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Lost and Gone Forever

By RICHARD CONNIFF

Specimens looks at how species discovery has transformed our lives.

Tags:

Animals, Endangered and Extinct Species, Natural History

Species die. It has become a catastrophic fact of modern life. On our present course, by E.O. Wilson’s estimate, half of all plant and animal species could be extinct by 2100 — that is, within the lifetime of a child born today. Kenya stands to lose its lions within 20 years. India is finishing off its tigers. Deforestation everywhere means that thousands of species too small or obscure to be kept on life support in a zoo simply vanish each year.

So it’s startling to discover that the very idea of extinction was unthinkable, even heresy, only a few lifetimes ago. The terrible notion that a piece of God’s creation could be swept off the face of the Earth only became a reality on January 21, 1796, and it was a body blow to Western orthodoxy. It required “not only the rejection of some of the fondest beliefs of mankind,” paleontologist George Gaylord Simpson once wrote, “but also the development of fundamentally new ways of thinking.” The science of extinction was one of the great achievements of the 18th century, he thought, a necessary preamble to Darwinian evolution, and almost as disturbing.
Specimens from the American colonies played a key part in this revolution. A tooth weighing almost five pounds, with a distinctive knobby biting surface, had turned up along the Hudson River in 1705, and quickly found its way to Lord Cornbury, the eccentric governor of New York. (Cornbury was either a pioneer in gubernatorial bad behavior or an early victim of dirty politics. He subsequently lost his job for alleged graft, amid rumors that he liked to dress up as his cousin Queen Anne.) Cornbury sent the tooth to London, where “natural philosophers” began a long debate over whether this “Incognitum,” or unknown creature, was a
Biblical giant drowned in Noah’s flood or some kind of carnivorous monster. Decades later, Ben Franklin, Thomas Jefferson and George Washington puzzled over similar teeth when they turned up again in the Hudson and Ohio River valleys.

Slide Show

Species Lost and On the Brink

A few of the tens of thousands of species that scientists say have gone extinct or become critically endangered over the past 30 years.

Whatever creature had once gnashed its food with such grinders was evidently now gone, perhaps thankfully. But this disappearance challenged widely held faith in the Great Chain of Being, the idea that the natural world was a perfect progression from the lowliest matter on up, species-by-species, jellyfish to worms, worms to insects, culminating in the Earth’s most glorious specimen, Homo sapiens. A corollary of the Great Chain held that God had created all forms that could be created. What might seem like gaps in the Chain were merely missing links that had yet to be discovered. Proposing that some forms had gone extinct, an American writer complained, was “an idea injurious to the Deity.”

Jefferson also held out against extinction, though mainly because he liked the idea of big fierce animals as symbols of American greatness. “Such is the economy of Nature,” he wrote, “that no instance can be produced of her having permitted any one race of her animals to become extinct; of her having formed any link in her great work so weak as to be broken.”

It was the French anatomist Georges Cuvier who proved otherwise. When he took the podium at the National Institute of Sciences and Arts in Paris in January 1796, he was just 26, a handsome, confident young man, with
thick reddish hair and a strong chin. His new post at the National Museum of Natural History allowed him to compare a range of pachyderm specimens, including African and Asian elephants, the Siberian mammoth, and the Incognitum, which he called “the Ohio animal.” Cuvier made side by side comparisons of anatomical structures to sort specimens into separate species (incidentally inventing the science of comparative anatomy). Then he argued persuasively that animals the size of the mammoth and the Incognitum could hardly have escaped notice by “the nomadic peoples that ceaselessly move about the continent in all directions.” It’s not clear why this argument for extinction was so persuasive. Cuvier is still notorious in some circles for having later rashly declared an end to the era of “discovering new species of large quadrupeds” — only for a parade of such creatures to turn up over the rest of the 19th century. But even Jefferson seems eventually to have been persuaded, at least after Lewis and Clark returned from their expedition to the West with no evidence of a living Incognitum.

Cuvier gave the Incognitum its modern name, mastodon. (Those knobby cusps reminded him, oddly, of breasts, so he took mast from the Greek for “breast” or “nipple,” and odon from “tooth.”) He also went on, through brilliant analysis of newly discovered fossils, to create a catastrophic vision of past worlds in which “living organisms without number” had vanished forever, some “destroyed by deluges,” others “left dry when the seabed was suddenly raised … and all they leave in the world is some debris that is hardly recognizable to the naturalist.”

This idea of mass extinctions thrilled and terrified the 19th-century imagination. Cuvier was “the great poet of our era,” according to the novelist Honoré de Balzac. In cultivating his own legend, Cuvier had popularized the magical idea that by carefully studying a fragment of bone he could resurrect the appearance of an entire extinct animal. Balzac now set out to do the same thing in fiction, building characters on the smallest details of gesture and dress. It was arguably the birth of literary realism. But Cuvier’s larger influence was in his apocalyptic vision of vanished worlds, which echoed down ominously through much of the 19th century. In his 1850 poem “In Memoriam,” for instance, Tennyson yearned for the comforting assurance of the older world view:

That nothing walks with aimless feet;  
That not one life shall be destroy’d,  
Or cast as rubbish to the void,
When God hath made the pile complete …

Instead, every cliff and quarry now reminded him that Nature does not work like that: “She cries, ‘A thousand types are gone:/ I care for nothing, all shall go.” Extinction wasn’t just a threat to the natural world but to us. Tennyson wondered if mankind, Nature’s “last work, who seem’d so fair, Such splendid purpose in his eyes” would also end up being “blown about the desert dust,/ Or seal’d within the iron hills?”

It was a good question then, and an even better one now, when we are living through precisely the sort of mass extinction Cuvier only imagined.


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