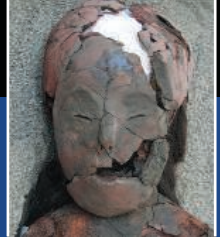

Arsenic and the first mummies
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The Soviet Union's legacy of illegal whaling
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Rock star. The University of Oslo's Jørn Hurum took Ida on a world tour.

PALEONTOLOGY

Celebrity Fossil Primate: Missing Link or Weak Link?

It's not every day that a 47-million-year-old fossil primate is the star guest on *Good Morning America*. "Ida is so big, she's even made the Google home page," anchor Robin Roberts said on 20 May as she introduced TV viewers to the cat-size skeleton from Germany. Ida is so big, in fact, that "missing link found" was the hottest search term on Google that morning, the day after New York City Mayor Michael Bloomberg helped unveil the fossil at a press conference at the American Museum of Natural History in New York City. Within days, Ida had appeared in *People* magazine, and she had her own book, Web site, and documentary film for the History Channel and BBC. "This little creature is going to show us our connection with the rest of all mammals," pronounces narrator David Attenborough in the film. "The link they would have said until now is missing is no longer missing."

The man behind the fossil is paleontologist Jørn Hurum of the Natural History Museum at the University of Oslo. With a lock of long hair falling boyishly over his face, a photogenic smile, and a Nordic accent, Hurum—who stars in a weekly children's science show on Norwegian television—makes the dusty science of primate origins come alive as he describes Ida. "This is like finding the Holy Grail for paleontologists," he enthused. "This is the first link to all humans."

Maybe so—but probably not. Many of the leading scientists who study primate evolution don't think Ida lives up to Hurum's billing as a human ancestor; most think she's a relative of lemurs instead. After looking at photos and a description that Hurum and his collaborators published in an online paper last week, most researchers think the skeleton—though stunning—reveals little new information about ancient primates, much less human origins. Some worry that the publicity framing Ida as a human ancestor will backfire as her true identity and lowly origins are revealed. "A lot of articles say it is a missing link. That is wrong," says paleoanthropologist Elwyn Simons of Duke University in Durham, North Carolina. "It has no convincing links to monkeys, apes, and humans."

Ida is indeed a special find—perhaps the most complete skeleton of an ancient primate ever found. About 95% of her bones are intact, as well as the outline of her furry body and even fruit and leaves from her gut. Private collectors dug the fossil out of the famed Messel pit near Frankfurt, Germany, in 1983, even though it was illegal to collect there. They split the fossil in half and sold one slab, with falsified features, to the Wyoming Dinosaur Center in Thermopolis. The other, better half was framed and hung as décor on the wall of an unnamed collector's home until 2006, when a dealer offered it to Hurum at a fossil show. At that time, Germany had an amnesty period when illegally collected fossils could be sold legally. The asking price was $1 million. Hurum returned to Oslo and, to his surprise, persuaded the board of his museum to buy it. He negotiated a lower, undisclosed price, and an armed escort delivered Ida to Oslo in September 2007.

Hurum then put together what he calls a "dream team" of scientists who studied the fossil under a veil of secrecy for 2 years. The result of their scrutiny was published on 19 May in the online journal *PLoS One*. In the paper, they named the fossil *Darwinius masillae* to honor the bicentennial of Charles Darwin's birth. (Hurum dubbed it Ida, after his 6-year-old daughter.)

Darwinius's identity is undisputed as a member of an extinct primate group known as the Adapiformes. Researchers have long known that some adapids share some features with higher primates, including anthropoids (monkeys, apes, and humans). Thus, a few have argued that adapids might be primitive relatives of anthropoids—and us. Most experts, however, think adapids should be grouped with lower primates, lemurs and lorises, in a suborder called Strepsirrhini (*Science*, 19 October 2001, p. 587).

In their paper, Hurum, paleontologist Philip Gingerich, and colleagues propose that Ida is not on the primitive lemur line but belongs with more advanced primates, as a member of the so-called haplorrhine suborder. They also suggest that Ida could be a member of a stem group of adapids that gave rise to the earliest anthropoids, a role often assigned to another group of primitive primates, the small, nocturnal tarsiers. The team bases that conclusion on a dozen traits, the most significant of which is the surprising discovery that Ida lacks a key characteristic shared by lemurs and tarsiers: a grooming claw on her second toe. Gingerich also says Ida's spatulate front teeth, her interlocking canines, and the talus bone in her ankle resemble those of higher primates. He argues that Ida might be a direct ancestor of anthropoids—and, hence, humans.

Not so fast, say many paleontologists who specialize in this early chapter of primate evo-

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On the trail of the bat killer
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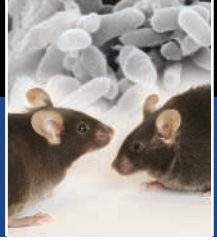

Probing the ecology of the gut
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lution. Paleontologist Erik Seiffert of Stony Brook University in New York state points out that many of the traits used to link Ida with haplorrhines are not found in some of the earliest universally accepted anthropoids, which lived as long as 37 million years ago in what is now the Fayum province of Egypt. Ida is crushed, Simons says, and lacks a key feature that all other anthropoids share: a wall of bone at the back of the eye socket.

Simons and others say Ida's most convincing feature is the absence of a grooming claw, but that trait alone doesn't sway them. Several also grumble that the team cherry-picked the traits and the species of fossils it compared with Ida. The analysis left out many traits and extinct primates, including the well-known Fayum anthropoids and *Eosimias*, a tiny 45-million-year-old Asian primate that most researchers think may be the earliest known anthropoid. "Smoke could be coming out of my ears," says paleontologist K. Christopher Beard of the Carnegie Museum of Natural History in Pittsburgh, Pennsylvania, who found the first fossils of *Eosimias* in 1994. "It's like going back to 1994. They've ignored 15 years of literature."

Sought-after. Google's home page celebrated the fossil.

Gingerich, who did the analysis to compare Ida with haplorrhines, responds that this is just the first description of *Darwinius* and that the team was trying to make the data public as quickly as possible. "If the critics want to do more, they can do more, and we will do more," he says.

Perhaps fewer paleontologists would be smoldering if the fossil had not been promoted as a direct ancestor of humans. The paper itself is "a very reasonable, very cautiously presented hypothesis," says paleontologist D. Tab Rasmussen of Washington University in St. Louis, Missouri, who is among the handful who think adapids are haplorrhines and that Ida is "a reasonable candidate as our earliest anthropoid kin."

The "missing link" hyperbole in newspaper and Web stories—and Google—was a different story. "Since there's nothing very surprising about this specimen, the amount of media attention that it has gotten is just flabbergasting," says paleoanthropologist Matt Cartmill of Boston University. As for its being an ancestor, "amoebas also are in our ancestry in a primitive sense," says Stony Brook University paleoanthropologist John Fleagle.

Hurum, who signed off on the text in the film and on the Web site and has compared Ida to the Rosetta stone and the *Mona Lisa*, is unrepentant: "It's hard to discuss haplorrhine and strepsirrhines in a press release. You need to link it to us." He is proud of using multimedia to promote interest in fossils: "Yes, I am shaking things up. If you want kids to be interested in science, we need to start packaging it in many different ways."

Other researchers think rollouts like this one are just too risky. "On the one hand, I view it as a major task for scientists to translate their work for the public at large," says Beard. "On the other hand, when you make these breathless statements, you have to have the goods to back it up. Otherwise, we all lose credibility with the public. The only thing we have going for us that Hollywood and politicians don't is objectivity." **–ANN GIBBONS**

APPOINTMENTS

Obama Turns to NASA Veterans to Lead Space Agency

President Barack Obama has chosen two longtime advocates of human space flight to lead NASA. On 23 May, the White House nominated former astronaut Charles Bolden Jr. and Washington lobbyist Lori Garver to take the positions of administrator and deputy administrator, respectively, for the space agency.

If confirmed by the Senate, Bolden and Garver will confront a series of momentous decisions on where to take NASA in the coming decade. An expensive new launcher is now in the works to replace the space shuttle, due to retire next year, but its projected costs are rising rapidly. Meanwhile, the new Administration wants to spend more money on Earth observation at a time when the overall science program is suffering from delays and overruns. Yet Obama has proposed only small increases to NASA's $18 billion budget in the coming 5 years.

The situation is so urgent that the White House last month appointed a 90-day blue-ribbon panel led by former aerospace manager Norman Augustine to come up with options for the future human space-flight effort, which now is focused on a return to the moon by 2020 (*Science*, 22 May, p. 999). Given that the overall agency budget is unlikely to increase substantially in coming years, the outcome will have a profound effect on science as well. "NASA is facing a crisis that many of us knew would come," says Charles Kennel, a former NASA advisory council chair and director emeritus of the Scripps Institution of Oceanography in San Diego, California. Kennel says that the rush to get the new launcher in operation by 2015 has already caused "a slowdown in science funding."

A new mission. President Obama met with Bolden (*right*) on 19 May to talk about the top job at NASA.

Bolden is a 62-year-old retired African-American Marine brigadier general who flew on four shuttle missions. Garver is a former director of a pro–space-flight group called the National Space Society and also served as a senior NASA manager. Both are likely to get a warm reception in the Senate. Senator Bill Nelson (D–FL) pushed hard for Bolden's nomination, derailing other candidates favored by the White House, according to congressional and Administration sources. And Senator Barbara Mikulski (D–MD), who chairs the panel that funds NASA, said, "I will certainly support their nominations."

–ANDREW LAWLER

With reporting by Yudhijit Bhattacharjee.

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