



Scientific studies of humpback and other whales in the 1920s were first to reveal their dwindling numbers.

CONSERVATION

Harpoons and heartstrings

A history of cetacean research highlights its precarious place between whaling and politics, finds **Philip Hoare**.

Historian of science D. Graham Burnett is sly in his provocations. In *The Sounding of the Whale*, he has painstakingly gathered evidence for science's conflicted role in providing rigorous data for the preservation — if not always conservation — of whales. He wonders whether the competing interests in this tale have reduced the science, buried under the cumulative weight of that evidence, to an “elaborate form of rhetoric”.

This is a characteristically wry sentiment from Burnett, whose book provides a synopsis of a century of human and natural

history. The fact that it is about whales seems almost accidental; its subject matter has more to do with the human response to whales than the creatures themselves.

Burnett begins with whaling in the early twentieth century, when only the United Kingdom and Norway remained major players. The heyday of US whaling, extolled in Herman Melville's 1851 novel *Moby-Dick*, had long passed. With northern stocks of sperm and right whales reduced, the whalers' attention had swung south to the Falkland Islands and South Georgia, where fast boats and grenade harpoons enabled the hunting

of species such as blue and fin whales.

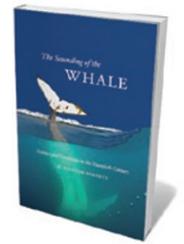
The scientific response to this multi-million-pound industry (worth even more during the First World War, when whales were a source of glycerine for munitions) was led by zoologist Sidney Harmer, director of the British Museum (Natural History). Harmer was the first ‘statesman-scientist’ to voice concerns over dwindling whale numbers, some species of which seemed about to become extinct before they had been studied.

In the early 1920s, Harmer's deft lobbying of the British government produced generous funds for the Discovery research expeditions, using the ship that had taken explorer Robert Scott to the Antarctic. The scientists' aims were to establish breeding patterns, migratory routes and possible populations of blue, fin and humpback whales. They discovered that, far from being as numerous as whalers claimed, many whale populations were diminished as a result of whaling in both their breeding and feeding grounds.

These scientists moulded themselves in the guise of the great polar explorers, bribing the whaling-station butchers with whisky in exchange for whale fetuses and ovaries to study. Meanwhile, on *Discovery's* sister ship, *William Scoresby*, other scientists were shooting whales with metal darts to track their movements. It was a Faustian pact, Burnett relates, “buying whale science with whale oil”.

The 1920s also saw the first stirrings of the public's conscience over whaling (but not its stomach: 42% of margarine made in Britain contained whale oil at the time), with “Save the Whales” appearing in a 1924 headline in the *Liverpool Daily Courier*. Here Burnett shifts his attention across the Atlantic to US naturalist Remington Kellogg, assistant curator of mammals at the Smithsonian Institution in Washington DC. No longer a whaling nation, the United States could take the moral high ground in the move towards whale conservation. Pelagic fleets run by Russia, Japan and the Netherlands were taking up to 50,000 great whales (including blue, fin, sperm and humpback) each year. Kellogg and his colleagues struggled to assess population sizes in the face of such slaughter.

The League of Nations took up the issue as early as 1930, in a committee chaired by the Argentinian academic José León Suárez, who declared that “the riches of the sea, and especially the immense wealth of the Antarctic region, are the patrimony of the whole human race”. With the founding of



The Sounding of the Whale: Science and Cetaceans in the Twentieth Century

D. GRAHAM BURNETT
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the International Whaling Commission (IWC) in 1946 — the machinations of which Burnett lays out using newly uncovered archival material — matters became more complicated as cold-war politics kicked in.

By 1965, a crisis point had been reached. Soviet whaling fleets were exceeding their allotted quota, and seriously under-reporting their catch. The IWC, and the uncertainty of cetacean science, sat uneasily in this sorry story of 'cetapolitics'. Radical conservationists suspected some scientists of perpetuating whaling because it supplied them with the subjects for their studies; other researchers found their work being used as a delaying tactic by the whalers, who could continue their culls under the pretence of aiding science. Thus, the obsessive collection of data, Burnett writes, ended up "obscuring the seriousness of the problem" by becoming an end in itself rather than addressing the pressing issue of population depletion.

Enter the contentious physician John Lilly, whose idea of cetaceans as 'alien species' and wild experiments (culminating in dosing dolphins with the drug LSD) have been seen by some as setting the field back by years. But Burnett shows how Lilly's work was the crucial interface between military bioscience and a new countercultural attitude towards cetaceans. That paved the way for the astonishing effect of a 1971 recording of humpback whale songs by researchers Scott McVay and Roger Payne, which sensitized a generation and galvanized the anti-whaling movement.

The same battle for the fate of the whale is still being fought, three decades after the implementation of the IWC's moratorium on commercial whaling. The scope and weight of Burnett's book symbolizes that continuing inertia.

Perhaps that is why, after his ten years of research, Burnett is left with a Melvillean sense of existential defeat even in his groundbreaking conclusion: "The fundamental lesson I have taken from the research and writing of this book amounts to nothing less than a kind of sweeping epistemological humiliation." Yet by questioning the very nature of our scientific interest in the whale, he has set the tone for a new century of discovery — and, one hopes, recovery. ■

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ENERGY

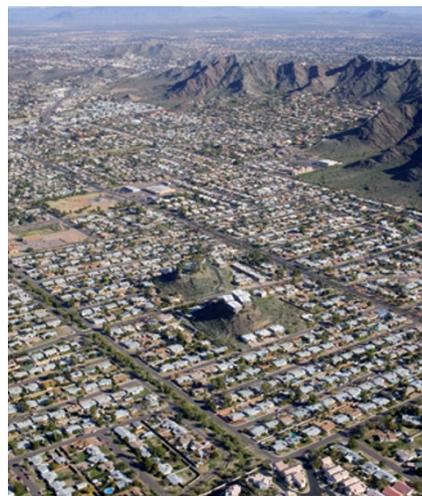
Curbing urban greed

An overview of resource-guzzling US cities has lessons for us all, finds **David Orr**.

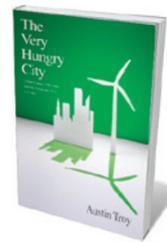
Austin Troy concludes *The Very Hungry City* by writing: "Good cities are good places to live. But they take work." In the United States, that is both the promise and the problem. With few exceptions, such as Washington DC, US cities grew by happenstance, contrivance and often by connivance. The same is increasingly true of megacities worldwide. Growth without planning — as Troy shows in his trek through conurbations from Los Angeles to Copenhagen to Masdar City in Abu Dhabi — has huge implications for energy use and the natural resources that support it.

Troy, an environmental economist, gives us a sure-handed, cogent treatment of urban challenges, focusing on 'urban energy metabolism' — a city's pattern of energy use determined by its location, culture, history and size. Most US cities need massive energy inputs per capita compared with many of their European, Chinese or developing-world counterparts. The price they pay is a vulnerability to scarcity, rising costs and environmental decay. Troy traces energy use through water consumption, transport, construction, the heating and cooling of homes, and the creation of workable communities, and includes sidebars on energy choices from renewables, natural gas and coal to nuclear power, oil and biofuels.

He describes a drearily familiar pattern that has accelerated since the mid-twentieth century. With little planning or foresight, inner cities are forsaken for suburbs, from which people flee to yet more distant 'exurbs' — a pattern of urban greed that consumes land,



Overbuilt Phoenix, Arizona, faces a dry future.



The Very Hungry City: Urban Energy Efficiency and the Economic Fate of Cities

AUSTIN TROY
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infrastructure, people and energy. The United States is littered with extreme examples: on the one hand is Detroit, Michigan, a proud industrial city of around 2 million people in 1950 that is now reduced to a beleaguered population of 700,000 circled by affluent suburbs; on the other is glittering, overbuilt Phoenix, Arizona, facing a future of extreme heat and dessication.

Elsewhere, notably in the US Sun Belt, 'zombie' urban subdivisions built far from city centres drive up energy and resource use. Even urban success stories elsewhere, such as Stockholm, face the challenges of energy and resources that come with continued growth.

How did we get to this point? Americans have traditionally regarded cities as places where you make money fast and move on. The combination of greed and devil-take-the-hindmost economic theories led to the abandonment of whole sectors of urban economies when people found their mobile capital could earn them a bit more somewhere else. Racism also played a large part. Banks refused to invest in minority-dominated inner cities, resulting in segregated poverty and crime. And then there is the car, an indiscriminate wrecker of urban fabric, air quality and climate stability.

As a result of all this, the United States still does not have a coherent urban policy. That has cost the country dear — not least in terms of the human cost of wars fought over the oil needed to subsidize inefficient urban growth.

Underpriced and oversubsidized fossil fuels made energy cheap, but that era is stumbling to an end. Accelerating climate destabilization, peak oil extraction, water shortages and rapidly growing urban populations are looming global challenges. More than half the people in the world live in cities, and it is here that humanity's future will be decided — albeit in a global economy with a diminishing margin for waste and policy mistakes.

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