


leaving



**“A masterpiece.
A massive achievement.
A magnificent, completely
original book. It’s gigantic
and lovely. Wonderful
wonderful prose, so exact
and lyrical. I have never read
anything like this book,
nor has anyone else.”**

—James Wood,

staff writer for *The New Yorker*
and professor of the Practice of
Literary Criticism, Harvard University.

home

**Andrew
Saltarelli**

**“Perhaps one day
we will understand
what we lost.”**

I was born in 1979. Twenty-nine years later I had an experience, a vision, in a redwood grove. If the vision was true, it gave rise to a great question; namely, why did an enchanted childhood lead to the hollow torments of adolescence and adulthood? What happened? What had gone awry? I had no choice but to use all my energies to find out if I could trust the vision, or if it was a mere shimmering mirage. This book is the result of that quest.

In the course of my discoveries, I chose the universal “we” more often than not. I understood the peril, the looming accusations of archaism, presumption, entitlement. I do not use “we” because I expect agreement—indeed I expect resistance—but because the truths revealed herein are indeed universal. That is a rock I will stand on. We were all born Pleistocene. We are all thwarted and mutilated hunter-gatherers. Nobody is exempt from their birthright.

If we want to find a way out, if we long for a larger historical context, this book may not be the worst place to start. But it is not prescriptive. It is not about the future. It is about the past in order to understand the present; in order to understand ourselves. If I have achieved that, I’m grateful.

—Andrew Saltarelli,
November 23, 2021

**“The kind of book that the world
desperately needs.”**

—Timothy Ingold,
Chair in Social Anthropology,
University of Aberdeen (UK).

“A work of immense beauty. Salvific.”

—Christopher Vecsey,
Harry Emerson Fosdick Professor of the
Humanities & Native American Studies
& Religion, Colgate University, New York.

**“A book of prodigious scope
and intelligence.”**

—Calvin Luther Martin,
author of *The Way of the Human Being*,
and retired Rutgers University
professor of history.

Andrew Saltarelli's Joycean tour de force, *Leaving Home*, is a meditation on our hunter-gatherer predecessors and what we now must learn from them. He calls his genre-defying book a "poetical argument." It is more—a journey both back in time and inward to our core, to the place of tranquility and laughter, to kinship round the fire.

He begins by exploring the Ohlone, the Chumash, and the Kalahari before opening onto a broad plain, where he touches on ten thousand things—ritual, the beginnings of agriculture, the submergence of hunter-gatherer consciousness, grammar, anthropomorphism, warfare, dreaming, nurture, dogs, grandmothers, redness, property, initiation, climate change, menstruation, otherness, hunting, farming, Hebrew prophets, food storage, is there a normative ontogeny, arrowheads, Kant, grief, metaphor, why porcupines should be killed last—all of these dots connected loosely and sometimes, it seems, magically.

All attempts to prune this long argument back have risked turning it into the things from which it is trying to awaken the reader—the reduced field, narrowed vision, diminished sensory awareness, and quashed joy of the overcivilized human. Several years ago I became hooked on reading Karl Ove Knausgaard's 3,500-page, six-volume work of autofiction, *My Struggle*. Like me, many reported they couldn't get enough of it. Reviewers noted the author's inability to leave anything out, his need for "inexhaustibility." The same may be said of *Leaving Home*. Its length reflects the plenitude of the world we are on the verge of losing.

For Saltarelli the wounds of civilization are personal as well as historical. That is why the book's subjective component is an important, not an accidental or superfluous, element. Saltarelli's liminal relationship to our civilization also makes his critiques of Henry David Thoreau, Henry James, Wendell Berry, John Muir, and anyone else whose work he examines, especially fascinating; his view of them is far outside the frame in which we normally view cultural and literary icons. It's because of where he's not standing that he has something important to say about the current disintegration and what might come after it.

Reading this manuscript and seeing human existence through the hunter-gatherer lens reminded me of the thrill of seeing Christianity for the first time through the eyes of Ludwig Feuerbach.

What might we as a species become when this system has run its course, when capitalism has exhausted its welcome? What is "the way of the human being," as Calvin Luther Martin puts it? What other ways are there to live than the ones that brought us here? That is the terrain this remarkable book explores.

—**Edward Levy**, editor of numerous award-winning books, whose clients include Princeton University Press, Doubleday, Random House, and SUNY Press.



leaving **home**



leaving home



Andrew Saltarelli



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Zeeshan Haque, cover design
David Moratto, interior design

Set in Adobe Garamond Pro type.
Printed in China.

Library of Congress Control Number: 2021949742
ISBN: 978-0-9841827-5-6

for Carolyn

“This is so strange, and so out of the way that I will ask no one to believe it. Those who will not believe the Gospel will still less credit this; yet *I say it is true*, believe who may. We had a Splendid feast at night, for they were very fat.”

—GEORGE NELSON, among the Chippewa, 1804

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A Note



Stories are born from the traces and trails of actual days. I wish to thank the ethnographers, anthropologists, ecologists, archaeologists, and historians who guided my wayward tracking. I quote them often, and lengthily. This decision, to weave my thoughts around the woven thoughts of others, to prefer a fine articulation rather than my own labored paraphrase, is probably the reflexive habit of someone for whom nonfiction first meant the literary essay, where quotation can be a species of exuberant appreciation. Being engaged in a long argument, a suit for ultimate truth, and possessing no particular professional authority, I have not hesitated to call, like a trial lawyer, a series of expert witnesses to the stand.

The late Paul Shepard, the most galvanizing of these mentors, deserves a special word. A few days before my twenty-ninth birthday, in a little bookstore in Missoula, Montana, my eye snagged on an elegant reprint of *Man in the Landscape*. Today I know it as Shepard's dense and meandering first effort, the prophetic outlier in his visionary canon, but that August day it was just a curious title, a book randomly pulled down. For months I'd been directionless, casting about, a febrile heap of pages moldering on my laptop. I didn't know the way forward; I couldn't find the path back. Three weeks later, by the shore of Two Medicine Lake in Glacier National Park, I stole an absorbed glance at the first dozen pages and rapidly found myself in a state of rigid, kicking excitement. By the time I started Shepard's defining trilogy, *The Tender Carnivore and the Sacred Game*, *Thinking Animals*, and *Nature and Madness*, I knew I'd found the guide I'd been looking for, the traveler who could begin to tell us, as over an ancient campfire, the story of who we were, and who we are now, and how it came to be.

A few years later I experienced a similar charge, a comparable thrill, in the careful prose of an Aberdeen professor named Tim Ingold, who for many years has been shining his own strong light down paths first walked by Shepard, alone and in the dark. Ingold's masterwork *The Perception of the Environment* gave me fresh legs at a weary time, not only by clarifying the obtuseness and arrogance of the modern scientific project but by untying the final knot of the central enigma that vexed and tormented me, and toward which I had begun to form a posture of melancholy defeat.

My debt to Shepard, Ingold, and the many others who speak in this book is clear and immense. I have tried to repay it by following them to that far shore where lies, many moons beyond our blind dichotomies of culture and nature, the jewel of the real.



In the fall of 2007, my partner and I drove from southern Oregon to a small town in western Montana, where she'd found work at a hospice. We felt lucky and eager, the largest roadless area in the continental states a short bike ride from our front door. In what follows I do not talk much about those enormous forested canyons, those crumbled talus slopes, but the Bitterroot Mountains are as important to the genesis of this story as any firsthand account of a far-flung people.

Indigenous to the suburbs, habituated to the unbroken reveries born of arboretums and forest preserves, I was frightened to find myself hiking in close proximity to animals that could kill and eat me. I repeated dutifully the comforting statistics, tried to keep firmly in mind that I was more likely to be murdered by a neighbor than mauled and disemboweled by a mountain lion, but for months I crept along the canyon paths, stricken and hesitant, a snapped branch or skittery wind pitching me into paranoid spirals. The fear changed the way I walked, the way my eyes worked, the way I thought. It changed everything. For the first time in my life I felt free of people and absolutely not alone.

I recall one day in particular, a spring day that stands for all those days. In the afternoon I pedaled uphill to Blodgett Canyon, locked my bike to a trailhead birch. Blodgett Creek sparkled and frothed, shoveling its roil of snowmelt to the valley's farms. The trail plunged through acres of deadfall, the scorched wreckage of recent wildfires. Mature ponderosas stood proudly as victors, waists and crowns

unharméd. Younger trees were charred and twisted, as if a black-robed wizard had glided through, murmuring liturgy. Already there were nurseries, clumps of saplings emanating patience, their slender green needles nearly fluorescent.

Half a mile in, I came to a spot of level ground, the creek trickling through a bracelet of shallow pools, scarcely making a sound. Webby thickets of red-osier dogwood cast over the spot an aura of concealment, a sense of nested life. An uncanny stillness stole over me. Drops of sunlight beaded down relic slabs of ice. A tiny wood orchid peeped under a damp log like a shy act of kindness, purple-veined, white as milk. On a high branch of Douglas fir, an osprey tore the flesh of a fish with fierce-eyed relish.

I left the pools behind, lost myself in the crash and shine of coursing water. Coming around the torso of a ponderosa, I saw the strangest sight. Twenty yards up the trail strode a young man in a buckskin breechclout. He held a wooden spear. He seemed to be barefoot, or wearing sandals. His shoulders and back shone dark red.

I laughed. He must be on a dare, I thought, a bet between friends. He looked my age, identical in height and build. But his motion was sure and sinuous, nothing like my coarse-booted lurch. I walked quickly, trying to catch up. I clattered over a plank bridge at the mouth of a lake. In drowned grass lay the driftwood ruins of beavers who lodged in Blodgett when people were sparser. On the far shore, away from the pounded trail, a flock of swallows rose and fanned from the stalks of last summer's cattails.

The young man troubled me. He seemed always to stay the same distance, surging when I surged, slowing when I slowed. The longer I stared, the more familiar he became, as if, long ago, down a lost alley of my past, we'd been inseparable friends, bound at the hip. Soon I heard the roar of a sluice-box gorge, saw fast waves of whitewater flash and shatter. I spurred myself to a jog-trot, hoping to overtake him.

We passed into a twilight of spruce and fir needles and somber, floating trunks. Columns of feathery light swayed down like concepts of the celestial. The tops of pines spired like miniature versions of themselves. I smelled moss and heather, glimpsed the dank old daybed of a black bear scooped from flaky turf. We walked for hours, the canyon lofting past crouching boulders and puddling creeks and mushrooms roosting in shade beds like exposed brains. Just when I was starting to worry I would never catch him, never learn the meaning of his strange errand, the forest parted; a solitary pine withdrew.

High in the west the sun flamed gold. I stepped into a brilliant meadow. The peaks were visible now. A lone sliver of glacier glittered in a cirque basin. The young man stood hardly ten yards away, holding his spear. He turned and faced me.

My shock had not stopped. I followed his gaze toward a red-tailed hawk perched on a stunted pine. The hawk lifted, curved skyward, and screeched. I glanced back at the mirror of myself, saw the corners of his mouth crease in a smile, as if he'd received excellent news. Pressing two fingers to his lips he shouted an answering song—*kee-rrr!*

Suddenly, I understood. The young man bolted, moccasins flying. I sprinted after him. I ran and ran. I ran through all our years until the years were gone, and we were home again, before the time of our falling out, when we played as one in the wood and field.

First Light



It is not a neurotic infirmity of the print-ridden, to be always describing light. The word annoys in its unmoored presumption. The Berens River Ojibwa of western Manitoba are sensible; they speak of it in specific contexts, as in the seven named periods rising and passing before noon—first sunlight, red shining, when sun backlights trees.¹ Only rarely, forgetful of myself, do I brush the edge of that older knowing, the passage of time not imposed by clocks but emerging from interiors, the blended sight and sound of stirring beings, as if my slow waking were shared by similar minds, by elk, pine marten, mountain chickadee.

The magic passes in a moment. No dream of the exiled heart eludes for long the mechanized world. I fall back to my vast estrangement, bring my filtered candle to lake or creek, search the water for a reflection of the real person who walked through me.

I grew up in Deerfield, Illinois, a suburb of Chicago's North Shore. Our backyard borders a small field owned by the brick-and-limestone Lutheran church that stands between its southern fringe and the daylong swish of traffic on Deerfield Road. The grassy expanse is a dying sight in a town growing glossier and more congested by the day, a haven to rabbits and white-tailed deer, yellow meadowlarks, opossums, lumbering turtles, and once a summering pair of coyotes raising pups. In the winter a great horned owl might brood for hours in the crossed branches of an elm. After strong rain, geese and mallards paddle across makeshift ponds with the stately containment of natives.

1. Peter Nabokov, *Where the Lightning Strikes: The Lives of American Indian Sacred Places* (New York: Viking, 2006), 23.

There are ruins. A concrete firepit marks the spot where a towering metal tipi, open at the bottom, sheltered the Wednesday night summer worship held by the Lutherans in livelier days. Close by, decaying in the shade of a black walnut, a chain-link backstop bears rusty tribute to the line drives and diving catches of suburban men hungry for softball glory.

No more than six acres, the field is bounded by wire and wooden fences, brambly hedges, the church's black asphalt parking lot, and a slender flare of trees and brush along the sluggish funnel of the middle fork of the north branch of the Chicago River. The field was most special to me in spring and summer, when the greenness of that corridor grew dense and enveloping, a living wall of leaves concealing the square, gray houses that loomed on the other side like giant tombs.

When I was a boy, that flashing shine of foliage rose a boundary. The wood was another world. To duck my head and scrape through its spiky brush was to forsake the familiar and the safe. Toadstools pulsed with portent. Menace gleamed in a littered beer bottle, a plastic bag caught on a branch. I was aware of lairs, tunnels clawed out of the soil by night-eyed critters. Looking out my bedroom window one snow-white morning, I glimpsed a red fox trotting toward the tree line. When the hind legs of a neighbor's cat were found near the wood's edge, my heart beat with a fearful thrill.

The Lutheran pastor rode a red mowing tractor, wore a wide-brimmed hat. Despite his rude trimming, the meadow remained rascally, a place apart from the smooth purposes of adults. My friends and I clambered along the steep creek bank, hanging from monstrous roots and water-dipping willow branches. We tore off our shirts for bases and goalposts. We sprayed our legs and arms with mosquito repellent, played tag until dark.

When I was twelve, a new pastor boxed and subdivided the southern half of the field into community gardens. The dominion of the dandelions ended. Rototillers chugged like Gatling guns on TV. By January, the churned-up soil, battered by freezing winds and biting ice, lay slabbed like black, frozen blood. I rued the gardeners and their cloddish colony, but like any kid I quickly adapted. There were new pleasures. Sunflowers taller than the tallest men. Rotten tomato fights in the parched blaze of late August.

Many Junes ago—back when hunter-gatherers meant no more to me than a wan memory of a life-sized, glassed-in display of cavemen seen and ignored on a high school field trip to the Chicago Field Museum—I drove for two days across the Rocky Mountains and the Plains. I reached the house on Heather Road after

midnight. I tiptoed to my old bedroom, opened a window to the backyard, the familiar garden smells. I could hardly sleep.

At dawn I walked out the backyard, past the last maple, between the green bushes. The sun was low in the sky, a slash of red behind the creek trees. I stood barefoot in shin-high grass. An arm's length away, a tiger-striped monarch looped and spun.

My heart swung. The life of the field, *my* life in the field, flared alive in me, a sense or impression of sky and grass running in a single wave, dandelions past their featherheaded prime, geese honking overhead, the alertness and solicitousness of deer, a baby rabbit curled in a hollow of grass, somewhere a sniffing fox. My consciousness of sagebrush meadows and alpine lakes dwindled to a smug unconcern, a bland rumor of difference. The wet prairie light streaming through the trees was first light. Fountain light. I stood in a circle of perfect provincial bliss. I swayed through a trance of happiness so bright and clear, I knew, when it was over, a terrible calamity had befallen us.

Faces by the Fire



We will never know all we yearn to know. Our ignorance is an affliction, a throb of profligate doubt, an irrepressible grumble telling us we have missed or misinterpreted the crucial clue, the figure in the volcanized dirt. It is no idling engine, our ignorance; it propels us, makes us stoop and crawl, scrape and trowel, sift layer after layer of hardpacked soil through fine-grained sieves, all for a fragment of hominin femur, a microscopic tendril of carbonized pollen. We remain sensible, we know that despite our tireless, ingenious effort, our knowledge is like a child striking a match in a cave the size of the world—but we are undaunted; we press on, shouldering the debris of geological ages, the opacity of the past a goad, a summons, a pane of blackened glass through which we hope to see the clear, piercing eyes of a vital animal: our ancestors; our real selves. The painted, life-size models that haunt the halls of natural history museums and the freakishly detailed computer-generated portraits in paleontology books may be sculpturally and visually accurate, but we grimace anyway, dubious, spitefully unimpressed. It is not a mask we dream of beholding but liquid eyes, alive in their day. What is the pathos of the painter or composer, toiling to evoke the intangible, to the longing of the paleoanthropologist bent over dusty bones, seeking to reconstruct the outer and inner lives of a people who left so few and such scattered traces?

Thinking about early humans is like plunging down a rabbit hole. Alice had it easy. One is always straining to see the living beings behind the proliferating abstractions, the portentous swirl of “transitions,” the chronological and anatomical facts that mass and spill like hundreds of jigsaw puzzles mashed together. It is never this particular group of cohabiting hominins but murky, theoretical aggregates of groups sharing generic characteristics and changing gradually through

innumerable millennia until, in someone's mind, they have changed so radically we bestow on them a new name, a new series of question marks. We fancy ourselves latter-day Sherlocks prowling London fog, our inductive methods lucent as lamps, yet Mr. Holmes solved his cases, open and shut, whereas the best we can do is continually capsize in a roil of boundless hypotheses; squint at earthen channel beds whose delicate bones crumble to dust at a touch; follow vaporous trails of genetic markers vanishing into darkness. To restore sanity we return, as we must, to the awesome, electrifying, insufficiently appreciated datum: Two roads diverged in a yellow wood, a group of Miocene apes traveled down the one that led out of the wood, and that has made all the difference. As far as improbable plots go, it is unbeatable, the greatest story never told. We scratch our chins, struck mute. Sometimes our perplexity laps at us like a kind of insanity. We walk down city streets assailed from every direction, every liquor store and fast-food joint, every buzzing neon letter, every billboard, big rig, and leaf-blower shrieking the same crazed question: How did this madness happen?

I am happy to report there is hope, a gathering clarity. Our knowledge is still a thing of fragments and debated tatters, but we can descry the lineaments of a narrative, the story of a species that went forth from riches to rags (though those rags be the ermine robes of kings, the tailored Italian suits of hedge-fund emperors). The protagonist of this sub-Saharan saga is neither Thomas Hobbes's sullen brute nor Jean-Jacques Rousseau's blissed-out loner. The days of coarse dichotomies are over. These heroines and heroes of our history are strange, wondrous organisms evolving in time, ape-people who desperately need each other, whose sojourn along the primal savanna demanded something more tenacious and enduring than the frail trust required by that fastidious back-scratcher, *Pan troglodytes*, the canny chimpanzee. The specialized language endemic to this emergent evolutionary narrative—reciprocal altruism, alloparental care, alternating birth classes, costly signaling, theory of mind—can unnerve a layperson, and some of the more speculative theories do not convince, but a broad sweep of researchers have validated the rudiments of a plotline we can all understand, since (to a certain extent) it is our own: How a grasping, irascible primate and all his selfish genes learned to be a son, a sister, a grandmother, a great-uncle, a namesake, a friend.

"It always amuses me," Lorna Marshall wrote, "to speak of residence when I visualize the nomadic !Kung settling down for the night, like migrating birds in the bushes, or building their grass shelters for a longer stay, which will nevertheless

be temporary.”¹ We can be sure migrating hominin flocks were building similar grass shelters two hundred thousand years ago; they were almost certainly building them two million years ago. The Bushman digging stick, and that fire-hardened digging stick, the spear, plainly have ancient patinas as well. So, too, does another, more amorphous tool: our capacity to play well with others. In 2005, the evolutionary anthropologist Michael Tomasello proposed “that the crucial difference between human cognition and that of other species is the ability to participate with others in collaborative activities with shared goals and intentions: shared intentionality.” Wolves bring down moose and caribou together, and bonobos, dolphins, and elephants seem to understand each other as “animate, goal-directed, and intentional agents,” but human beings alone have “a species-unique motivation to share emotions, experiences, and activities with other persons.”² Crotchety philosophers to the contrary, the primordial social contract did not derive from a governing authority deputized to police our anarchic impulses, but emerged organically from a developmental necessity to be enmeshed in webs of nurturing relationships.

Scientists have been trying for decades to locate the generalized era when we first looked like we look now, when our mouths began to form “syntactically complex” sentences, when our brains finally thought “fully modern” thoughts. They are encouraged, these high-tech analysts, by a consensus that such things can be dated in a crude way. After all, we have our precious genetic strands, stone tools to compare and contrast, bones that can be fitted together, artifacts that signal the rise and fall of “cultural horizons.” But despite, or perhaps because of, this moil of reductive speculation, our thinking has been timid or slow to grasp that a different kind of change had to come first, a change roughly evoked in the uncontroversial reflection that, compared to our mammalian brethren, we are preternaturally empathic creatures. This qualification extends even to our nearest kin. While chimpanzee “relationships may be shadowy forerunners of human love affairs,” Jane Goodall could not conceive them “developing emotions, one for the other, comparable in any way to the tenderness, the protectiveness, tolerance, and spiritual exhilaration that are the hallmarks of human love in its truest and deepest sense.”

1. Lorna Marshall, *The !Kung of Nyae Nyae*, 2nd ed. (Cambridge, MA: Harvard University Press, 1976), 84.

2. Michael Tomasello, Malinda Carpenter, Josep Call, Tanya Behne, and Henrike Moll, “Understanding and Sharing Intentions: The Origins of Cultural Cognition,” *Behavioral and Brain Sciences* 28, no. 5 (2005): 675.

Chimpanzees usually show a lack of consideration for each other's feelings which in some ways may represent the deepest part of the gulf between them and us. For the male and female chimpanzee there can be no exquisite awareness of each other's body—let alone each other's mind. The most the female can expect of her suitor is a brief courtship display, a sexual contact lasting at most half a minute, and, sometimes, a session of social grooming afterward. Not for them the romance, the mystery, the boundless joys of human love.³

Our training begins early; human infants are the least antisocial creatures in the world. They are gifted mimics, observers by vocation, responding from their first tiny breaths to the subtle meanings embedded in the look, feel, and sound of the eyes, hands, and voices that ogle, cradle, and coo at them. The sociobiologist Sarah Hrdy writes:

At some unknown point in evolutionary history but before the evolution of 1,350 cc sapient brains (the hallmark of *anatomically* modern humans), and before such distinctively human traits as language (the hallmark of *behaviorally* modern humans), there emerged in Africa a line of apes that began to be interested in the mental and subjective lives—the thoughts and feelings—of others, interested in understanding them.⁴

Hrdy pays a certain passing lip service to the way stations of evolutionary biology (all those supposed “hallmarks” of human modernity), but her real quarry is something altogether subtler, not a line in the sand, an arbitrary demarcation, but the spoor of a developmental process. “These apes,” Hrdy writes, “were markedly different from the common ancestors they shared with chimpanzees, and in this respect they were already *emotionally* modern.”⁵ The key is shared care and provisioning of offspring by group members other than parents.

3. Jane Goodall, *In the Shadow of Man* (New York: Mariner Books, 2010), 194.

4. Sarah Blaffer Hrdy, *Mothers and Others: The Evolutionary Origins of Mutual Understanding* (Cambridge, MA: Belknap Press of Harvard University Press, 2011), 30.

5. Hrdy, *Mothers and Others*, 31.

It takes on the order of 13 million calories to rear a modern human from birth to maturity ... Unlike other ape youngsters these hominin children would have depended on nutritional subsidies from caregivers long after they were weaned. ... [The] infant would need to be able to monitor and assess the intentions of both his mother and these others and to attract their attentions and elicit their assistance ... For only by eliciting nurture from others as well as his mother could one of these little humans hope to stay safe and fed and to survive.⁶

Thus the stage was set for clever, socially intelligent youngsters to more fully develop the innate gifts for interacting with and manipulating others that all apes are born with. The result was the emergence of quite novel ape phenotypes, which would be exposed to novel selection pressures. Individuals better at meeting the terms of this challenge and developing new dimensions to mind reading would also be more likely to survive ... This novel developmental context provided youngsters immediate opportunities and incentives to develop innate aptitudes for engaging others.

In environments with high child mortality, those with more alloparental assistance would have profited not only by being better comforted or entertained (for babies do enjoy this) but, more importantly, by being better protected and fed in infancy and through childhood.⁷

There is nothing automatic about human nurture. Hrdy points out that one of the most interesting and unusual things about human beings is that children will only develop if their mothers *allow* them to. In order to emotionally commit to their babies, women need to know they can depend on a reliable group of caregivers and provisioners. Human mothers, unlike great ape mothers, may sorrowfully but sternly commit infanticide if they do not feel they can provide enough for their child to survive, or if they already have a young child and do not feel they can support two.^{xxiv} Whereas chimpanzee mothers will not let *anyone* hold their offspring for as long as several years, human moms offer newborns to grandmothers, siblings, and friends almost immediately. This is the behavior of cooperative breeders.

6. Hrdy, *Mothers and Others*, 31.

7. Hrdy, *Mothers and Others*, 141.

When a Ju/twasi child was old enough for her first haircut, a little rite of passage was performed to protect her health. It was considered crucial, Lorna Marshall discovered, that parents not administer the ritual washing, especially the mother. “As the rite is repeated, the relatives asked to perform it should be first from one side of the family, then from the other, so that both the father’s and the mother’s relatives are involved in the child’s well-being and their love for the child is ritually captured. Thus a supportive web of relationships is woven for the child.”⁸ For hunting and gathering hominins, it really does take a village, or rather a group. Mathias Guenther remarks that because Bushmen don’t have formal descent groups “the matter of custody in children is a non-issue, the more so in view of a ‘familistic’ social structure that allows children to be reared by caregivers other than the mother or father.”⁹ Since it pushes so hard against our nuclear grain, Guenther is careful to emphasize that:

[t]he socialization training of the small child is a group effort in which neither parent is especially prominent. The parent-child relationship contains a degree of emotional ambivalence that is, on the one hand, one of indulgent affection—especially when the child is young (a */wa*, in Nharo)—and, on the other, one of avoidance-respect, when the child is big (a *//go*, in Nharo).¹⁰

Hrdy’s thesis is that the most unique features of human development—prolonged childhoods, adolescence, enormous brains, females living on long after menopause—were entangled in a complex coevolutionary process. Cooperative breeding “was the *pre-existing condition* that permitted the evolution of these traits in the hominin line. Creatures may not need big brains to evolve cooperative breeding, but hominins needed shared care and provisioning to evolve big brains.”¹¹ The question arises: When and why did hominin mothers begin to bear offspring too costly to rear by themselves? The answer takes us back six or seven million years ago, when much of Africa was still tropical forest. A few million years later these

8. Lorna Marshall, *Nyae Nyae !Kung Beliefs and Rites* (Cambridge, MA: Peabody Museum of Archaeology and Ethnology, Harvard University, 1999), 127.

9. Mathias Guenther, *Tricksters and Trancers: Bushman Religion and Society* (Bloomington: Indiana University Press, 1999), 31.

10. Guenther, *Tricksters and Trancers*, 28.

11. Hrdy, *Mothers and Others*, 277, original emphasis.

dense, steaming canopies still respired along river courses, habitat for the forebears of chimpanzees and bonobos, but elsewhere the forest shrank into patches of broken woodland, then open grasslands as far as a stereoscopic eye could see. To make a long, engrossing, and mostly unknowable story short and to the relevant point: a crew of venturesome apes tumbled from the green shade of fruiting trees into the radically different drama of broken woodlands and savanna. “The circumstances in which a series of large carnivores and herbivores became more thoughtful,” Paul Shepard wrote in *The Others*, his last completed book, “by watching, pursuing, evading, stalking, hiding, mimicking, and otherwise seeking to comprehend and anticipate each other, set the stage and the terms of our presence, as though we had won a role in a play that had been running for [forty million] years or married into an ancient lineage.”¹²

Somehow, in the grit and hazard of widening prairie, these brave, new apes adapted. We call them australopiths. One of them, Lucy, unearthed in Ethiopia’s Awash Valley, has attained a certain fame. We still know hardly anything about this ape-girl who lived and died 3.2 million years ago, but we can surmise that she and her family were assisted in their effort to survive and thrive by a long tradition of artisanal tool usage. The assertion is inferential, but not tenuously. Chimpanzees, after all, can be quite clever in how they go about extracting victuals from beehives and termite mounds; they are architects of twigs. From 2005 onward, researchers studying the chimps of the open woodlands of Fongoli have observed females and juveniles using wood spears to kill small bush babies (little night monkeys) asleep in tree holes. To make these stabbing spears they select appropriate branches, trim the ends, sharpen the tips with their teeth, find the holes, and prod and jab. Nor is such intentional tool use confined to our closest kin. Capuchin monkeys in northeastern Brazil manipulate sticks to probe for insects, honey, and water. They also use stones as hammers for cracking hard seeds, mashing tubers into edible pieces, pulverizing small prey, and processing cactus. Pondering such diverse tool use, it’s easy to believe that australopiths in dry tropical woodlands used wood and stone to get at termites, hard-shelled nuts, tubers, large carcasses, and any other foodstuff not accessible by hands or teeth alone. Since these tools would have left no material trace except for roughened or blunted edges on stone hammers and the occasional stone flake, we cannot expect to unequivocally identify them.

12. Paul Shepard, *The Others: How Animals Made Us Human* (Washington, DC: Island Press; Covelo, CA: Shearwater Books, 1997), 21.

The question as to when incidental flake production became intentional, when naturally occurring hammerstones became choppers and simple flake scrapers, is a way of asking when australopiths became habilines, or more precisely, when a specific species of the *Australopithecus* genus evolved into the *Homo* genus, or *Homo habilis*, a facile handle that means something like Man the Handyman. No one right now has a definite answer. Perhaps we should not be looking for a definite answer. Our obsession with speciation events often feels like a futile indulgence of retrospection, a fairly obtuse way of distilling hundreds of thousands of years of gradual change into a catchy slogan, a smothering label, as if one fine Pleistocene morning a new creature sprung fully formed, Athena-like, from some innovative australopithecine womb.^{xxv} Lawrence Barham and Peter Mitchell, the author-pair of a readable and detailed survey of African archaeology, focus their attention more fruitfully on developmental thresholds. They remark that:

innovations are most likely to have taken hold among the most sociable communities where cultural selection retained new skills, especially those that enhanced learning during childhood ... Social and physical environments that gave offspring the time to learn from others without being in competition with adults or at risk from predators will have been more conducive to the transgenerational transmission of innovations. An extended childhood and adolescence based on communal provisioning of offspring no doubt provided a stable foundation for social learning and innovation.¹³

After 2.6 million years ago we enter the Pleistocene and its glacials and interglacials, the cold spells often stretching for hundreds of thousands of years, the warmer periods usually shorter. In this era of gradually increasing dryness and more seasonally variable habitats, most of the gracile australopiths went extinct. Since the choppers, scrapers, and pounders of the Oldowan Tool Industry, which composes the oldest stone-tool industry (2.6 million to 1.7 million years ago), predate the appearance of *H. habilis* (and thus the genus *Homo*) by at least one hundred thousand years, the “missing link” may be *Australopithecus garhi*, who, surviving the extinction of the australopiths, was still ranging about Africa with opposable

13. Lawrence Barham and Peter Mitchell, *The First Africans: African Archaeology from the Earliest Toolmakers to Most Recent Foragers* (New York: Cambridge University Press, 2008), 67–68.

thumbs and an ability to firmly grip a stone, a necessary muscular precondition for hammer flaking, or rather the kind of controlled knapping that trained chimpanzees, for all their astuteness, have never been able to learn. The bones of *A. garhi* have been found in connection with stone tools that appear, according to experts, like primitive predecessors of the Oldowan generation. What happened to these survivors feels, in distant retrospect, like a rococo departure, the flinging open of a mythical gate, but no doubt the story is entirely pedestrian. Using cutting and scraping edges from silica-based rocks, a local population of ape-people began to supplement their diet of nuts, insects, grubs, tubers, and shellfish with delicious morsels of scavenged meat and marrow. Over the course of tens of thousands of years, this dietary experimentation, this decreasing reliance on gritty vegetables, produced a genetic marker visible in our lineage today: small chewing muscles. In effect, the physical constraints imposed by the massive jaw muscles of the australopiths fell away; brains were now free to expand. Around two million years ago we salute this growing brain by calling the hominins of this period *H. habilis*, or the habilines.

Used to slice through the tough skins and connective tissues of various Pleistocene fauna, the stone flakes of these habilines chart a tale of wider roving. Transport distances from stone quarry to campsite are now between ten and twenty kilometers, a diameter that translates to habitual ranges of 80 to 150 square kilometers, ten times larger than ape territories. Many artifact concentrations have been found close to water, a connection that can be interpreted as evidence of early home bases. Permanent waterholes were probably especially favored. Males likely ranged far and wide, defining the periphery, while females, carrying their young, trawled their digging sticks closer to home.

We hopscotch to a million and a half years ago. Onto the open, spreading grasslands of Eastern Africa now ambles the long-legged, large-bodied *Homo ergaster*, nicknamed *Erectus* in Southeast Asia and *Antecessor* in Europe, where she became the heavy-browed, thick-boned, huge-brained, rhinoceros-hunting, nut-gathering, shellfish- and chamomile-eating, sadly maligned Neanderthal. These exceptionally interesting hominins—let's call them, collectively, *Erectus*—likely spoke some form of articulate speech, hunted in coordinated groups, built and captained boats, and traveled in small, fluid, intensely localized clusters.^{xxvi} *Erectus* walked fully upright, reducing his exposure to sunlight, the risk of overheating, and the need for constant water. His body proportions were nearly modern, and females from now on are relatively large too.

Erectus was a full-on savanna strider, so accomplished in loping that she expanded the hominin range from Eastern Africa all the way to Java and China. Routinely carrying stone tools ten to fifteen kilometers, and even a hundred kilometers in several known instances, *Erectus* had a habit of lugging bifaces to favored places, where they accumulated like rusty trucks in the rural West. According to Barham and Mitchell, their “thin, well-shaped bifaces require a mastery of motor and spatial skills that involves considerable time and practice to learn.”¹⁴ Not surprisingly, *Erectus* children had big, protein-hungry brains. A juvenile *Erectus* who lived 1.5 million years ago boasted a brain twice the predicted size for a nonhuman primate of similar body size, and two-thirds the size of a modern human brain. The tabulated results of the cumulative *Erectus* bone gallery show that an individual weighing fifty-nine kilograms with a brain size of 800 centimeters would have needed to devote around 17 percent of its resting energy to supporting its brain. That’s an enormous amount, and it translated, in terms of daily life, into an enormous pressure: these early humans needed to feed well and feed often. The neocortex of *Erectus*, that cognitive quantum leap, therefore begs a big question, since, logically speaking, such an aberrant development needed an equally aberrant trigger. But what? What could spur the evolution of such a preposterously costly apparatus? What on earth was happening in the Middle Stone Age?



Campfire is a paltry phrase. It drowns in a fume of marshmallows, our minds and hearts, our swaddled indoor bodies, no longer attuned to its deep meanings, the human life it nurtures and makes possible. More often than not, fire is not fire now, but a bare candle spark fanning natural gas into button-controlled climates. Our old, wild way of relating to fire is difficult to reckon. We learned about the hearth fires of the Kalahari, how their heat and brightness created a home for families, a living flame of domesticity, but in truth we hardly scratched the surface. “Fire,” Lorna Marshall stated, “is deeply associated with !Kung ritual.”¹⁵ In fact, fire-making is a ritual itself, sex and birth, a creation story in action.

14. Barham and Mitchell, *The First Africans*, 155.

15. Marshall, *The !Kung of Nyae Nyae*, 83.

The process of making fire requires two fire sticks, called male and female, and a bunch of woolly grass for tinder. The male stick, held vertically, is twirled rapidly in a small notch in the female stick, which is placed horizontally on the ground, till the fine wood dust produced by the twirling is ignited by friction. The smoldering wood dust is quickly tipped onto the bunch of grass which is picked up and gently blown on till the grass bursts into flame. The grass is then placed on the ground. Small twigs ready at hand are placed on the grass for kindling, and as soon as they are ignited pieces of wood are added.¹⁶

The rites that require special fires include the Menarchal Rite, the Rite of the First Kill ... a rite for a novice medicine man (“owner of medicine”), and the rite for a child’s first haircut ...¹⁷

At night, the light of all the family fires in the encampment forms the protecting wall that encloses the people, holding out the prowling beasts and the darkness. An old man once said to us, “Fire, water, and food hold our lives. We have been so created. Without fire we would have no light, no warmth; food could not be cooked. Even an old person can live by his fire. Someone will give him food and water, and he can be warm.”¹⁸

The primatologist Richard Wrangham contends that fire was first harnessed in the tens of thousands of generations between the dawn of the habilines (2.3 million years ago) and the high noon of *Erectus* (1.5 million years ago). Perhaps it was first employed to burn grass, or wave a burning branch at a leopard. The oldest site offering strong evidence of deliberate use is Gesher Benot Ya’aqov in Israel, where burnt seeds, wood, and flint were dated to 800,000 years ago. Since fire is evanescent and leaves little or no trace, flame-handlers could theoretically be found much further back. Oxidized deposits found in hearth-like basins at Koobi Fora in Kenya, reheated multiple times and reaching temperatures of 400° Celsius, effectively attest, according to Mitchell and Barham, that “botanical knowledge of kindling fire seems to have existed by 1.6 mya [million years ago],” though they

16. Marshall, *The !Kung of Nyae Nyae*, 79–81.

17. Marshall, *The !Kung of Nyae Nyae*, 91.

18. Marshall, *The !Kung of Nyae Nyae*, 84–85.

conclude we cannot say “with certainty that *H. erectus* made fire as opposed to sustained fires from curated embers gathered from natural sources.”¹⁹

In Wrangham’s telling, a group of habilines discovered fire from striking rocks when pounding meat, or from forest fires, or rock shelters where natural gas flames permanently burned. Perhaps they filched charred antelope ribs from a passing brushfire, then schemed to get more. However it came about, the simple process of cooking food would have been recognized immediately as an unqualified boon, shortening the time it took to chew and digest and thus freeing males to spend more time scavenging and hunting. Surplus energy no longer needed for digestion was consequently diverted, like an electrical switch, to the neocortex, a chain reaction that resulted not only in our large brains but our peculiarly small guts. Other momentous changes developed apace: the warmth of reliable campfires likely enabled a progressive loss of body hair, allowing us to walk or run long distances without overheating (perhaps the crucial adaptation to big-game hunting); and the nightly hearth provided a double blessing of coziness and predator protection. With a circle of small veld fires crackling until morning, fragile grass shelters arranged in a circle, and at least someone drowsily awake at most times, ready to raise aloft a burning brand, fatality rates surely plummeted.

Whether or not *Homo erectus* and her evolving lineage directly resulted from cooked food, its eventual entrance into hominin life undoubtedly triggered a positive-feedback chain of epic consequence. Wrangham adduces a selection for calmer and more sociable temperaments from an analogy to dogs. Fifteen thousand years ago they were still wolves, sniffing and howling outside human camps, searching for scraps. Some of the braver ones, lured by tasty smells, began to reduce their flight distance, thus beginning, through an initial process of self-domestication, their journey into doghood. A similar story likely arose around the campfire. Amiable individuals

would have more comfortably accepted others’ presence and would have been less likely to irritate their companions. They would have been chased away less often, had more access to cooked food, and passed on more genes to succeeding generations than the wild-eyed and

19. Barham and Mitchell, *The First Africans*, 142.

intemperate bullies who disturbed the peace to the point that they were ostracized by a coalition of the calm.²⁰

Bowing to dogma, Wrangham imputes the condition of being a bully to specific genes, which would seem to imply that our own jerks sprout directly from some aggressive habiline lineage. More logically, echoing and affirming Hrdy's proposal of the early origin of cooperative breeding, Wrangham speculates that a version of campfire togetherness "had probably already started before cooking, when groups of habilines clustered about a meat carcass."²¹ The idea that fire accelerated trends or preexisting social patterns makes its rapid adoption and spread quite reasonable.

"In primates," Wrangham observes, "the tendency to use energy saved by smaller guts for added brain tissue is particularly strong, presumably because most primates live in groups, where extra social intelligence has big payoffs."²² These payoffs have been the source of much attention. Like many scientific theories that owe their durability more to common sense than visionary insight, Robin Dunbar's celebrated "social brain hypothesis" derives from the demonstrated empirical connection between primate group size, the complexity of social relationships, and brain size. Essentially, the demands of forming intense social bonds between members of hominin groups selected for cognitive mechanisms amenable to the maintenance of agile, sympathetic relations. With fire as prime mover, the chicken or egg debate is more or less moot. The need for bigger groups to defend against leopards and hyenas required bigger brains, bigger brains required more food, more food required shared care and provisioning, and shared care and provisioning required bigger brains. Fire: the mother of all positive-feedback chains.^{xxvii}

A question arises: Who is helping to raise this demanding progeny, and why are they loyal to someone else's children? The answer our forebears arrived at was rather astonishing considering evolution's hard-nosed attitude to post-reproductive females. Correlating statistical models of chimpanzees and twentieth-century hunter-gatherers with an intermediate *Erectus* simulacrum based on paleontological models, Kit Opie and Camilla Power contend that *Erectus* females could

20. Richard W. Wrangham, *Catching Fire: How Cooking Made Us Human* (New York: Basic Books, 2009), 184.

21. Wrangham, *Catching Fire*, 185.

22. Wrangham, *Catching Fire*, 113.

only have provided enough calories for their cerebrally needy offspring if they were reliably helped in provisioning by older females. Their so-called Grandmother Hypothesis states that selection for longer postmenopausal lives stemmed, rather straightforwardly, from mothers needing their mothers' help. The grandmother who goes out to gather tubers allows her daughter to stay at camp taking care of her child, and, conversely, the grandmother who stays at camp to babysit allows her daughter to go out and gather. Demographic studies of the Hadza of the Great Rift valleys of Tanzania confirm the fitness of this strategy: children with hard-working grandmothers are more likely to survive. The bond formed between grandmothers and their daughters' children, and, in turn, the bond formed between their daughters and their children's children, created what may have been the first conscious concept of kinship: alternating birth classes. Over time, through a process that will remain frustratingly unclear, these birth classes generated rules, taboos, the stigmata of transgression. In other words, the maintenance of kinship acquired, or perhaps began with, a moral aspect, a collective policing of sexuality, a group-wide sense of what was right and wrong; what should not be done under any circumstances, such as mothers having sex with their sons; and what, like consensual adultery, should be conducted discreetly.

While it is exceptionally difficult to sort out the strands in any complex weaving of coevolution, Opie and Power make a persuasive argument that strong female coalitions changed the basic protocols of the hominin mating game. "We need to consider," they write, "the implications of female cooperative strategies as the basis for the emergence of male–female cooperation." They pose a question: "Suppose daughters remained close to their mothers and female relatives, so senior females were available for ... extra provisioning of daughters' children or babysitting. Would *H. erectus* females have lost out on reproduction?" Their answer is cautious but firm: "[N]ot necessarily." They argue that "a prototype 'grandmother' strategy could have worked in positive feedback with males starting to increase production levels on the basis of mating effort."²³ That is, fathers who observe post-reproductive women caring for their daughters' children would have been more inclined to mate with women who had such grandmothers for the simple reason that his progeny would be more likely to survive. Another important effect

23. Kit Opie and Camilla Power, "Grandmothering and Female Coalitions: A Basis for Matrilineal Priority?" in *Early Human Kinship: From Sex to Social Reproduction*, ed. Nicholas J. Allen, Hilary Callan, Robin Dunbar, and Wendy James (Malden, MA: Blackwell, 2008), 182.

“on females who had senior female kin support,” Opie and Powers continue, “would have been reduction of inter-birth intervals (IBIs).”²⁴

This implies earlier return to cycling and increased fertility, precisely the factors which encourage more male cooperation ... Those females who had senior female kin support would have received increased male attention in the form of mating effort. Recently weaned offspring of such females would have benefited both from nutritious meat gifts from males hoping to mate their mother, as well from regular supplies of tubers provided by grandmother. Female foragers’ returns are more predictable on a day-to-day basis, of great importance for supplying growing children with energy, compared with more “risky” irregular male returns. With reduced mortality rates, we have selection for longer lifespans, delayed sexual maturity, and post-reproductive lifespans in females. With the presence of female allocarers, we can also account for the apparent contradiction of slower life histories evolving in *Homo* combined with reduced IBIs (relative to chimps).²⁵

All this seems plausible, but I resist the notion that their model is “more realistic” than others “in relying only on male mating effort and making no assumption about paternal investment,” as males “have a trade-off between effort put into mating access and effort put into provisioning extant offspring.”²⁶ They presume this trade-off exists because male parental investment beyond guarding against infanticide is absent in nonhuman primates. Yet instead of rigidly postulating a one-to-one correspondence between chimpanzees and *H. erectus*, it is reasonable to assume that, by the Middle Stone Age, millions of years of independent development had already produced two extremely different kinds of ape-men. The definitive word on *Ardipithecus* is far from settled, but at the very least, logic behooves us to consider that longer childhoods and the growing dependence of weaned hominins on parental care and provisioning “selected” for a more sensitive, engaged, nurturing male line precisely because they, themselves, were more sensitively, engagingly nurtured. *Erectus* males, like modern men, were obviously not

24. Opie and Power, “Grandmothering and Female Coalitions,” 189.

25. Opie and Power, “Grandmothering and Female Coalitions,” 182.

26. Opie and Power, “Grandmothering and Female Coalitions,” 184.

invariably dependable fathers, but isn't it probable that one consequence of loyal female coalitions would be the presence of a dependable network of caregivers intent on raising and nurturing precisely the kinds of males who make reliable and devoted fathers? This in turn would imply, not too shockingly, that somewhere down the evolutionary road, hominin males, like their descendants, ceased to be exclusively motivated by the sight or scent of an ovulating female.^{xxviii}

Taken together, the evidence indicates that early human kinship was variable, fluid, improvised. The ideal hunter-gatherer group—five families with three children apiece—is just that; reality was rarely so accommodating. Probably the most we can say is that early humans favored lakeshore or coastline environments and lived in elastic, provisional family groups with a slight or pronounced tendency to matrilineal residence. Among the Ju/twasi, for example, young married couples were likely to spend a few years with the family of the bride. The husband hunted for his wife's family, who kept careful watch on his temperament. If matrilineal practice did extend back into the Pleistocene, married women who remained close to their parents risked tilting their local population group into the sinkhole of inbreeding depression. "If the ancestral state is for males to stay while females disperse," Opie and Power remark, "then females who began to change strategy in order to stay close to female relatives would risk mating close relatives such as brother or father."²⁷ But recall that *H. erectus* had a bigger brain than the australopithecines and habilines, and bigger brains in primates correlate with bigger social networks; hence group sizes predicted for *Erectus* are almost twice the mean group size for chimpanzees. Opie and Power continue:

If hominins had to bunch into larger groups to reduce predation risk in more open environments, this should dilute the risks of inbreeding by offering a wider pool of accessible mates ... [A]s the climate changed and tubers became increasingly abundant, hominins, in particular females, would have been able to gather in larger numbers, since returns were limited by handling requirements rather than food availability.²⁸

Young females could thus stay near their mothers without threatening their local population with extinction. Their choice of mates would still have been restricted

27. Opie and Power, "Grandmothering and Female Coalitions," 184.

28. Opie and Power, "Grandmothering and Female Coalitions," 183.

to local groups, however, which may explain why any two modern individuals, say, a Maasai cattle-herder and a Montanan dentist, are far more genetically alike than two chimpanzees dwelling in neighboring drainages.

Let's now make another leap through time, passing over most of the past million years. Landing on our feet sixty thousand years ago, we discover a curious thing: people are fanning across the remotest faces of the earth. The gigantic era of human life we have leapfrogged over is bookended on one side by an ostensibly final speciation event, and on the other by a sweeping aerial view of sturdy family groups trekking to the four corners of the world. Before scouring that earlier age for gleams of our primal at-homeness, let's examine the more established fact of that later diaspora, when we abruptly began to break barrier after geographic barrier, becoming the first hominins to reach and inhabit Siberia, North and South America, and finally the Arctic. Our applied science was state of the art, especially the eyed bone needles we used to stitch animal skins into layered clothing. But to survive, let alone flourish in such regions, something more was required: sharing and cooperation not only among the immediate group or localized band, the faces by the fire, but with people spread far and wide, kinfolk perhaps seen a few times a year, or every other year. In short, by forty thousand years ago the descendants of those wily australopiths had figured out how to do a hitherto impossible thing: relate themselves in durable and affable ways to relatives who lived far away.

Human groups had grown so big, and the human brain with it, that even semi-arid deserts and cold mammoth steppes had become homes for the dancing animal.