

# Best of Last Week—syphilis already in the new world, a hypersonic heat shield, smallest knot ever created

January 29 2024, by Bob Yirka

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The structure of the trefoil metallaknot  $[\text{Au}_6(\text{L})_3(\text{dppb})_3]$ ,  $\text{Au}_6$ . Separate sections are **a** the structure (color code: Au, red; P, purple; O, mauve); **b** the core structures of enantiomers (H atoms and dppb phenyl groups omitted for clarity); **c** the ideal left- and right-handed trefoil knots. Credit: *Nature Communications* (2024). DOI: 10.1038/s41467-023-44302-y

It was a good week for the study of human history as a team of anthropologists affiliated with several institutions in the U.S., working with a colleague from the National Register of Peruvian Archaeologists, says that early hunter–gatherer cultures should be renamed to "gatherer–hunters," citing [evidence](#) that foraged plant material made up far more of the early Peruvian diet than meat. And another team of anthropologists, this one a small international group, found evidence that syphilis-like diseases were [already widespread in America](#) before the arrival of Columbus—a finding contrary to stories of Europeans bringing such diseases to the new world, resulting in epidemics.

In technology news, a team of engineers at McGill University found that [lessons in heat recovery](#) could be found in the design of Montreal's Royal Victoria Hospital. In the late 1800s, its designers had found a way to recover heat from exhausted air. And another team of engineers, this one from Technion Faculty of Materials Science and Engineering, developed a new green technology for [producing hydrogen](#) using renewable energy. Also, a team at the Guangzhou University School of Materials Science and Engineering, in China, made a breakthrough in the creation of [a hypersonic heat shield](#). They say their porous ceramic creation could be used in aerospace and other applications. And a team at Amazon Web Services Artificial Intelligence Lab, working with colleagues from the University of California, found that the web is littered with [faulty machine translations](#).

In other news, a team led by a group at UCLA found evidence that infants born to COVID-infected mothers have [triple the risk](#) of developing respiratory distress. And a team of astronomers affiliated with several institutions in the U.S. and Canada discovered that [the moon is shrinking](#), causing landslides and instability in the lunar south pole region. Also, a team of cardiologists in China found [an association](#) between consumption of dark chocolate and reductions in the risk of essential hypertension. And finally, a trio of chemists at the Chinese

Academy of Sciences' Dalian Institute of Chemical Physics, working with a colleague from the University of Western Ontario, [tied the smallest knot ever](#), using just 54 atoms.

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