

Shaped like horse tongue

Celebrating a vast region's biodiversity

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Sharon Chester

THE ARCTIC GUIDE

Wildlife of the far north

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for her latest encyclopedic task, which took eight years to accomplish. She embeds some species in visual context: a thumb-tip in com-

Does knowledge extinguish magic? Does learning a thing's place and name obscure an intangible essence? Some people consider field guides a lesser form of literature – writing one, they say, is like compiling a shopping list. The genre, however, is old and august. Its pedigree links the sixth-century Byzantine miniatures of the *Vienna Dioscurides* manuscript with Edward Topsell's (1658) biological impossibilities (Mantichore, Bear-Ape, etc), John James Audubon's (1827 Arctic Woolly Bear Moth) torqued avian corpses, ecologist "type specimen" Ernst Haeckel's (1899) psychedelic marine baubles, and Roger Tory Peterson's photo-realistic portraits. Conrad Gessner's 4,500-page *Historia animalium* (1551–8 and 1587), a model for later anthologies, still qualifies as a publishing success. In these Renaissance book illustrations, layering, time lapse, and magnification premiered, techniques unremarkable in the age of photography. Modern field guides owe more to herbaria than to medieval bestiaries, naive compendia that ascribed moral lessons to animals. Herbaria often contained dried medicinal plants mounted on paper sheets, sometimes bound – an early example is the Capuchin monk Gregorio di Reggio's from 1606, now in Oxford. These served to establish folk categories and, in the age of Enlightenment, our current, scientific *taxa*.

In this rich tradition stands Sharon Chester's *The Arctic Guide: Wildlife of the far north*, which covers not only that region's fauna and flora, but also touches on its climate, atmospheric phenomena, land forms and oceanography. It encompasses Norway's Svalbard archipelago, Siberia, the Russian Far East, the Bering Sea islands, Canada's Central Arctic, Alaska and Greenland. Cheek by jowl with the expected mammals and birds, subspecies and seasonal phases of reindeer and caribou grace the nuanced colour plates, and even such breeds as the Siberian Husky and Samoyed make an appearance. Like these domestic animal pages, the fish entries' "use" segments are potent reminders that for millennia, carnal more than intellectual appetites have driven our wildlife classification. Beyond rating different kinds of Pisces as "oily", "delicious", or "favored by brown bears", Chester delves into their etymologies. Who knew that *halybutte*, Middle English for "holy flatfish", derived from the big flounder's suitability as Christian holiday fare? Alternative names in languages ranging from German to Inupiaq enhance each species description and include translations of the Linnaean moniker – "shaped like a horse tongue" in the Atlantic Halibut's case.

Nestled throughout the text, cultural vignettes further distinguish this field guide: a Victorian scrimshawed Sperm Whale tooth; a squirrel from an illuminated Icelandic manuscript; Carl von Linné's coat of arms, emblazoned with Twinflower . . . Perhaps the need to keep things concise led Chester to sacrifice facts about bird diets and breeding now and then. Her common names index is rather sparse, and her thumbnail distribution maps tax the eyes. Richard Sale's *A Complete Guide to Arctic Wildlife* (though far from complete) is better with these things but only shows mammals and birds. It is through its creatures' lore and likenesses that Chester's book truly shines.

As an illustrator, photographer and natural history cruise lecturer with another Princeton University Press guide (*A Wildlife Guide to Chile*) to her credit, Chester is uniquely suited

parison to a shrew, bumble bees pollinating poppies, bird nests glued to a cliff. Kin to Alexander von Humboldt and Albrecht Dürer, she blends science with art. After selecting two or three slides of each of the book's 900-odd species, she scanned them into Adobe Photoshop before drawing a composite on a touch-screen monitor. She then arranged related species into full-page plates or spreads, often annotating them with hands-on details from her expedition notebooks. This technique renders animals life-like, while offering glimpses of lifestyles.

From works of reference, reverence in due



Mussel sex rhapsody

LAMORNA ASH

Abbie Gashco Landis

IMMERSION

The science and mystery of freshwater mussels

256pp. Island Press. £18.99.

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Suffbox, heelsplitter, pistolgrip, fat-mucket, orangefoot, three-horned wartyback – these are not words invented by Lewis Carroll, but freshwater mussel species. *Immersion*, by Abbie Gashco Landis, charts the world of the 500 million-year-old freshwater mussel – a group that is still in large part unexplored.

Immersion is also an intimate portrait of a young family and their deep respect for these creekbed dwellers. Landis is a veterinarian, writer and self-proclaimed "freshwater mussel groupie", while her husband, Andrew, is a biologist specializing in mussels. Together they travel around America in an old Chevy pickup, seeking out rare mussels, often with two young children splashing through the shallows behind them. The introduction is an unusual as well as endearing weaving of memoir and nature writing. Landis recollects a time when, five months before the birth of her second child, she wrestled with the zip of a wetsuit that "gaped like an open shell" around her pregnant stomach. Scuba mask on, her belly grazing along the creek bed, she discovers a "displaying" (when a female mussel's gills are filled with offspring) spectacle mussel. "This mussel and I", she imagines, "are similarly vulnerable, preparing to empty our bodies into the future."

The extensive chapter on mussel reproduction is illuminating. First, male mussels ejaculate seemingly at random into the water, which

is called "spermcasting". (Landis points out that any time you step into a creek you may well be standing in a "swill of mussel sperm".) Female mussels downstream then filter the sperm in through their apertures, and brood the now fertilized *glochidia* (larvae) in their gills – sometimes for as long as seven months. These baby mussels resemble microscopic "flattened Pac-Men", complete with miniature shells. The final flourish in the reproduction ritual, only discovered by scientists in 1988, requires an external player. The female mussels display lures, which, through an ingenious feat of biomimicry, look identical to minnows, so as to attract fish. Some female species have "cryptic lures", with which they tempt fish from just inside their partly open shell, before alarmingly clamping down on the fish's head (a process that often breaks their skulls). They hold the fish captive there for up to half an hour, while the glochidia attach themselves to the fish ready to be transported to their new creekbed homes. This extraordinary performance, Landis suggests, is why "scientists rhapsodize

time may spring. Unlike maps, which abstract topographies, field guides render a landscape concrete. Naming in the Latin binomial mode seeks order in a chaotic universe, the beauty of symmetry, interdependencies. It can thereby inspire care for minutiae: it is much easier to pull out a "weed" than to dislodge Witch's Hair (*Desmarestia aculeata* – "Desmarest's stinging algae"), less troubling to step on a "bug" than to squash the larva of the Arctic Woolly-bear Moth (*Gymnaephora groenlandica* – "Greenland fruitful female").

Identifying resident organisms can function as a gateway drug to ecology, spawning a desire to untangle the snarl of nature's relationships. It might even entice you to spend more time outside. One insight gleaned from browsing this handbook, easily missed by amateur field naturalists, is how similar species occupy the same Holarctic niches on two continents, corporeal proof of Beringian migrations. Mixing the familiar with the exotic – e.g. Canada Goose and Oriental Cuckoo – field guides open the world to our naked senses. With their focus on whole bodies rather than molecules, they are the layperson's antidote to genetics and microbiology, the domains of people in lab coats. This primer to place-based literacy reminds us that, regardless of national borders, the Arctic is distinct yet interconnected, a globe-spanning ecosystem deserving protection. Labrador and Chukotka have more in common than do Alaska and Alabama. *The Arctic Guide* celebrates a vast region's biodiversity. It shoehorns high-latitude lavishness between pocket-size, paperback covers, and does so handsomely (and with a sewn binding that prevents its spine from cracking), at the price of a takeaway meal.

about mussel sex".

As they weave through the creeks of North America, Landis and her family are constantly confronted by anthropogenic devastation to the mussels' freshwater environment. In 1998, a tanker truck overturned and dumped 1,350 gallons of rubber accelerant into the Clinch River in Tazewell County, Virginia. This led to the death of 18,000 mussels – the greatest single instance of harm to an endangered species in history. With each mark of destruction to mussels' habitats, Landis thinks forwards to her children's future, worrying that it might be one in which "creatures like mussels have gone extinct, unnoticed".

Still, every so often, the story of mussels is also one of resilience. As a result of extensive restoration work by quiet mussel heroes, their population in Alabama's Paint Rock River, virtually wiped out in the 1980s, has been almost completely replenished. Landis imagines this recovery as a wider symbol of hope: the possibility of reversing at least some of the harm humans have inflicted on the natural world before it is too late.

Good nature writing should cause a shift in the way its readers see the world around them. As Landis writes, a "reverence for mussels cultivates a different consciousness", allowing its readers an opening out of perspective to consider these most silent and subtle of creatures that will disappear if we do not better protect their freshwater homes.