More Neandertal DNA

The second mitochondrial DNA (mtDNA) analysis from a Neandertal—and the first to be done on clearly dated remains—will be disappointing news for those who like the idea of having Neandertals as ancestors.

The new analysis, by William Goodwin of the University of Glasgow and colleagues in Russia and Sweden, is from fragments of the skeleton of an infant Neandertal recently found in a limestone cave in the northern Caucasus, radiocarbon dated to about 29,000 years. The DNA is thus from one of the easternmost as well as the most recent populations of Neandertals.

The scientists report in this week's issue of *Nature* that the 256–base pair sequence is 3.48% different from a 379–base pair sequence from the original type specimen, from western Germany's Neander Valley, whose mtDNA was analyzed in 1997. That is similar to differences within modern human populations. Neither Neandertal sequence is closer to Europeans than to any other modern human population, giving another knock to the multiregional hypothesis, which postulates that modern humans evolved separately in more than one location and allows for some mixing with Neandertals.

Fred Smith, a multiregional sympathizer at Northern Illinois University in DeKalb, says the new analysis doesn't alter his thinking. "It may well be that 30,000 years ago [not just Neandertals' but] everybody's mtDNA was that much different" from that of modern humans, he says.

Goodwin says the preservation of enough DNA to allow for sequencing in the Caucasus sample raises the likelihood that more will be found to yield secrets of Neandertal population genetics.

Gift for the Sea

Seahorse research and conservation got a windfall this month from Chocolaterie Guylian, a Belgian company that makes adorable little seashell-shaped chocolates. The company is giving $750,000 over the next 5 years to Project Seahorse, a 4-year-old effort spearheaded by biologist Amanda Vincent of McGill University in Montreal (see www.projectseahorse.org). There's not much research on seahorses, but it's badly needed, as they are being heavily exploited not only for aquaria but for traditional Chinese medicines, where seahorses are reputed, among other things, to enhance sexual functioning. These fish "represent a convergence of most of the world's most pressing marine conservation issues," says Vincent, from the plight of subsistence fishing people to the need to protect coastal habitats and coral reefs, where seahorses live. Plus, seahorses are "highly charismatic," she says. Not only do they have arresting figures, but they are intensely monogamous—and the males are the ones that get pregnant.

Chinese medicine.

CREDIT: (BOTTOM) A. VINCENT/PROJECT SEAHORSE

Million-Dollar Assault on Goldbach

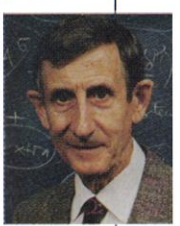
It's about as simple as math problems come, but Goldbach's conjecture has stumped mathematicians for more than 250 years. And now there's a $1 million bounty on its head.

In 1742, Christian Goldbach, math tutor to the Russian royal family, guessed that any even number greater than 2 can be written as the sum of two prime numbers. (Prime numbers are those divisible only by themselves or 1.) Thus, for example, 24 is the sum of 11 and 13. Although it's easy to take a number and figure out what two primes you need—computers have done this for all even numbers up to 400 trillion—it's incredibly difficult to prove that Goldbach's guess holds true for all of the infinite host of even numbers. Chinese mathematician Chen Jing-Run has come the closest so far; he proved that any even number is equal to a prime plus the product of two primes. (Take 24 again: It can be represented as 3 + 21, which is 3 × 7.) But close isn't good enough in mathematics, so the original conjecture remains unproven.

On 15 March, the British and American publishers of mathematician Apostolos Doxiadis's new novel, *Uncle Petros and Goldbach's Conjecture*, announced that they will pay $1 million to anyone who can prove Goldbach's conjecture within 2 years. More precisely, the publishers' insurers will pay the $1 million. "It was very difficult for the underwriter to figure out what the odds were" of someone coming up with a valid solution, says Karen Rinaldi, an editor with Bloomsbury USA, the book's American publisher. The publishers have lined up a panel of six mathematicians to pore through reams of proofs for subtle errors—an extremely labor-intensive process. "We're sure going to regret it like crazy," says Rinaldi, "but it's an interesting way to publish a book." To send in your proof, see www.faber.co.uk.

Physicist Gets Religion Award

The John Templeton Foundation has chosen another scientist for its lucrative annual Templeton Prize for Progress in Religion. This year it's Freeman Dyson. The prize, started in 1972, has also in the past few years honored physicists Paul Davies and Ian Barbour.



Dyson

Physicist Dyson is probably best known for his futuristic ideas about space colonization, but Templeton is impressed by his "efforts to inject higher ethics and social justice into the realm of science." His latest book, *The Sun, the Genome, and the Internet*, discusses how technology can be harnessed to reduce the gap between rich and poor.

Dyson, 77, has been at the Institute for Advanced Study in Princeton, New Jersey, since 1953. He is a churchgoing member of the Church of England, but is not necessarily on board with Templeton's cosmology—which includes a belief that there's got to be a "designer" out there. "To me religion is a way of life and not a set of beliefs," he says.

Dyson is still keen on getting us off the home planet. Earth has about another 5 billion years to go, he estimates, but the human race probably has fewer than 2 billion. "We'll probably be a million species by then. That's the reason for spreading life throughout the universe rather than sitting on this planet."

Dyson, who will be honored at a public do on 16 May at the National Cathedral in Washington, D.C., says he doesn't know what he'll be doing with the $948,000 award, adding: "If I did I probably wouldn't tell you."