

RICHARD GIRLING



THE Hunt
for the
GOLDEN
MOLE

ALL CREATURES GREAT & SMALL
AND WHY THEY MATTER

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About the Book

This story is a quest for an animal so rare that a sighting has never been recorded.

The Somali golden mole was first described in 1964. It is mentioned in a number of textbooks, but the sole evidence for its existence is a tiny fragment of jawbone found in an owl pellet. Intrigued by this elusive creature, and what it can tell us about extinction and survival, Richard Girling embarks on a hunt to find the animal and its discoverer - an Italian professor who he thinks might still be alive ...

Richard's journey comes at a time when one species - our own - is having to reconsider its relationship with every other. It is also a quest for knowledge. He delves into the history of exploration and the tall tales of the great hunters, explores the science of collecting and naming specimens, traces the development of the conservation movement and addresses the central issues of extinction and biodiversity. *The Hunt for the Golden Mole* is an engaging story which illustrates the importance of every living creature, no matter how small, strange or rare. It is a thoughtful, shocking, inspiring and important book.

About the Author

Richard Girling is an award-winning environmental journalist. For his work in the *Sunday Times* he was named Specialist Writer of the Year in the UK Press Awards in 2002, and was shortlisted for the same award in 2005 and 2006. He was Journalist of the Year at the Press Gazette Environmental Press Awards in 2008 and 2009. This is his seventh book.

ALSO BY RICHARD GIRLING

Fiction

Ielfstan's Place

Sprigg's War

Non-fiction

The View from the Top: A Panoramic Guide to Reading

Britain's Most Beautiful Vistas

Rubbish!: Dirt on Our Hands and Crisis Ahead

Sea Change: Britain's Coastal Catastrophe

Greed: Why We Can't Help Ourselves

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For Caroline

The Hunt for the Golden Mole

All Creatures Great and Small, and why
they Matter

Richard Girling

Chatto & Windus
LONDON

CHAPTER ONE

Dr Storer in the Chair

HANNO THE NAVIGATOR, the Carthaginian explorer of the fifth century BC, also known as King Hanno II, is distinguished by having a crater on the moon named after him. He earned that honour by a feat of seamanship which, 2,500 years ago, established him in the line of pioneers that would lead via Leif Eriksson, Marco Polo, Vasco da Gama, Magellan, Cook, Livingstone, Scott and Amundsen all the way to Armstrong and Aldrin. Like the astronauts, Hanno could report a giant leap for mankind, but, unlike Armstrong's short stride into a cosmic future, his giant leap was backwards.

History over this number of centuries cannot be viewed in high definition. Fragmentary evidence and the agglomeration of myth leave only faint if highly coloured outlines, like lipstick on the rim of time. But what seems likely is that somewhere between 500 and 480 BC, Hanno set out from the Mediterranean with a fleet of sixty ships which, having passed through the Straits of Gibraltar, made a southward turn into the Atlantic. His mission was to explore and possess as much of north-west Africa as he could lay his hands on. Opinions vary on how far south he got but, in the light of events 2,300 years later, it seems likely that he reached the southern margins of what is now the Gulf of Guinea, and was off the coast of Gabon when he turned for home.

It was somewhere near here that the sailors found an island occupied and fiercely defended by a race of unusually hairy and furiously savage men and women. By Hanno's own account, the men were heavily outnumbered by the women and possessed of a ferocity that surpassed all reason. 'We pursued but could take none of the males; they all escaped to the top of precipices, which they mounted with ease, and threw down stones.' The Navigator was not inclined to sentimentality or squeamishness. 'We took three of the females, but they made such violent struggles, biting and tearing their captors, that we killed them, and stripped off the skins, which we carried to Carthage: being out of provisions we could go no further.'

History now fast-forwards to 1847. An American Protestant missionary, Thomas Staughton Savage, is busy bringing the Bible to West Africa when he meets a group of tribespeople worshipping the upper part of a skull mounted on a pole. But there is more to Savage than holy zeal. Like many churchmen in the nineteenth century, he is an avid amateur naturalist with a devout interest in all Creation. The skull fragment intrigues him. 'With considerable trouble', according to one contemporary, he manages to take possession of it, and the saucer of bone is soon making its way across the ocean to Massachusetts. With it go some other miscellaneous fragments and a paper written by Savage, which will be read on his behalf to the Boston Society of Natural History.

The minutes of the meeting held on 18 August 1847 ('Dr Storer, Vice President, in the Chair') record that the discovery was made 'in Empongwe, near the river Gaboon, Africa'. Laid out before the learned members are 'four Crania (two male and two female) . . . also the long bones of the extremities, a male and female pelvis, and some other bones'.

Unlike Hanno, the gentlemen are closely familiar with the races of great ape known collectively as Orangs. They know

a chimpanzee when they see one, but they have never reckoned on anything as big as this. The account continues: 'This animal is known to the natives under the name of *Èngeena*, and is much larger and more ferocious than the Chimpanzée. Its height is above five feet, but it is remarkable for the disproportionate breadth of the shoulders, which is double that of the Chimpanzée. The hair is coarse, and black, except in old individuals, when it becomes gray. The head is longer than that of an ordinary man by two inches, and is remarkable for having a crest of coarse hair over the sagittal suture, which meets at right angles a second, extending over the upper part of the occiput, from one ear to the other. The fore-arm is much shorter than the arm, the hand is remarkable for its great size, and the thumbs larger than the fingers. A slight tuft of hair exists at the extremity of the *os coccygis* - no tail, no callosities. Its gait is awkward and shuffling, supporting itself on the feet and fingers, and palms of the hands; but not, like the Chimpanzée, resting on the knuckles.'

And then we hear the echo, rolling back across the millennia. 'They live in herds, the females exceeding the males in number. Their habitations, like those of the Chimpanzée, consist of a few sticks and leafy branches, supported by the crotches and limbs of the trees, which afford no shelter, and are occupied only at night. They are exceedingly ferocious, and objects of terror to the natives, who seldom encounter them except on the defensive. The killing of an *Èngeena* is considered an act of great skill and courage, and brings to the victor signal honor.'

The echo rolls on. 'The Orangs are regarded by the natives as degenerated human beings. The Encheeco, or Chimpanzée, being less ferocious, and more intelligent, is supposed to have the spirit of a *Coast-man*, but the *Èngeena* that of a *Bush-man*. Their flesh, when obtained, is eaten by the natives, as well as that of the Chimpanzée.'

And thus it happened, less than 170 years ago, that science 'discovered' the greatest of the great apes, surely the very same species of wordless, hirsute militant that Hanno's interpreters had called *Gorillae*. It was a classic example of a then typical event - another species new to science - and typically sent out a worldwide pulse of excitement. Notwithstanding Savage's fondness for the psalms, natural science was the rock and roll of the age. Monsters and curiosities in menageries and museums were irresistible crowd-pullers, bigger even than music-hall stars or charismatic preachers.

For a natural historian it was heaven indeed to be alive. Never had there been such an appetite for discovery, enlightenment and creative chaos. Even biblical literalists understood the earth to be, in their terms, a thing of great antiquity, yet its depths and extremities remained as mysterious as the moon. To find a new species in many parts of the world, all you had to do was walk outside and look. Men like Hans Sloane, Charles Darwin, Alfred Russel Wallace, Henry Walter Bates and Joseph Banks did a great deal more than just look. They *observed*. And, having observed, they noted, illustrated, collected and catalogued. It was a passion that seized some of the not-so-great minds, too. By sea and land, from Britain, Europe and America, adventurers poured into the unmapped forests, savannahs and wetlands of Africa, Asia, South America and Australasia. Some were men of science, some were men of commerce, some were rascals.

The decks and holds of ships were packed with animals alive, dying, dead or dismembered. In London, Abraham Dee Bartlett, the extravagant character about to begin a forty-year career as superintendent of London Zoo, received his first gorilla in 1858. It reached England as heroes tended to do, like Nelson and Byron in a barrel of spirits. A photograph in one of Bartlett's books shows the author easing the animal from its cask. The strangely hairless gorilla is posed

with one hand raised, apparently gripping what looks like a pitchfork handle, as if trying to pull itself upright, while the other hand 'holds' the lid of the barrel. Bartlett was by profession a taxidermist, ever alert to the importance of presentation.



Abraham Dee Bartlett, superintendent of London Zoo, receives his pickled gorilla in 1858

Necessarily, he was also alert to the tricks of his trade. When Richard Owen, superintendent of the natural history department at the British Museum and inventor of the word 'dinosaur', introduced him to a 'Monsieur du Chaillu', who was 'desirous to have his Gorilla skin properly stuffed', Bartlett caught the reek of vaudeville.

'I called M. du Chaillu's attention to the face of the animal, which I told him was not in perfect condition, having lost a great part of the epidermis. In reply he, M. du Chaillu, assured me that it was quite perfect, remarking, at the same time, that the epidermis on the face was quite black, and that the fact of the skin being black was a proof of its perfectness.

'I, however, then and there convinced him that the blackness of the face was due to its having been painted black; finding I had detected what had been done, he at once admitted that he did paint it at the time he exhibited it in New York.'

On another occasion Bartlett agreed to buy some fowls from a Japanese dealer, but only on condition that he was first allowed to dip their improbable six-metre-long tails in water heated to the melting point of glue. Dealer and fowls immediately took wing. Bartlett was not alone among experts in developing habits of caution. Where there is wonder, there is also disbelief. Many accounts of outlandish creatures recorded in the furthest corners of the world were received, at best, with scepticism. This was true even when there was a specimen to show. Fairground freaks had taught people not always to trust the evidence of their own eyes. One of the most notorious frauds was the 'Feejee Mermaid', which tripled the takings at Phineas T. Barnum's American Museum in New York in 1842. Like many other exotic creatures, this one had been assembled by a Japanese fisherman - a monkey's body, finely stitched to a fish's tail. Its dried-up, withered appearance and repellent ugliness did nothing to deter the crowds that queued around the block to

see it. As more and more bizarre specimens were uncrated, scientific wariness and fear of hoax made stubborn obstacles to credence.

Who, for example, would believe a beaver with a duck-bill stuck on to it? Even in 1798 this had seemed a bit too rich to stomach, never mind that the man who sent the first platypus back to Britain – Captain John Hunter, Governor of New South Wales – was an unlikely hoaxer. The eminent naturalist George Shaw, Fellow of the Royal Society, co-founder of the Linnean Society and a future Keeper of Natural History at the British Museum, who is credited with the first scientific description of the species, snipped at the pelt in search of stitches but still admitted he could not be certain of its authenticity.

A century later it was the turn of the okapi to confound the doubters. You can see why. A chestnut-coloured horse with the legs and rump of a zebra, living hitherto unseen in the high-canopy forests of Central Africa? Who would have believed it? A beautiful and exactly detailed painting of the animal, sent to London by the explorer-naturalist Sir Harry Johnston, met with derision and was denounced by the director of the Natural History Museum, Professor Ray Lankester, as a hoax. Only in 1901, when skin and skulls were presented to a crowded meeting of the Zoological Society of London, did the okapi, and Johnston, get their due. The explorer's reward was to have the species named in his honour, *Okapia johnstoni*.

Disbelief came easiest to those whose experience of natural history was limited to periodicals and visits to menageries and museums. The okapi, like the gorilla, was a large and conspicuous item, impossible to overlook. How could it happen that no one had spotted one before? It fell to the great geographer and naturalist Alfred Russel Wallace to try to explain. In an essay published in 1878, he helped his readers understand what a tropical forest was actually like.

The observer new to the scene would perhaps be first struck by the varied yet symmetrical trunks, which rise up with perfect straightness to a great height without a branch, and which, being placed at a considerable average distance apart, give an impression similar to that produced by the columns of some enormous building. Overhead, at a height, perhaps, of a hundred feet, is an almost unbroken canopy of foliage formed by the meeting together of these great trees and their interlacing branches; and this canopy is usually so dense that but an indistinct glimmer of the sky is to be seen, and even the intense tropical sunlight only penetrates to the ground subdued and broken up into scattered fragments. There is a weird gloom and a solemn silence, which combine to produce a sense of the vast - the primeval - almost of the infinite. It is a world in which man seems an intruder, and where he feels overwhelmed by the contemplation of the ever-acting forces, which, from the simple elements of the atmosphere, build up the great mass of vegetation which overshadows, and almost seems to oppress the earth.

So, would not such a paradise be alive with animals? What should any explorer need more than a pair of eyes and time to record what he sees? Where is the scope for mystery? Wallace's answer to this is of profound importance in the light of all that will follow. 'The attempt to give some account of the general aspects of animal life in the equatorial zone,' he says, 'presents far greater difficulties than in the case of plants. On the one hand, animals rarely play any important part in scenery, and their entire absence may pass quite unnoticed . . . Beast, bird, and insect alike require looking for, and it very often happens that we look for them in vain.' It is an observation that could be as easily

applied to an English woodland or North American forest as to, say, the Amazon Valley. Here in the 1850s Wallace's friend and collaborator Henry Walter Bates had to cope with disappointment 'in not meeting with any of the larger animals of the forest. There was no tumultuous movement or sound of life. We did not see or hear monkeys, and no tapir or jaguar crossed our path.'

If Bates didn't clock any large animals, it's pretty certain he wouldn't have seen too many small ones either. 'There is in fact,' as he later acknowledged, 'a great variety of mammals, birds and reptiles, but they are widely scattered and all excessively shy of man.' As Wallace describes it, the elusiveness of an animal seems to increase in proportion to one's desire to see it. 'The highest class of animals, Mammalia, although sufficiently abundant in all equatorial lands, are those which are least seen by the traveller.' This simple truism, self-evident to any child who has gone in search of a rabbit, still lays a curse on scientists wrestling with ideas of survival and extinction. It also explains why so many of the earliest voyages of discovery were focused on birds and plants rather than animals.

Not all of Wallace's encounters with mammals were born of his own curiosity. Having been bitten on the toe by a vampire bat (the toe 'was found bleeding in the morning from a small round hole from which the flow of blood was not easily stopped'), he took to sleeping with his feet wrapped up. But there are times when human intelligence - even intelligence on the Olympian scale of Wallace's - is confounded by primitive animal instinct. Next time, the vampire bit him on the nose.

Even Wallace, however, could not make accurate observations while asleep, and his account of the vampires' behaviour might have been lifted from a Gothic novel. 'The motion of the wings fans the sleeper into a deeper slumber, and renders him insensible to the gentle abrasions of the skin either by teeth or tongue. This ultimately forms a

minute hole, the blood flowing from which is sucked or lapped up by the hovering vampire.' In fact, as we now know, the animal lands and approaches its victim on the ground.

Despite all the handicaps – shy, reclusive and nocturnal species, the impenetrableness of thorny, steep, over-heated and unmapped terrain – Wallace in the latter half of the nineteenth century builds a picture of richness, variety and almost comical oddness. In tropical and southern Africa alone, he writes, 'we find a number of very peculiar forms of mammalia. Such are the golden moles, the Potamogale, and the elephant-shrews among Insectivora; the hippopotami and the giraffes among Ungulata; the hyaena-like Proteles (Aard-wolf), and Lycaon (hyaena-dog), among Carnivora; and the Aard-varks (Orycteropus) among Edentata.'

Slowly, species by species, zoology was emerging as a scientific pursuit fit for the attention of serious minds. In the space of five years in the 1840s, the number of dead mammals acquired by the British Museum increased from around a hundred a year to more than a thousand. Natural history occupied a third of the museum's entire floor space, and attracted as many visitors as all the other galleries put together. In its early years, the museum had erected lofty bureaucratic barriers against casual visitors – tickets had to be booked in advance by personal representation, and were granted in scarcely greater number than audiences with the Pope. Now all that changed. As John Thackray, late archivist of the Natural History Museum, would write: 'The authorities accepted that the museum had a twin purpose: instruction for serious academic people, and rational amusement for the masses. It was felt that exposing the middle and working classes to a comprehensive display of the works of creation might improve their moral fibre and, also, make them proud to be British.'

The works of creation. One is surprised only by Thackray's omission of capital letters. The scientific world was drifting

into two opposing camps – those who believed that Nature was ordained and delivered by God, and those under the influence of Alfred Russel Wallace and Charles Darwin, whose theories of evolution were putting the Book of Genesis under sudden and shocking pressure. This was no storm in a teacup. The origin of species was – as it remains – fundamental to the way we think about our rights and responsibilities. Even Christian fundamentalists had to think again about the size of the Ark. It was seldom forgotten that God had granted to man ‘dominion over the fish of the sea, and over the fowl of the air, and every living thing that moveth over the earth’ (Genesis 1:28). Only now was the true scale of that dominion becoming apparent.

For the time being, despite the eruption on to the public consciousness of Charles Darwin (the entire first edition of *On the Origin of Species* in 1859 sold out immediately), it was the Old Testament that kept its nose in front. In January 1860 the decision was taken to hive off natural history from the rest of the British Museum – thus, in the words of Thackray, ‘separating the works of Man (books, manuscripts and antiquities) from the works of God (natural history)’. When the new Natural History Museum in Kensington eventually opened its doors in 1881, visitors found that the superintendent, Professor Owen, had taken this sacred duty all too literally. His museum was a sermon encased in glass, a holy diorama of miraculous Creation in which the scientific voice was mute.

All I have in common with men like Alfred Russel Wallace is that I like to watch birds and animals. I do so very often without really knowing what I am looking at, or understanding the behaviour of the creatures I’m spying on. Sometimes I regret it, but more often I cherish my own naivety. It preserves my child’s eye, a kind of pickled innocence that keeps nostalgia at bay. There are always questions to be asked.

Even in childhood I knew I wanted to write. Apart from running and jumping, it was the only thing I was any good at. But it was like having an instrument with no tune to play. What was I going to write about? People talk too glibly of Eureka moments, flashes of inspiration, epiphanies, and I hesitate to lay claim to one. But neither can I deny what happened. The occasion was the Easter holiday of 1961. I was fifteen-and-a-half, on a camping holiday with three friends in the county of Devon, halfway down the toe of the English south-west. Our plan, hatched over borrowed Ordnance Survey sheets, was to explore the great granite wilderness of Dartmoor. As I would discover in later life, its jagged tors – skeletal outbreaks of rock poking from the hilltops like springs through a worn-out mattress – were not much to set against, for example, the man-eating cols of the high Alps. But to a boy raised in the lawn-and-borders gentility of suburban Hertfordshire, the exposure to southern England's last untamed wilderness was life-changing. Dartmoor then had only recently been designated a National Park, and the untracked plateau was still a place of high drama and deep, unsettling mystery. My first sight of it, as I trekked up a lane towards Hay Tor, was one I shall never forget. A trick of topography, coupled with an over-active imagination, made it appear that the huge rock itself was rising up out of the ground in front of me. Before this, I had never known any feeling for landscape, history or 'the environment'. That all changed in an instant.

It was as if I had woken up in a different life. Suddenly, unexpectedly, I found myself transfixed by the authentic voices of the living and the dead. Sitting with illicit, under-age pints in village pubs, I listened to the stories of men who had worked the moor all their lives – shepherds, cowmen, horsemen, builders of stone walls, layers of hedges, makers of cider, men whose knowledge and craft linked them in a chain of ancestry that stretched back over millennia. High on the moor itself, the exposed relics of

earlier civilisations raised questions about what those earlier centuries had been like. I bought a pair of binoculars and went nowhere without them. Into my rucksack went a back-breaking library of field guides – birds, mammals, insects, wild flowers, trees. And yet despite the best efforts of my mother, who was a devil for looking things up, I never quite caught the habit of naming things. Small brown bird. Tall yellow flower. They were tiny brushstrokes on a huge canvas, and it was the canvas that interested me.

Wherever I travelled, instinct always made me step back, viewing from a distance rather than homing in on the detail. The field guides went back on to the shelf and rarely came down again. Time moved on and the interest deepened into love, and love into a mounting anxiety – an anxiety shared, I quickly realised, by many others – that the canvas was becoming patched and stained. No matter where you looked in rural Britain, holes were appearing in a picture that was tending increasingly towards the monochrome. I might not remember what the tall yellow flower was called, but I noticed quickly enough when it was no longer there. And so I began to write, and proceeded to a mostly enjoyable, though frequently frustrating, career as an environmental author and journalist. On my desk sits the same heavy pair of Russian-made binoculars that magnified the lost countryside of my youth.

I have switched sides now, to the extreme east of England in the county of Norfolk. Somewhere outside my window, in woodland, field and hedge, lurk all the grazers and small-fry of Britain's diminished fauna. There are deer – now becoming a national scourge because they have no predators beyond motor cars or men with guns. There are rabbits, hares, squirrels, hedgehogs, the occasional fox (heard more often than seen), and the grass is creased by moles. Sometimes there is a rat; sometimes the sudden dash of a stoat or weasel. Everything else – the scurrying tribes of mice, shrews and voles – remains invisible to all but

cats, owls and kestrels. Less than 16 miles from here, at West Runton, twenty years ago in a sea-cliff, was found an 85 per cent complete skeleton of what in life, 600,000 years ago, had been a ten-tonne steppe mammoth, *Mammuthus trogontherii*, twice the weight of a modern African elephant. It makes me think about the endless churn of life; the comings and goings of species that live out their span and disappear. Somewhere in the future, the pestilential rabbit and grey squirrel will go the way of the mammoth and the sabre-toothed tiger, and some other opportunistic invaders, drawn north by a warming climate, will inherit their niche. But then came something more thought-provoking still. In the autumn of 2010, news arrived of a completely new, previously unheard-of fish-eating mammal found living in Madagascar. With an exquisite sense of timing, the announcement came just a few days after the Royal Society had published a paper from the University of Queensland, proposing that a third of all supposedly 'extinct' mammals were actually still alive.

At almost exactly the same time, a UN biodiversity conference in Nagoya, Japan, was earning some very different headlines. A fifth of all the world's vertebrates – mammals, birds, reptiles, amphibians, fish – were facing extinction. In forty years, world populations of vertebrates had shrunk by 30 per cent. Land mammals were down by a quarter, sea fish by a fifth, freshwater fish by two thirds. On average, fifty species of mammal, bird and amphibian were edging closer to the brink every year. The big picture no longer made sense. New species? Reborn species? Extinct species? All swimming in the same ecological broth, but in different directions? The headlines came and went, but the questions stuck in my mind. How could creatures returning from the dead be reconciled with the threat of mass extinction? Why do estimates of the total number of species vary so widely? How could we be certain that any of them have died out? I remembered the words of Alfred Russel

Wallace. *Animals rarely play any important part in scenery, and their entire absence may pass quite unnoticed.* Soon an even trickier question presented itself. How could we be sure that an extinct species had existed in the first place? Where did Nagoya get its numbers from? Who calculated them? Were they accurate? Did it matter?

Well, of course it matters. Whether it's Genesis or genetics that underpins our thinking, whether it comes with a capital N or a small one, nature is scorched into our subconscious, an ineradicable component of our genetic inheritance. It's how we, and the societies we've created, have evolved. Through the 'dominion' we have either accepted as a gift from God or claimed through right of arms, we have negotiated our own survival. We have made mistakes, hunted to near extinction the very species – North American bison, the great whales – that we have depended upon. But it pains us. Even without understanding how ecosystems work, we know it's wrong – *absolutely* wrong, in a sense deeper even than the moral codes of law and religion. It's why we swerve to avoid a pigeon in the road. Yes, for all kinds of reasons, it matters. Time and again I return to the figures. Nothing adds up, and I realise that the big picture is no longer enough. Suddenly I have an appetite for detail.

My early attempts to satisfy it provoke good-natured complaint from the postman, bent under the weight of books. The standard taxonomic and geographical reference, *Mammal Species of the World*, comes in a hefty two-volume box-set from Johns Hopkins University. Nervously I flick the pages of Volume One, wondering how and where to begin. Turning to the very first entry on page one, I find:

ORDER MONOTREMATA Bonaparte, 1837

COMMENTS: Reviewed by Griffiths (1978). The order is the sole extant representative of the Subclass Prototheria (all other living mammals belong to the subclass Theria). McKenna and Bell (1979) divided

the order into two (Platypoda and Tachyglossa); the date of divergence of the two living families is unknown, and conservatively they are retained here in a single order.

Reading on, I realise we're talking about echidnas and platypuses, but I realise also, from the profound depths of my ignorance, that scientific detail is going to be hard on the digestion. Then - glory! - I remember Alfred Russel Wallace, for whom much of the world truly was a blank canvas, and I return to him as to a kind of intellectual comfort blanket. Let me begin where he began, and be led from there through zoological history. What were the 'very peculiar forms of mammalia' that struck him so forcefully in tropical and southern Africa? 'Such are the golden moles, the Potamogale, and the elephant-shrews . . .'

Golden moles. I turn back to *Mammal Species of the World*, and claw my way to page 77:

SUBORDER CHRYSOCHLORIDEA Broom, 1915

COMMENTS: MacPhee and Novacek (1993) erected the suborder Chrysochloromorpha for golden moles, but following Simpson's (1945: 32-33) nomenclatural principles for categories above superfamilies, Chrysochloridea is the senior synonym.

Chrysochloridea it is, then. There are a good few of them - many more, I suspect, than even Wallace would have imagined. Most, but not all, have common as well as Latin names, usually in honour of their discoverers, territories or physical peculiarities. First up is Arend's golden mole, then Duthie's, Sclater's, Cape, Stuhlmann's, Visagie's, Giant, Rough-haired, De Winton's, Van Zyl's, Grant's, Fynbos, Hottentot, Marley's, Robust, Highveld, Congo, Yellow, Somali, Gunning's and Juliana's. Their territories range all the way down from the Gulf of Guinea, scene of Hanno's

first brush with the *Gorillae*, through equatorial and sub-equatorial Africa to the Cape. But there are two exceptions, which, weirdly, appear to have no ranges at all.

Visagie's golden mole (*Chrysochloris visagiei*) - 'known only from the holotype'.

Somali golden mole (*Calcochloris tytonis*) - 'known only from the type specimen'.

By now I know that 'holotype' and 'type specimen' are the same thing. In each case they mean the original collected example from which the species was first described and introduced to science. What we are being told is that, throughout the whole of the scientific age, Visagie's and the Somali golden moles have each been seen only once. *One animal* constitutes the entire species. Conservatively, their status is recorded as 'critically endangered'. I will discover later that, though this degree of rarity is not a common phenomenon, it is not a rare one either. An astonishing number of species are accorded their identity on astonishingly sparse scraps of evidence. I turn next to the world authority on extinction and survival, the IUCN (International Union for Conservation of Nature) *Red List of Threatened Species*.

It confirms that Visagie's golden mole is known from a single specimen collected from the Northern Cape and described in 1950. We do not learn whether the animal was alive or dead, or even complete in all its parts, but a few drops of scepticism leak through the author's dry academic prose. 'Several field trips to ground-truth the occurrence of this species have yielded no specimens, or even signs of golden moles, suggesting either an error in recording provenance, or that the original specimen was transported there by anthropogenic means or even perhaps floodwaters of the Renoster River . . .'

If that is peculiar enough, then it's nothing to compare with its Somali cousin. Again the *Red List* confirms the uniqueness of the specimen, found at Giohar, Somalia, in

1964. But this time it adds an intriguing – not long ago I would have said *unbelievable* – detail. Under ‘taxonomic notes’, it remarks that the Somali golden mole, *Calcochloris tytonis*, is ‘known only from a partially complete specimen in an owl-pellet’.

And that’s it. Not only has no one ever seen a live example, no one has even seen a whole dead one. All that exists is some crumpled fragments coughed up by an owl. But exists where? It comes back to me in sleepless nights. First I am interested, then fascinated, then obsessed. Somewhere in a drawer, in a museum somewhere in the world, the owl pellet must be kept. *And I want to see it.* My naivety at that stage was still intact, so I thought it would be easy. I called the IUCN to ask where the specimen might be found. They didn’t know. Was there not some compendious work of reference that listed all holotypes and their locations? There was not. Next I tried the Natural History Museum, then the Zoological Society of London. No one knew.

So here began both a mystery and a quest. There were several reasons why I resolved to try to find the Somali golden mole. There was the sheer exhilaration of the chase, the unravelling of a mystery, the bizarre improbability of a species catalogued from such minimal remains. But there was something deeper, something not quite thought through but naggingly insistent. At a time when one species, my own, was being forced to reconsider its relationship with every other, what was the moral of the story? How could I answer the question, put to me with some belligerence by a neighbour at a dinner party: *Why should I care about a species so obscure that no one has ever seen one?* Why do we need spiny mice, bearded pigs, groove-toothed trumpet-eared bats, glacier rats, or any of the dozens of other mammals that the IUCN tells us are on the downward slope?

Already I had half an answer, but I wanted to find a whole one.

CHAPTER TWO

Rhinoceros Pie

SIR STAMFORD RAFFLES, the founder of Singapore and discoverer of the clouded leopard, was the unstoppable force behind the establishment of the Zoological Society of London in 1826. He lived only long enough to chair its first two meetings before a stroke - 'apoplexy' in the language of the time - killed him on the eve of his forty-fifth birthday. But he had taken the crucial first step. Sir Humphry Davy and the Marquis of Lansdowne continued what he had begun, and the world's first scientific zoo opened at Regent's Park in 1828. Initially, the word 'scientific' was rigidly interpreted. Only fellows of the society were permitted to enter - a situation that would last until 1847. Even then, visitors needed a letter of recommendation and were barred on Sundays. It was undemocratic, and the science was rough round the edges, but it was progress. People began to think more carefully about animals - their physiology, their self-awareness, their behaviour - and zookeepers set out on the rocky road to enlightenment. It was an example that soon would be followed in other new zoos throughout Europe and America.

On a warm August day 163 years later, the Broadwalk in Regent's Park is a dawdling caravan of parents and children, all heading towards the zoo. Those bored or exhausted by the long trek from the bus or underground are kept moving by a promise which in all the years has never lost its

potency. *Shall we go and see the gorillas?* I hear it time and again. The children will be disappointed only by the inert disinterest of the animals on the other side of the glass. My own hope – to see a living example of one of the surviving species of golden mole – has already been dashed. The zoo has told me it doesn't have one. And it gets worse. According to the online International Species Information System (ISIS), neither does any other zoo in the world. Golden moles may be 'vulnerable', 'endangered', or 'critically endangered', according to IUCN conservation criteria, but I can detect no effort to conserve them.

I don't do much better with the 'peculiarities' that so diverted Alfred Russel Wallace in southern Africa. Where the aardvarks ought to be, I see only meerkats. There are no hyenas, aardwolves or elephant shrews, though for compensation there is a magnificent okapi – a species known to Wallace only in the last few years of his life.

London Zoo now would astonish its nineteenth-century superintendent Abraham Dee Bartlett. Few of the original buildings survive, and many of the stars of the early collection – bears, elephants, hippos, rhinos, pandas – have been taken away. Some, like the quagga, are globally extinct. For pioneers such as Bartlett, keeping animals was a process of trial and error. His exhibits were not captive-bred specimens of known provenance, well-documented health and studied habit. They were wild-caught strangers wreathed in mystery. Bartlett recorded the arrival on 22 May 1869 of the zoo's first panda. It was not in good shape.

'I found the animal in a very exhausted condition, not able to stand, and so weak that it could with difficulty crawl from one end of its long cage to the other. It was suffering from frequent discharges of frothy, slimy faecal matter. This filth had so completely covered and matted its fur that its appearance and smell was most offensive.' He identifies the species as *Ailurus fulgens*, the small, teddy-bear-like red

panda, not the giant panda *Ailuropoda melanoleuca*, but most people today would be able to guess what it ate – mostly bamboo, supplemented by eggs, birds and small mammals. Bartlett, however, knew none of this. ‘The instructions I received with reference to its food were that it should have about a quart of milk per day, with a little boiled rice and grass. It was evident that this food, the change of climate, the sea voyage, or the treatment on board ship had reduced the poor beast to this pitiable condition.’ With no textbook to consult, Bartlett could only guess what to feed it with. He went to work with a zeal that might have earned the envy of his contemporary, Isabella Beeton. First he tried raw and boiled chicken, rabbit and ‘other animal substances’, but the panda would have none of them. ‘I found, however, it would take arrowroot, with the yolks [sic] of eggs and sugar mixed with boiled milk; and in a few days I saw some improvement in its condition. I then gave it strong beef-tea well sweetened, adding pea-flour, Indian-corn flour, and other farinaceous food, varying the mixture daily.’

Soon the panda was well enough to be let out into the gardens, where it straightaway attacked the fruit and foliage. It liked particularly the large yellow berries of a tree Bartlett named as *Pyrus vestita*, now better known as *Sorbus cuspidata*, a native of China, the country whose south-western provinces are the panda’s home. ‘He would grasp the bunch in his paw, holding it tightly, and bite off these berries one by one; so delighted with this food was he, that all other food was left as long as these berries lasted.’ It enabled Bartlett to conclude ‘that berries, fruit, and other vegetable substances constitute the food of this animal in a wild state’. For zookeepers of the nineteenth century, this was how it went. They would work like field naturalists on the basis of observation wherever that was possible, and by trial and error when it wasn’t.