

1. Dinosaur fossils are so plentiful in China's Liaoning province, even the locals are part-time paleontologists. When fossil hunters from Beijing came looking for evidence of ancient creatures, they picked a spot in the middle of rolling cornfields and, with the help of local farmers, picked and shoveled their way through eons of sedimentary layers of shale. Eventually they came upon a trove of long-extinct turtles, birds and dinosaurs. By fall 2001, paleontologist Xu Xing had grown so accustomed to unearthing weird creatures, he didn't think much of what appeared to be the partially preserved skeleton of a dinosaur with feathers.

When Xu studied the fossil over the next few weeks, though, it dawned on him what an odd creature he had discovered. It had four slender limbs and was covered in feathers from head to foot. It appears to have been adapted for gliding through the air from tree to tree, much like a present-day flying squirrel. He found to his surprise that several farmers had discovered similar fossils. He tested them with X-rays and found them to be authentic. "I thought, 'Maybe this is the greatest discovery I've ever made,'" he told NEWSWEEK.

Xu's dinos would make a valuable addition to any rogues' gallery of terrifying creatures. Among the remains he and his team have studied is a new species of microraptor, a 120-million-year-old cousin of the velociraptors of "Jurassic Park." Named *Microraptor gui* after a Chinese paleontologist, it measured just under a meter in length-about the size of a large eagle-but boasted sharp teeth and claws and an appetite for fresh meat. And it could swoop down from the treetops on unsuspecting ground-dwellers.

Xu's findings, published last week in the journal *Nature*, have paleontologists buzzing with excitement. "This is clearly a really amazing specimen," said Kevin Padian, a professor at the University of California, Berkeley. Scientists now generally agree that birds most likely descended from dinosaurs, and Xu's find adds to the already solid body of evidence. But in other respects, his creature throws the field in disarray. Almost all feathered dinosaurs had feathers on their winglike arms but none on their hind legs, which tend to be big and powerful-suited to running fast. For this reason, scientists have favored the "ground up" hypothesis-that dinosaurs first sprouted feathers on their arms to help them run faster up hills, like partridges, and only later evolved the ability to fly. Xu's creatures have skinny hind legs, and all four limbs are winglike. They suggest that some dinosaurs first took to the trees and evolved the ability to glide and later to fly. "The new fossil has provided very strong evidence that some dinosaurs were living in trees," says Xu.

The idea that birds might have evolved from dinosaurs is about as old as Darwin's theory of evolution. The first fossil evidence of a link was *Archaeopteryx*, a 150-million-year-old birdlike reptile found in 1860 in southern Germany. Although commonly considered to be the first bird, scientists have been trying to connect the dots ever since. In 1915, zoologist William Beebe ventured that birds evolved from four-winged dinosaurs, but he had no evidence. Scientists wrote off his idea as speculation, but he now seems prescient.

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The new four-winged dinosaurs are still giving scientists plenty to argue about. Padian, for one, is cautious about Xu's claim that *Microraptor gui* lived in trees and glided like a squirrel. "That's a big thing to say," he says, "so you have to test it." Mark Norell, chairman of the department of paleontology at the American Museum of Natural History in New York, has examined the specimens himself. "It looks unlike anything we ever knew existed," he says. But he doesn't think the find is the last word on birds and dinos. Most likely, scientists will find places in the evolutionary tree for both dinosaurs who learned to fly on the ground and in trees.

For the time being, the 34-year-old Xu, who led the team from the Institute of Vertebrate Paleontology and Paleoanthropology in Beijing, is enjoying all the fuss. Growing up in a remote village in China's western Xinjiang province, Xu wanted to go into computer technology or business, but didn't have *guanxi*-the right connections. So he wound up in paleontology instead. Now he's glad of it. "I feel like I'm the most lucky paleontologist in the world," he says. And his career is just starting to take wing. (February 3, 2003, NEWSWEEK)

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2. Just this past January, General Motors Corp. CEO G. Richard Wagoner Jr. took center stage at the Detroit auto show to crow about a dozen new GM hybrid-electric vehicles that would significantly improve fuel economy. By decade's end, he promised, hybrid engines could power as many as one million GM vehicles, including some of its most-popular-and gas-guzzling-sport-utility vehicles. GM, he made resoundingly clear, would not be left behind in the race with Japanese auto makers for more fuel-efficient cars. Proclaimed Wagoner: "We have a responsibility to provide cleaner emissions and better fuel economy."

Nice sound bite. Too bad GM, together with its domestic rivals, is already furiously backpedaling. In mid-February, GM, Ford, and DaimlerChrysler told the National Highway Traffic & Safety Administration, which enforces fuel economy standards, that they can't meet its proposed rules to raise truck and SUV mileage. That plan, to raise combined truck fuel economy from 20.7 to 22.2 miles per gallon by 2007, is just too challenging and too costly, the Big Three argue.

Just what planet are American auto execs living on? If ever there was a smart time to get foursquare behind the push for fuel economy, it's now. And given current technology-never mind stuff that's still on the drawing board-increasing fuel efficiency by less than a mile and a half per gallon in four years should be a minimum goal, not a stretch. With war looming in Iraq and oil prices soaring, U.S. auto makers ought to be pushing as hard as possible for advances in fuel economy. Yet in what could prove to be a big public-relations and marketing blunder, they are digging in their heels.

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But the potential consequences of auto makers' stubbornness go far beyond PR. If the industry fails to cultivate fuel efficiency, as it has so often in the past, its ability to compete head-on with foreign auto makers in the lucrative SUV markets is at stake. And that, of course, has huge implications for Big Three manufacturing jobs.

U.S. auto makers have shown a lack of vision over the years. Since the 1970s, Detroit has consistently insisted that meeting tougher mileage rules would be impossible. Meanwhile, the Japanese hit and exceeded the new targets with vehicles U.S. buyers happily snapped up. "The Big Three always say they can't do anything," gripes auto analyst Maryann Keller, a member of the National Academy of Sciences committee that last year suggested raising fuel standards.

Now it looks as if Detroit is falling behind in another promising market. This time around, Honda Motor Co. and Toyota Motor Corp. are racing new hybrid cars to market, with hybrid SUVs right behind. These gas-electric pioneers are already offering huge mileage improvements. But Ford Motor Co.'s and GM's first hybrids won't go on sale until mid-2004 at the earliest.

U.S. auto makers insist on sticking with what has already worked so well. Why mess with success, the thinking goes. SUVs and pickups account for 90% of profits, with the biggest gas guzzlers bringing in the most money. Indeed, even as it fights improved standards, Detroit continues to introduce huge new gas hogs like the Hummer H2.

True, Toyota and Nissan Motor Corp. are also heavily vested in the big pickup and SUV business with new models and billion-dollar factory investments. But the Japanese are moving faster to develop more fuel-efficient trucks, even as U.S. carmakers insist on sticking with the early 21<sup>st</sup> century version of 1970s muscle cars. With consumer tastes starting to shift, they risk ending up on the wrong side of that bet. Last year, sales of big SUVs leveled off, falling at the same 2% clip as overall auto sales. The growth is in the more fuel-thrifty, car-based SUV segment Honda and Toyota invented, where Detroit is late. Sales of such "crossover" SUVs shot up 23% last year.

Detroit lost dominance in the car market by sticking its head in the sand while imports offered better mileage and higher quality. The last thing it can afford is to let the same thing happen in its cash-cow SUV business. (BusinessWeek / March 3, 2003)

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