,000–194,000 years old.

The remains are unquestionably *H. sapiens*, says team member María Martín-Torres, a palaeoanthropologist at the National Research Centre on Human Evolution in Burgos, Spain. The shapes of the teeth match those of both modern and ancient humans, she says. They also lack features typical of Neanderthals, which lived throughout Eurasia at the time.

The dating seems solid and the fossils are *H. sapiens*, says Huw Groucutt, an archaeologist at the University of Oxford, UK. But he isn't very surprised to see them in Israel. He and his colleagues have previously said that 175,000-year-old stone tools from other sites in the Middle East resemble those used by *H. sapiens* in East Africa⁷.

CLOSE ENCOUNTERS

Hershkovitz says that the jaw and teeth point to a long-term occupation of the Middle East by early *H. sapiens*. “It was a central train station. People were coming and going through this land corridor from one continent to another, and it was occupied all the time.” Once in the region, humans probably encountered and interbred with Neanderthals. As evidence, he points to a 2017 ancient-DNA study that suggested interbreeding had occurred before 200,000 years ago⁸.

Wet periods could have drawn humans into the Middle East, but long, dry spells mean that “the region was probably more often a ‘boulevard of broken dreams’ than a stable haven for early humans”, write Chris Stringer and Julia Galway-Witham, palaeoanthropologists at the Natural History Museum in London, in a commentary accompanying the paper⁹.

The fossil could indicate that Israel and the rest of the Arabian Peninsula were part of a larger region in which *H. sapiens* evolved, says John Shea, an archaeologist at Stony Brook University in New York. “We tend to think of Israel as part of Asia for geopolitical reasons, but it is really a transition zone between North Africa and western Asia,” he says. “Plenty of Afro-Arabian animals live there, or did so until recently,” including leopards, lions and zebras. “*Homo sapiens*,” Shea says, “is just another such Afro-Arabian species.” ■

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Satyapal Singh is a junior minister for human-resource development in India.

INDIA

Anti-Darwin comments outrage researchers

Indian scientists condemn higher-education minister who questioned the theory of evolution.

BY T. V. PADMA

Thousands of scientists in India have signed an online petition protesting against comments by a higher-education minister who last month publicly questioned the scientific validity of Charles Darwin's theory of evolution and called for changes to educational curricula.

The incident continued to simmer when Indian science minister Harsh Vardhan, a medical doctor, declined to comment on his colleague's remarks at a press conference on 24 January. Vardhan said he had not studied Darwin's theory since he was a student and so wasn't qualified to discuss it.

The original comments were made by Satyapal Singh, a junior minister for human-resource development who oversees university education. On 20 January, he told reporters at a conference on ancient Hindu texts in Aurangabad that Darwin's theory of evolution of humans “is scientifically wrong”. Singh added that “nobody, including our ancestors, in written or oral, have said they saw an

ape turning into a man”. Two days later, he proposed holding an international seminar on the subject.

The comments provoked outrage in the Indian scientific community. Vishwesh Guttal, an evolutionary ecologist at the Indian Institute of Science in Bangalore, suggests the remarks are the first time that such anti-evolution opinions have been aired by high-ranking politicians in India. “I have seen these kind of issues (anti-Darwin stance) when I was a student in the US. This was totally unheard of, so far, in India,” says Guttal. “My first thought was, ‘Is this coming to India now?’”

Senior government officials later dismissed the comments. On 23 January, Singh's boss Prakash Javadekar, the senior minister for human-resource development, said that he had asked Singh to refrain from making such remarks. “We should not dilute science,” Javadekar said. He added that his ministry would not support any anti-Darwin activities such as Singh's proposed conference or changing curricula. Singh did not respond to a request for comment from *Nature's* news team.

Scientists reacted swiftly to Singh's comments, launching an online petition asking the minister to retract his claims. Such comments harm the scientific community's efforts to propagate scientific thoughts and rationality through education and research, the petition said, and also diminish the country's image internationally. The petition had collected more than 3,000 signatures when its creators closed it after Javadekar responded to the situation, according to Mukund Thattai, a computational cell biologist at the National Centre for Biological Sciences in Bangalore who signed the petition. "There is strong support for science in India from government departments. But public attitudes can be swayed if people in responsible government positions make such statements," he says.

Soumitro Banerjee, general secretary of the advocacy group the Breakthrough Science Society in Kolkata, thinks that Singh's comments might already have done damage. "The seed of doubt has been planted in the minds of the common people that Darwin's theory of evolution may, after all, be incorrect," says Banerjee, a physicist at the Indian Institute of Science Education and Research in Kolkata.

The minister's comments also prompted a statement from three Indian science academies. "It would be a retrograde step to remove the teaching of the theory of evolution from school and college curricula or to dilute this by offering non-scientific explanations or myths," they said.

Singh's remarks come as India faces a rising tide of pseudoscience. Last year, the Breakthrough Science Society urged researchers to refute unscientific ideas after an astrology workshop was planned at the prestigious Indian Institute of Science in Bangalore. The event was later cancelled.

Vidita Vaidya, a neurobiologist at the Tata Institute of Fundamental Research in Mumbai, says the latest incident highlights the growing gap between the Indian scientific community, policymakers and the public. "It is the responsibility of the scientific community to engage much more actively to ensure that science education and research in this country continue to thrive," she says. ■



Flames envelop the *Sanchi* oil tanker in a picture taken on 13 January.

ENVIRONMENT

Spill in East China Sea raises big questions

Never before has so much light crude oil poured into the ocean.

BY CALLY CARSWELL

When the Iranian oil tanker *Sanchi* collided with a cargo ship, caught fire and sank in the East China Sea in mid-January, an entirely new kind of maritime disaster was born. Two weeks later, basic questions remain unanswered about the size of the spill, its chemical make-up and where it could end up. Without that crucial information, scientists are struggling to predict the incident's short- and long-term ecological consequences.

"This is charting new ground, unfortunately," says Rick Steiner, a former University of Alaska professor in Anchorage who has studied the environmental impacts of oil spills and consulted with governments worldwide on spill response. "This is probably one of the most unique spills ever."

The infamous spills of the past — such as the Deepwater Horizon disaster in the Gulf of Mexico in 2010, or the *Exxon Valdez* tanker rupture in Alaska's Prince William Sound in 1989 — involved heavier crude oil. That oil can remain in the deep ocean for years, and it

has chronic impacts on marine life. The *Sanchi* carried a little more than 111,300 tonnes of natural-gas condensate, a lighter, more volatile petroleum product that doesn't linger as long in the environment. Condensate has never before been unleashed into the sea in large quantities.

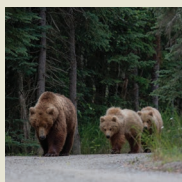
Unlike heavy crude, condensate doesn't accumulate in shimmering slicks on the sea surface, which makes it difficult to monitor and contain. Neither does it sink to the ocean floor, as do some heavier constituents of crude over time. Rather, it burns off, evaporates or dissolves into the surface water, where some chemical components can linger for weeks or months.

"Most oil spills have a chronic toxicological effect due to heavy residuals remaining and sinking over time," says Ralph Portier, a marine microbiologist and toxicologist at Louisiana State University in Baton Rouge. "This may be one of the first spills where short-term toxicity is of most concern."

A significant, but unknown, portion of the *Sanchi's* condensate probably fuelled the fires that followed the collision. In the waters immediately surrounding the tanker, Portier says, ►



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