Does ivory burn?

One man's battle to protect Africa's elephants from extinction.

Wildlife Wars: My Fight to Save Africa's Natural Treasures

by Richard Leakey & Virginia Morell
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Colin Tudge

Richard Leakey is, at the very least, an extraordinary person. Born in 1944 to the great East African palaeoanthropologists Louis and Mary Leakey, he shunned his parents' trade and left school at 16 to start a safari business. But in 1963 he learned to fly ("to cure my fear of flying"), and on his first solo outing he saw deposits around Tanzania's Lake Natron that reminded him of Olduvai, and decided that he, too, wanted to dig. Thus, though without university education (which continues to bother him), he came to dominate the search for fossil hominids in East Africa, not least as director of the Kenya National Museum in Nairobi.

Along the way he was diagnosed with terminal kidney disease, to be rescued in 1979 by a transplant from his brother Philip. He also chaired the board of the East African Wildlife Society and so was introduced to the plight of elephants. And with characteristic shoot-from-the hip opportunism and courage he engineered a press conference on ivory poaching at the Nairobi museum (at a meeting ostensibly about birds). So, "out of the blue", in April 1989 President Daniel Arap Moi appointed him to be director of Kenya's Wildlife Department — later renamed the Kenya Wildlife Service, or KWS. Thus begins his present tale: a unique, frank and terrifying insider's view of conservation, of a developing country and, indeed, of humanity in the raw.

For, as emerges from incident after bloody incident, "Kenya's politics are rough". Kenya has no minerals to speak of, or oil. Tourism is the greatest earner, and at the heart of it is wildlife and in particular the elephants. In crude economic terms the elephant is to Kenya what diamonds were to South Africa and oil should have been to Nigeria. But when Leakey took over at the Wildlife Department, corruption ran from the local shopkeepers to the heights of government and the elephant was heading pell-mell for extinction. Kenya had 85,000 elephants in 1979; in 1989, just 22,000.

Trade in ivory was legal. But the poaching was much bigger, aided in large part by the Wildlife Department itself, with elephants gunned down in full view of tourist lodges. The honest souls were on their beam-ends. Leakey's first inspection of his men revealed downcast rows of wardens with no boots and First World War rifles that jammed after the

first bullet, who set off in broken-down landrovers to take on poacher-guerillas armed with modern assault rifles of the kind that, in modern Africa, are all too easy to come by. He put his own name on cheques to re-equip his men while raising money from abroad, and answered the poachers' open mockery in kind. When they left him a note in a tree, "We will kill you, Leakey", he wrote on the back: "Perhaps. But my men will kill you first." This was street-fighting, but appropriate.

The legal trade in ivory was supposed to raise revenue for conservation. But although Leakey acknowledges that wildlife must help to pay for itself he also believes that whereas tourism is fine and necessary, trophies are not. He is a pragmatist first: "The more I found out about the ivory trade, the less sure I became that there was a way to manage it legally", and, "As long as ivory was considered a valuable commodity, there would be a black market for it".

But there's a strong moral thread, too. Leakey was introduced personally to elephants by Joyce Poole, the kind of modern biologist who, like Jane Goodall and George Adamson, forms close relationships with wild animals that for other people would be lethal. To Leakey's horror, not to say stark terror, she drove them to the middle of an elephant family and proceeded to commentate on their feelings and to predict how each would behave. The point is not simply that elephants are 'intelligent', in a maze-solving way. It's their awareness that startles: their sensitivity and family feeling. To poach them looks very like murder.

So then, famously, in 1989 Leakey held up the legal sale of 2,000 tusks on a bureaucratic

technicality and, although they were worth at least US\$3 million, resolved to burn them. Meave, his wife, was supportive as ever, and so, to his eternal credit, was Moi. But both asked the obvious question: does ivory burn? Meave and Leakey tried a bit on the fire, and it didn't. But a friend of a friend who did special effects in Hollywood said the tusks would burn if coated with flammable glue and fired with truly nebuchadnezzar intensity.

Thus, on 18 July 1989, Moi made a short but statesmanlike speech and applied the flame to the 20-foot tower of incendiary tusks on bales of straw that had been soured in petrol and kerosene under pressure. Moi still feared a fiasco — that the tusks would stay intact. Leakey feared that the entire assembly, TV crews and all, would go up in smoke. In the end, the blaze was fierce but safe, the tusks were reduced to pale grey ash, and the event was witnessed by 850 million people worldwide.

Leakey then strove for a worldwide ban on the ivory trade, and more rough dealings followed with the southern Africans, who favoured controlled trading. At the 1989 meeting of the Convention on International Trade in Endangered Species (CITES) in Kyoto, the "beefy" Rowan Martin of Zimbabwe National Parks called Leakey a "bunny hugger". Leakey says he replied with "what I hope was withering sarcasm" — so much so that he embarrassed his own side. His conservationist opponents, he says, "were not people I would have invited home". But he won the day. Elephants were given CITES Appendix I status in October 1989, effectively banning trade. And although the battle goes on, the price of ivory dropped from \$100 per pound to less than \$5.

ALL IMAGES BY DAVID NEWTON

Life then went from rough to rougher. No one knows whether the plane crash in June 1992 was sabotage, but Leakey lost both his legs (managing to insult Moi, who had hurried to his bedside, by telling him he didn't need his prayers). He was forced to resign from KWS in March 1994, started his own political party in opposition to Moi and became a member of parliament in 1997 (and campaigned for the disabled). But in 1998 he was reinstated — by Moi — to direct KWS afresh. Conciliation, it seems, is a vital part of African politics. Now he has left KWS a second time to become permanent secretary to the president and head of Kenya's Public Service.

All in all, this is a rattling good yarn. But it is much more than that. At stake is the concept of nationhood, a bureaucratic artifice superimposed on tribes that are ancient, evolved and real. The battle of tribal and political leaders echoes that of Europe's medieval barons, albeit fought out under modern political floodlights. Greater than that is the perennial struggle of humans to form a coherent society, and although most are honest and socially minded, the influence of those bent only on self-interest is inevitably disproportionate. In the background is humanity's attempt to find a *modus vivendi* with a fellow creature that needs to be managed, but is sensitive beyond present measure and must not be 'controlled' as if it were some pest.

How will Leakey himself be remembered? He says he did not expect to survive beyond 40 but as he now seems indestructible, it is clearly too early to say. Colonial and post-colonial Africa has been shaped by larger-than-life personalities, some mercifully great, such as Nelson Mandela and Desmond Tutu, but also by too many chancers, such as Cecil Rhodes. Leakey has his detractors, but if we acknowledge that all humans are flawed, then he surely belongs among the greats. Kenya's elephants would sign up to that. ■

Colin Tudge is a writer based in Oxfordshire, UK.
His latest book is *In Mendel's Footnotes: An*

Introduction to the Science and Technologies of Genes and Genetics From the 19th Century to the 22nd (Jonathan Cape).

Wormholes through physics

Nine Crazy Ideas in Science: A Few Might Even Be True

by Robert Ehrlich

Princeton University Press: 2001. 254 pp. \$24.95, £16.50

Time Travel in Einstein's Universe: The Physical Possibilities of Travel Through Time

by J. Richard Gott

Houghton Mifflin: 2001. 291 pp. \$25, £18.99
Paul Davies

Niels Bohr once remarked, when confronted with an unorthodox theory, that the problem was not whether it was crazy, but whether it was crazy *enough* to be true. Modern science, especially physics, is replete with outlandish ideas that defy common sense and intuition. It is almost impossible for the non-scientist to discriminate between the legitimately weird and the outright crackpot. If black holes, antimatter and virtual quantum particles are taken seriously, why is faster-than-light travel or extra-sensory perception pooh-poohed by scientists?

Physicist Robert Ehrlich has assembled a fascinating collection of apparently crazy ideas, and subjected them to careful analysis, assigning each a 'cuckoo' index of implausibility. Some of them, like the claim that small doses of nuclear radiation might actually be beneficial, he finds fairly convincing. To others he gives a decisive thumbs down, such as the much-publicized theory that AIDS isn't caused by HIV, or that having more guns in circulation leads to less crime. Ehrlich points out how statistics can be misleadingly presented in these cases, and how the distinction between effects that are causally related and those that are merely correlated often gets blurred.

Readers will make their own judgements about the various claims. Personally, I would not give the existence of tachyons — hypothetical particles that exceed the speed of light — quite the zero cuckoos that Ehrlich assigns. I do, however, share his enthusiasm for the offbeat theory of Thomas Gold that reserves of oil, coal and gas are not all produced by biological processes (the conventional story) but can be generated by primordial methane percolating up from deep in the Earth's crust and subjected to the activities of subterranean microbes. Gold has received a lot of flak for flying in the face of geological orthodoxy, and although I feel that the case he makes is far from decisive, I believe he

deserves far more credit for his ideas. In particular, his early championing of the theory that there exists a deep, hot biosphere turned out to be startlingly accurate, and is now generally accepted.

One crazy idea to which Ehrlich assigns medium plausibility is time travel. It is a recurring theme of science fiction, but can it really be done? Travel into the future is unproblematic, and known to be possible; it is a standard prediction of Einstein's theory of relativity and has been confirmed experimentally many times. But going back in time is another matter entirely. If that were possible, then all sorts of causal paradoxes loom, such as the famous example of the time traveller deliberately killing his grandfather as a baby, thus negating his own existence.

In spite of its bizarre overtones, the possibility of visiting the past has attracted the attention of many serious researchers in recent years. Most of the work relates to the proposal that a wormhole in space could be used as a time machine. A wormhole is like a black hole, but with an exit as well as an entrance. If one existed, it could provide a short-cut between distant points in space. Whereas falling into a black hole would be a one-way journey to nowhere, entering a wormhole might enable you to come out moments later in another part of the Universe. The theory of relativity predicts that a wormhole can be adapted so that an astronaut traversing one would come out *before* he went in. Wormholes remain highly speculative, but no knock-down argument yet exists that proves them to be physically impossible.

In *Time Travel in Einstein's Universe*, Richard Gott has come up with an alternative method of visiting the past, using hypothetical entities called cosmic strings. These would be exceedingly narrow tubes of trapped energy left over from the Big Bang, containing enough mass to seriously warp space and time. Gott envisages a pair of parallel cosmic strings flying past each other at high speed, and argues that an astronaut following a path looping around the strings could be transported back in time.

Gott's proposal is hardly practicable, being even less plausible than engineering a wormhole. Still, the merit in studying time travel lies not so much with the practicalities, but more with the way in which the topic illuminates the deep foundations of physics. Obviously, science must give a rational and self-consistent account of reality, so genuine paradox is not permitted.

Gott tries heroically to make the subject accessible to the non-specialist reader, although some of the discussion gets pretty technical, and occasionally mysterious. Perhaps his most striking claim is that the entire Universe could be a time machine that reaches back to the Big Bang and engineers its own creation. Some readers may well regard this