

## Chapter 3

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### RISING AND FALLING:

#### The Theorists of Bipedalism

It was a place as blank as a sheet of paper. It was the place I had always been looking for. Out train and car windows, in my imagination, and on my walks through more complicated terrain, flat expanses would call to me, promising walking as I imagined it. And now I had arrived at the pure plane of a dry lake bed where I could walk uninterrupted and utterly free. The desert holds many of these dry lake beds or playas, washed long ago or annually to a surface as flat and inviting as a dance floor when dry. These are the places where the desert is most itself: stark, open, free, an invitation to wander, a laboratory of perception, scale, light, a place where loneliness has a luxurious flavor, like in the blues. This one, near Joshua Tree National Park, in southeastern California's Mojave Desert, was occasionally a lake bed but mostly a pure plain of cracked dust in which nothing grew. To me these big spaces mean freedom, freedom for the unconscious activity of the body and the conscious activity of the mind, places where walking hits a steady beat that seems to be the pulse of time itself. Pat, my companion on this walk across the lake bed, prefers rock climbing, in which every move is an isolated act that absorbs the whole of his attention and seldom rises to a rhythm. It's a difference of style that cuts deep in our lives: he is something of a Buddhist and conceives of spirituality as being conscious in the moment, while I am a sucker for symbolisms, interpretations, histories, and a Western kind of spirituality that

is located less in the here than in the there. But both of us share the same notion of being out in the land as an ideal way to exist.

Walking, I realized long ago in another desert, is how the body measures itself against the earth. On this lake bed, each step brought us minutely closer to one of the ranges of mountains, blue in the late afternoon light, that circled our horizon like the bleachers rising above a field. Picture the lake bed as a pure geometric plane that our steps measured like the legs of a protractor swinging back and forth. The measurements recorded that the earth was large and we were not, the same good and terrifying news most walks in the desert provide. On this afternoon even the cracks in the ground cast long sharp shadows, and a shadow like a skyscraper stretched from Pat's van. Our shadows moved alongside us on our right, growing longer and longer, longer than I had ever seen them. I asked him how long he thought they were, and he told me to stand still and he'd pace it off. I faced east into my shadow, toward the closest mountains that all the shadows stretched toward, and he began to walk.

I stood alone, my shadow like a long road Pat traveled. He seemed, in that pellucid air, not to grow distant but only to grow smaller. When I could frame him between my thumb and forefinger held close together and his own shadow stretched almost to the mountains, he had reached the shadow of my head—but as he arrived, the sun suddenly slipped below the horizon. With that, the world changed: the plain lost its gilding, the mountains became a deeper blue, and our sharp shadows grew blurry. I called for him to stop at the now-vague shadow of my head, and when I had myself covered the distance between us, he told me he'd gone a hundred paces—250 or 300 feet—but what constituted my shadow had become harder and harder to distinguish as he went. We walked back to the van as night approached, the experiment concluded. But where did it begin?

Rousseau thought that humanity's true nature could be found in its origins, and that to understand those origins was to understand who we were and who we should be. The subject of human origins has itself evolved immensely since he cobbled together a few sketchy descriptions of non-European customs with some groundless speculation on the "noble savage." But the argument that who we were originally—whether *originally* means 1940 or three million years ago—is

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want of smoking the second consciousness—Monsters—the Kraken—Mermaids—Southey believes in them—

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Southey's belief too much diluted—A Ghost story—... —JOHN KEATS, IN A LETTER TO GEORGE AND

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who we are or ought to be has only become stronger with time. Popular books and scientific articles debate again and again whether we are a bloodthirsty, violent species or a communitarian one and what-kind of differences between the genders are encoded in our genes. Both are often just-so stories about who we are, could be, or should be, told by everyone from conservatives arguing the adequacy of tradition to health seekers arguing that we ought to eat some just-discovered primordial diet. This, of course, makes who we were an intensely political subject. The scientists researching human origins have been contentious about these questions of human nature, and in recent years walking has become a central part of their conversation.

While philosophers have had little to say about what walking means, scientists have of late had a great deal to say. Paleontologists, anthropologists, and anatomists have launched a passionate and often partisan argument over when and why the ancestral ape got up on its hind legs and walked so long that its body became our upright, two-legged, striding body. They were the philosophers of walking I had been looking for, speculating endlessly about what each bodily shape says about function and about how those forms and functions eventually added up to our humanity—though what that humanity consists of is equally debatable. The only given is that upright walking is the first hallmark of what became humanity. Whatever its causes, it caused much more: it opened up vast new horizons of possibility, and among other things, it created the spare pair of limbs dangling from the upright body, seeking something to hold or make or destroy, the arms freed to evolve into ever more sophisticated manipulators of the material world. Some scholars see two-legged walking as the mechanism that set our brains expanding, others as the structure that established our sexuality. So, although the debate about the origins of bipedalism is full of detailed descriptions of hip joints and foot bones and geologic dating methods, it is ultimately about sex, landscape, and thinking.

Usually the uniqueness of human beings is portrayed as a matter of consciousness. Yet the human body is also unlike anything else on earth, and in some ways has shaped that consciousness. The animal kingdom has nothing else like this column of flesh and bone always in danger of toppling, this proud unsteady tower. The few other truly two-legged species—birds, kangaroos—have tails and other features for balance, and most of these bipeds hop rather than walk. The alternating long stride that propels us is unique, perhaps because it is such a pre-

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GEORGIANA KEATS    *Sir, I have received your new book written against the human race, and I thank*

carious arrangement. Four-legged animals are as stable as a table when all four feet are on the ground, but humans are already precariously balanced on two before they begin to move. Even standing still is a feat of balance, as anyone who has watched or been a drunk knows.

Reading the accounts of human walking, it is easy to begin to think of the Fall in terms of the falls, the innumerable spills, possible for a suddenly upright creature that must balance all its shifting weight on a single foot as it moves. John Napier, in an essay on the ancient origins of walking, wrote, "Human walking is a unique activity during which the body, step by step, teeters on the edge of catastrophe. . . . Man's bipedal mode of walking seems potentially catastrophic because only the rhythmic forward movement of first one leg and then the other keeps him from falling flat on his face." This is easiest to see in small children for whom the many aspects that will later unite seamlessly into walking are still distinct and awkward. They learn to walk by flirting with falling—they lean forward with their body and then rush to keep their legs under that body. Their plump bowed legs always seem to be lagging behind or catching up, and they often tumble into frustration before they master the art. Children begin to walk to chase desires no one will fulfill for them: the desire for that which is out of reach, for freedom, for independence from the secure confines of the maternal Eden. And so walking begins as delayed falling, and the fall meets with the Fall.

Genesis may seem out of place in a discussion of science, but it is often the scientists who have dragged it in with them, unwittingly or otherwise. The scientific stories are as much an attempt to account for who we are as any creation myth, and some of them seem to hark back to the central creation myth of Western culture, that business of Adam and Eve in the Garden. Many of the hypotheses have been wildly speculative, seemingly based less on the evidence than on modern desires or old social mores, particularly as they relate to the roles of the sexes. During the 1960s, the Man the Hunter story was widely accepted and made popular by such books as Robert Ardrey's *African Genesis*, with its famous opening line "Not in innocence, and not in Asia, was man born." It suggested that violence and aggression are ineradicable parts of human disposition, but re-deemed them by proposing that they were the means by which we evolved (or males evolved, most of the mainstream theories have tended to leave females doing little but passing along the genes of their evolving mates). Early challengers of the Man the Hunter scenario, writes the feminist anthropologist Adrienne

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you. . . . Never was so much intelligence used to make us stupid. While reading it, one longs to go on all fours.

Zihlman, "point out parallels between the interpretation of hunting as propelling humankind into humanity, on the one hand, and the biblical myth of expulsion from Eden, after Eve's eating of the tree of knowledge, on the other. The authors argue that both fates—that of hunting and of the expulsion—were precipitated by an act of eating—meat in the first instance and forbidden fruit in the other." And they argue that the division of labor—men as hunters, women as gatherers—reflects the distinct division of roles given Adam and Eve in Genesis. Similarly, during the 1960s and 1970s, the theory went that human walking evolved during a time of radical climate change, when the species was transformed from an arboreal forest dweller to a creature of the savannah, another expulsion from Eden. Nowadays both the dominance of hunting and the residence on the savannah have fallen from favor as evolutionary explanations. But the language remains: scientists now pursuing human origins not in fossils but in genes describe our hypothetical common ancestor as "African Eve" or "Mitochondrial Eve."

These scientists have sometimes looked for what they wanted to find, or found what they were looking for. The Piltdown man hoax was believed from 1908 to its denouement in 1950 because British scientists were eager to believe the evidence of a large-brained creature with an animal jaw. The bones suggested that our intelligence was of great age and gratified them by showing up in England. Much was made of clever Piltdown man as an Englishman, until new technologies proved him a liar cobbled together from a modern ape's jaw and a human skull. When Raymond Dart found a child's skull in South Africa in 1924 that, unlike Piltdown man, turned out to be genuine, it was widely discredited as a human ancestor by the British masters so pleased by Piltdown. It was discredited because the scientists of the era preferred not to come from Africa and because the skull of the Taung child, as it was called, had a small cranium but evidently walked upright, suggesting that our intelligence had come late rather than early in our evolution. At the base of the skull is an opening called the foramen magnum through which the spinal cord connects to the brain. The foramen magnum of the Taung child was in the center of the skull, as it is in us, rather than at the back, as it is in apes, and so it was evident that this creature had walked upright, its head poised atop the spine rather than hanging down from it. Like most of the skulls of the australopithecine hominids who would evolve into humans, this one looks to the modern eye like a house with odd proportions: the porch of the brow and jutting jaw is enormous, the attic where the modern brain rises is

—VOLTAIRE TO ROUSSEAU, ON THE DISCOURSE ON THE ORIGIN OF INEQUALITY

The diminution of the

nonexistent. Most early evolutionists proposed that our human characteristics—walking, thinking, making—originated together, perhaps because they found it hard or unpleasant to imagine a creature who shared only a part of our humanity. Dart's counter-hypothesis was advanced by Louis and Mary Leakey's spectacular Kenyan finds in the 1950s, 1960s, and 1970s and all but confirmed by Donald Johanson's celebrated discovery of the "Lucy" skeleton and related fossils in Ethiopia in the 1970s. Walking came first.

Nowadays walking upright is considered to be the Rubicon the evolving species crossed to become hominid, distinct from all other primates and ancestral to human beings. The list of what we eventually got from bipedalism is long and alluring, full of all the gothic arches and elongations of the body. Start with the straight row of toes and high arch of the foot. Go up the long straight walker's legs to the buttocks, round and protruberant thanks to the massively developed gluteus maximus of walkers, a minor muscle in apes but the largest muscle in the human body. Then go on to the flat stomach, the flexible waist, the straight spine, the low shoulders, the erect head set atop a long neck. The upright body's various sections are balanced on top of each other like the sections of a pillar, while the weight of quadrupeds' heads and torsos hangs from their spines like the roadway from a suspension bridge, with a pair of pierlike legs toward either end. The great apes are knuckle-walkers: creatures adapted to life in tropical forests who for the most part move only short distances on the ground between trees, on long forelimbs that give them a kind of diagonal posture. Apes have—when compared to humans—arched backs, no waists, short necks, chests shaped like inverted funnels, protruberant abdomens, scrawny hips and bottoms, bandy legs, and flat feet with opposable big toes.

When I think about this evolutionary history of walking, I see a small figure, like my companion on the lake bed, only this time it is dawn and the figure is moving toward me, an indecipherable dot in the distance that seems somehow unfamiliar as it becomes distinguishable as an upright figure and finally, when it draws close, is just another walker. But what was that casting a long shadow in the middle distance? Lucy—as they named the small 3.2-million-year-old *Australopithecus afarensis* skeleton found in Ethiopia in 1974, presuming from various details that it was female—was apelike in many respects; she had little in the way of a waist or neck, short legs, longish arms, and the funnel-like rib cage of an ape. Her pelvis, however, was wide and shallow, and so she had a stable gait with

olfactory stimuli seems itself to be a consequence of man's raising himself from the ground, of his assumption of an

hip joints far apart tapering to close-together knees like humans and unlike chimps (whose narrow hips and far-apart knees make them lurch from side to side when they walk upright). Some say she would have been a terrible runner and not much of a walker. But she walked. This much is certain, and then come the arguments.

Dozens of scientists have interpreted her bones, reconstructed her flesh, her gait, her sex life, in dozens of different ways and argued over whether she walked well or poorly. Discovery conveys a certain privilege of interpretation, and so Johanson, who worked at the Cleveland Museum, took the bones he found in Hadar, Ethiopia, to his friend Owen Lovejoy, an anatomist at Cleveland State University and an expert on human locomotion. Lovejoy issued the orthodox verdict. In his book *Lucy*, Johanson reports that Lovejoy said of the *afarensis* knee joint he had brought in the year before,

"This is like a modern knee joint. This little midget was fully bipedal."

"But could he walk upright?" I persisted.

"My friend, he could walk upright. Explain to him what a hamburger was and he'd beat you to the nearest McDonald's nine times out of ten."

Johanson's knee joint came along as the first material support for Lovejoy's bold theory that bipedalism had begun and been perfected far earlier than anyone else had assumed. The following year, the Lucy skeleton—or the 40 percent of it that was recovered—further confirmed his hypothesis about the antiquity of human walking, as did the 3.7-million-year-old footprints of a pair of walkers Mary Leakey's team found at Laetoli, Tanzania, in 1977. But why had these creatures become bipedal?

By 1981 Lovejoy had evolved a complicated explanation for why we got up and walked. His 1981 *Science* article "The Origin of Man" has become the focal point for the arguments in the field about the reasons why walking appeared 4 million or more years ago. Lovejoy evolved an elaborate thesis that decreasing the time between births would increase the survival rate of the species. "In most primate species," he wrote, "male fitness is largely determined by consort success of one sort or another"—that is, in the ability or opportunity to mate and thereby pass along their genes. He proposed that in the Miocene era, 5 million and more

*upright gait, this made his genitals, which were previously concealed, visible and in need of protection, and so*

years ago, the human ancestor changed its—or rather his—behavior. Males, he proposed, began to bring back provisions for the females; the females thus provided for were able to bear more children as the challenge of feeding themselves and their young was lessened, and the male-headed nuclear family was born. In other words, male fitness had expanded to include provisioning, which would allow them to pass along those genes more frequently and certainly. "Bipedalism," he wrote in a 1988 summary, "figured in this new reproductive scheme because by freeing the hands it made it possible for the male to carry food gathered far from his mate." But, he added, such daily separation of the sexes would only genetically favor males if they could come home and propagate their own genes and no one else's—thus the behavior must have selected for monogamous females as well as responsible males. Lovejoy explained, "The highly unusual sexual behavior of man may now be brought into focus. Human females are continually sexually receptive and . . . male approach may be considered equally stable." Since unlike the females of most species this one no longer signaled her fertile times, they had sex a lot to procreate and to bond. If we regard it as a creation myth, it is one in which the two-parent family is far older than the human species, hominid males are mobile and responsible partners and parents, and females are needy, faithful, stay-at-home mates who are *not* the instruments of bipedal evolution.

The 1960s myth of Man the Hunter had been succeeded by two theories in the 1970s. One dubbed Woman the Gatherer proposed that the primordial diet was probably mostly vegetarian and was mostly collected then, as in hunter-gatherer societies today, by females. The other emphasized food sharing as instrumental in ensuring survival and generating a home base to which food was brought and shared, resulting in more complex social consciousness. In this theory, a communitarian First Supper takes the place of Ardrey's blood sports as the event that propelled us into humanity. Lovejoy combined aspects of both these new theories to create his Man the Gatherer, who brought food home and shared it, though only with his mate and offspring. His theory suggested not only that walking had been a male business, and that the males in question had been full of family virtues, but that the virtues in question had made us walkers. In fact, he said, Lucy and her ilk could walk better than we do, and further, the species had lost its ability to climb.

*provided feelings of shame in him.—FREUD, CIVILIZATION AND ITS DISCONTENTS*

*Hand in hand with equal blood*

I was staying with Pat in his shack just outside Joshua Tree National Park while I wrote this chapter. Preoccupied and trying to sort out the sea of material before me, I kept recounting theories to him about why we became bipedal, about details of anatomy and function, and he laughed incredulously at the more outlandish ones. "People get grants and tenure for *that*?" he'd say. His favorite was R. D. Guthrie's 1974 proposal that when hominids became bipedal, the males used their now-exposed penises as a "threat display organ" to intimidate opponents, and we speculated on the origins of human laughter. The following day, after he came home from guiding clients up and down rock faces all day and was lounging with a drink, I read him anthropologist Dean Falk's attack on Lovejoy. Lovejoy's term "copulatory vigilance" caught his attention, and he laughed more at the strange stuff I was immersed in. Not that his world was exactly a bastion of seriousness: while he was climbing for pleasure the day before, I had lain in the shade idly flipping through his guidebook and been entertained by some of the names of the climbing routes up and down the park's myriad giant boulders: "Presbyterian Dental Floss" was right next to "Episcopalian Toothpick," while "Boogers on a Lampshade" mocked the climb genteelly called "Figures in a Landscape," and innumerable poodle, political, and anatomical jokes described other vertical routes up the rocks. That evening, as I read bipedal theory to him and the quail bobbed about the backyard and the setting sun pushed the shadows of the hills farther and farther across the valley, he swore he would get his friends who founded and named many of the park's climbing routes to name the next one "Copulatory Vigilance," an obscure monument to a theory that we had lost our ability to climb and to his opinion of the more far-flung theories of human origins. Lovejoy's theory has become famous, if only because no one can resist attacking it.

Among the earlier critics were the anatomists Jack Stern and Randall Sussman at the State University of New York at Stonybrook, who I visited. Two unathletic men with identical clipped gray mustaches, they looked something like the Walrus and the Carpenter, with Stern as the compact Carpenter and Sussman the expansive Walrus. They talked to me for hours in an office full of bones and books, and periodically one or the other would grab a chimp pelvis or a cast of a fossil femur to illustrate a point. Obviously enthusiastic about their work, they often went off on conversational tangents with each other that left me far behind, and they delighted too in dishing their colleagues in this contentious field. They

*they go. In the free hands—no. Free empty hands. Backs turned both bowed with equal plod they go. The child*

had argued that Johanson's Lucy-era *Australopithecus afarensis* fossils were those of apprentice walkers who, based on the evidence—big arms and smallish legs, curved fingers and toes—continued climbing trees well and frequently for a long time afterward. Another feature of the *afarensis* fossils they took up was gender size: if the large and small skeletons Johanson and company had found in Ethiopia were the same species (which Richard Leakey and others contest), then the sizes must represent small females and large males, which made it unlikely they practiced Lovejoy's monogamous arrangement. Living primate species where the males are far larger—baboons, gorillas—are usually polygamous; only those without size differences, such as gibbons, are monogamous. So their version of Lucy was that she was a lousy walker with big floppy feet, a pretty good climber with long, strong arms, and probably part of a polygamous group in which small females spent more time in the trees than large males.

Sussman said, "Back when we started this work, and I don't think it's unhumane to say it, the majority of the people in the field would say we evolved in the savannah, in the open country of the veldt of South Africa or the savannah of East Africa. I think that's a load of crap. I think that what happened was that *afarensis* was living in forest and open country mosaics like you see today in places like the French Congo or along rivers where there's a lot of trees. I mean, that probably went on for a million years when you had an animal that was climbing and an apprentice biped." He added that in the old pictures re-creating this phase of evolution, the creatures were strolling across the grassland; newer ones showed them in much more mixed habitat, and the most recent *National Geographic* articles had paintings that placed these creatures in forests with some of them in the trees. That the creatures were forest dwellers and tree climbers had become, Stern said, so obvious that no one bothered to credit Stern and Sussman for pushing the idea early on.

The argument before had been circular: that hominids had learned to walk in order to venture onto the savannah, and that if they survived on the savannah, they must have been competent walkers. And the savannah seemed to be an image of freedom, of unlimited space in which the possibilities were likewise unlimited, a nobler space than the primeval forest that was less like the open forest of Rousseau's solitary wanderers and more like the jungles from which Jane Goodall and Dian Fossey sent back their primate reports. Stern said a little later on, "I worry most about the manner of their bipedal walking. I wrote a paper say-

*hand raised to reach the holding hand. Hold the old holding band. Hold and be held. Plod on and never recede.*

ing they could not have walked as we do. It's not fast, it's not energetically efficient. . . . Are we wrong? Was their method of bipedalism actually pretty good?" Sussman cut in, "Or did they combine very good tree-climbing with shitty bipedalism and gradually the proportions reversed. . ." Stern continued, "The argument that I sometimes soothe myself with is that chimpanzees are really pretty crappy quadrupeds themselves, as four-footed animals go. So if they can be pretty crappy quadrupeds for seven million years, then we could've been pretty crappy bipeds for a couple of million years."

At the 1991 Conference on the Origins of Bipedalism in Paris, three anthropologists had reviewed all the current theories on walking as a kind of academic stand-up comedy routine. They described the "schlepp hypothesis," which explained walking as an adaptation for carrying food, babies, and various other things; "the peek-a-boo hypothesis," which involved standing up to see over the grass of the savannah; "the trench coat hypothesis," which, like Cuthrie's theory that so amused Pat, connected bipedalism to penile display, only this time to impress females rather than intimidate other males; "the all wet hypothesis," which involved wading and swimming during a proposed aquatic phase of evolution; "the tagalong hypothesis," which involved following migratory herds across that ever-popular savannah; "the hot to trot hypothesis," which was one of the more seriously reasoned theories, claiming that bipedalism limited solar exposure in the tropical midday sun and thus freed the species up to move into hot, open habitat; and the "two feet are better than four" hypothesis, which proposes that bipedalism was more energy-efficient than quadrupedalism, at least for the primates who would become humans.

It was quite a collection of theories, though, since talking to Stern and Sussman I had grown accustomed to the fluctuating interpretations of what to a lay person exposed to only one source sounds like established fact. The bones unearthed in Africa in ever greater quantity remain enigmatic in crucial ways, and the business of their interpretation recalls the ancient Greeks reading the entrails of animals to divine the future, or the Chinese throwing I Ching sticks to understand the world. They are constantly being rearranged to correspond to a new evolutionary family tree, a new set of measurements. Two Zurich anthropologists, for example, recently declared that the famous Lucy skeleton is actually that of a male, while Falk argues that she is not a human ancestor. Paleontology sometimes seems like a courtroom full of lawyers, each waving around evidence

*Slowly with never a pause plod on and never recede. Backs turned. Both bowed. Joined by holding holding hands.*

that confirms their hypotheses and ignoring the evidence that contradicts it (though Stern and Sussman impressed me as being exceptionally committed to evidence rather than ideology). Only one thing seemed agreed upon in all these competing stories of the bones, the thing that Mary Leakey had said when she wrote about the footprints her team had found in Laetoli: "One cannot overemphasize the role of bipedalism in hominid development. It stands as perhaps the salient point that differentiates the forebears of man from other primates. This unique ability freed the hands for myriad possibilities—carrying, tool-making, intricate manipulation. From this single development, in fact, stems all modern technology. Somewhat oversimplified, the formula holds that this new freedom of forelimbs posed a challenge. The brain expanded to meet it. And mankind was formed."

Falk wrote the most devastating reply to Lovejoy's hypothesis in a 1997 essay titled "Brain Evolution in Human Females: An Answer to Mr. Lovejoy." She declared, "According to this view, early hominid females were left not only four-footed, pregnant, hungry and in fear of too much exercise in a central core area, they were also left 'waiting for their man.'" And she went on to say, after reviewing details such as the unlikelihood of monogamy between such differently scaled males and females, to comment, "The Lovejoy hypothesis may also be viewed at an entirely different level, i.e., as being preoccupied with questions/anxieties about male sexuality. At its most basic level, the hypothesis focuses on the evolution of how men got/get sex." She goes on to point out that the behavior of terrestrial female primates suggests that female ancestral hominids chose multiple partners for reproductive and recreational sex, and "much of the world appears to fear that this might still be the case as indicated by the universal close observation and control of sexual conduct in human communities, not to mention all those male insecurities simmering beneath the surface of Lovejoy's hypothesis."

Having dismissed the notion that a providing male brought home the bacon to a monogamous, immobilized mate, Falk took up the alternate and much simpler theory that walking upright minimized the amount of direct sun the earliest hominids received as they moved in the open spaces between patches of trees, thereby freeing them to move farther and farther out from the shade of the forest. Falk explains that Peter Wheeler, whose hypothesis it was, proposed that "these features led to 'whole-body cooling' that regulated temperature of blood

*Plod on as one. One shade. Another shade.—SAMUEL BECKETT*

*John and the Austrian walked one way along*

circulating to (among other regions) the brain, helped prevent heatstroke, and thereby released a physiological constraint on brain size in *Homo*." Thus the changes freed the species to grow larger and larger brains, as well as to wander farther and farther. She buttresses Wheeler's theory with information drawn from her own research into brain evolution and structure and concludes, as Mary Leakey did, though for a different reason, that becoming upright walkers didn't create but did make possible the rise of intelligence.

Intelligence may be located in the brain, but it affects other parts of the anatomy. Consider the pelvis as a secret theater where thinking and walking meet and, according to some anatomists, conflict. One of the most elegant and complicated parts of the skeleton, it is also one of the hardest to perceive, shrouded as it is in flesh, orifices, and preoccupations. The pelvis of all other primates is a long vertical structure that rises nearly to the rib cage and is flattish from back to front. The hip joints are close together, the birth canal opens backward, and the whole bony slab faces down when the ape is in its usual posture, as do the pelvises of most quadrupeds. The human pelvis has tilted up to cradle the viscera and support the weight of the upright body, becoming a shallow vase from which the stem of the waist rises. It is comparatively short and broad, with wide-set hip joints. This width and the abductor muscles that extend from the iliac crests—the bone on each side that sweeps around toward the front of the body just below the navel—steady the body as it walks. The birth canal points downward, and the whole pelvis is, from the obstetrical point of view, a kind of funnel through which babies fall—though this fall is one of the most difficult of human falls. If there is a part of anatomical evolution that recalls Genesis, it is the pelvis and the curse, "In sorrow thou shalt bring forth children."

Giving birth for apes, as for most mammals, is a relatively simple process, but for humans it is difficult and occasionally fatal for mother and child. As hominids evolved, their birth canals became smaller, but as humans have evolved, their brains have grown larger and larger. At birth the human infant's head, already containing a brain as big as that of an adult chimpanzee, strains the capacity of this bony theater. To exit, it must corkscrew down the birth canal, now facing forward, now sideways, now backward. The pregnant woman's body has already increased pelvic capacity by manufacturing hormones that soften the ligaments binding the pelvis together, and toward the end of pregnancy the cartilage of the pubic bone separates. Often these transformations make walking more difficult

*the shore discussing the formation of sand banks and the theories of the tides, and Charlotte & I went in the opposite*

during and after giving birth. It has been argued that the limitation on our intelligence is the capacity of the pelvis to accommodate the infant's head, or contrarily that the limitation on our mobility is the need for the pelvis to accommodate birth. Some go further to say that the adaptation of the female pelvis to large-headed babies makes women worse walkers than men, or makes all of us worse walkers than our small-brained ancestors. The belief that women walk worse is widespread throughout the literature of human evolution. It seems to be another hangover from Genesis, the idea that women brought a fatal curse to the species, or that they were mere helpmeets along the evolutionary route, or that if walking is related to both thinking and freedom, they have or deserve less of each. If learning to walk freed the species—to travel to new places, to take up new practices, to think—then the freedom of women has often been associated with sexuality, a sexuality that needs to be controlled and contained. But this is morality, not physiology.

I got so annoyed by the ambiguous record on gender and walking that early one fine morning in Joshua Tree, while the cottontails were hopping in the yard, I called up Owen Lovejoy. He pointed to some differences between male and female anatomy that, he said, *ought* to make women's pelvises less well adapted to walking. "Mechanically," he said, "women are less advantaged." Well, I pressed, do these differences actually make a practical difference? No, he conceded, "it has no effect on their walking ability at all," and I walked back out into the sunshine to admire a huge desert tortoise munching on the prickly pear in the driveway. Stern and Sussman had laughed when I asked them whether women were indeed worse walkers and said that as far as they knew, no one had ever done the scientific experiments that would back up this assertion. Great runners tend to converge in certain body types, whichever gender they are, they ruminated, but walking is not running, and the question of what constitutes greatness there is more ambiguous. What, they asked, does better mean? Faster? More efficient? Humans are slow animals, they said, and what we excel at is distance, sustaining a pace for hours or days.

Those in other disciplines who speculate about walking speculate about what meanings it can be invested with—how it can be made an instrument of contemplation, of prayer, of competition. What makes these scientists, for all their squabbles, significant is their attempt to discuss what meanings are intrinsic to walking—not what we make it but how it made us. Walking is an odd fulcrum in

*direction for above two hours and lastly lay down among the long grass and gathered shells until our*

human evolutionary theory. It is the anatomical transformation that propelled us out of the animal kingdom to eventually occupy our own solitary position of dominion over the earth. Now it remains as a limitation, no longer leading us into a fantastic future but linking us to an ancient past as the same gait of a hundred thousand or a million, or if you go with Lovejoy, three million years ago. It may have made possible the work of the hands and the expansion of the mind, but it remains as something not particularly powerful or fast. If it once separated us from the rest of the animals, it now—like sex and birth, like breathing and eating—connects us to the limits of the biological.

The morning before I left I went walking in the national park, starting out from the rocks where Pat was teaching climbing, pacing myself to stay cool and hydrated. His father had told him, and he had told me, that the landscape never looks the same coming and going, so turn around periodically and look at the view you'll see coming back. It's good advice for this confusing landscape. I started amid a big cluster of rocks, an archipelago or a neighborhood of rock piles each the size of a huge building, like buildings they cut off views, so you have to know the lay of the land and local landmarks rather than counting on distant sighs to steer by as in other deserts. With the morning sun at my left, I went south along a path that crossed a road to become a fainter road itself, with tufts of grass in the center; it curved along to the southwest and ended in another, much-used road. Small lizards darted into the bushes as I went by, and a faint flush of tender green grass was everywhere in the shade, spears an inch or two high from the downpour a few weeks ago. Drifting across the vast space, silent except for wind and footsteps, I felt uncluttered and unhurried for the first time in a while, already on desert time. My road reached the dead end of a private property boundary, so I circled around, guessing I could find another path back to the rock cluster, flirting with being lost. Mountain ranges appeared and disappeared on the horizon as I rotated around the plain and returned to the rocks. Eventually I met the point where my trail crossed the disused road, found my own footprints going the other way, printed crisply atop the softer footprints of people who'd passed this way on previous days, and followed that trace of my own passing an hour or so ago back to where I started.

*Handkerchiefs were quite full. —EFFIE GRAY RUSKIN You've got to walk / that lonesome valley / Walk it*

## Chapter 4

### THE UPHILL ROAD TO GRACE:

#### Some Pilgrimages

Walking came from Africa, from evolution, and from necessity, and it went everywhere, usually looking for something. The pilgrimage is one of the basic modes of walking, walking in search of something intangible, and we were on pilgrimage. The red earth between the piñon and juniper trees was covered with a shining mix of quartz pebbles, chips of mica, and the cast-off skins of cicadas who had gone underground again for another seventeen years. It was a strange pavement to be walking on, both lavish and impoverished, like much of New Mexico. We were walking to Chimayó, and it was Good Friday. I was the youngest of the six people setting out cross country for Chimayó that day, and the only nonlocal. The group had coalesced a few days before, when various characters, myself included, asked Greg if he would mind company. Two of the others were members of Greg's cancer survivors' group, a surveyor and a nurse, and my friend Meridel had brought her neighbor David, a carpenter.

Although we were on our own route—or rather Greg's route—we had joined the great annual pilgrimage to the Santuario de Chimayó and thus were walking as pilgrims. Pilgrimage is one of the fundamental structures a journey can take—the quest in search of something, if only one's own transformation, the journey toward a goal—and for pilgrims, walking is work. Secular walking is often imagined as play, however competitive and rigorous that play, and uses gear and techniques to make the body more comfortable and more efficient. Pilgrims, on the

*yourself / You've gotta gotta go / By yourself / Ain't nobody else / gonna go there for you / Yea, you've gotta go*



one. The Turners write of Christian pilgrimage, "All sites of pilgrimage have this in common: they are believed to be places where miracles once happened, still happen, and may happen again."

Pilgrimage is premised on the idea that the sacred is not entirely immaterial, but that there is a geography of spiritual power. Pilgrimage walks a delicate line between the spiritual and the material in its emphasis on the story and its setting: though the search is for spirituality, it is pursued in terms of the most material details—of where the Buddha was born or where Christ died, where the relics are or the holy water flows. Or perhaps it reconciles the spiritual and the material, for to go on pilgrimage is to make the body and its actions express the desires and beliefs of the soul. Pilgrimage unites belief with action, thinking with doing, and it makes sense that this harmony is achieved when the sacred has material presence and location. Protestants, as well as the occasional Buddhist and Jew, have objected to pilgrimages as a kind of icon worship and asserted that the spiritual should be sought within as something wholly immaterial, rather than out in the world.

There is a symbiosis between journey and arrival in Christian pilgrimage, as there is in mountaineering. To travel without arriving would be as incomplete as to arrive without having traveled. To walk there is to earn it, through laboriousness and through the transformation that comes during a journey. Pilgrimages make it possible to move physically, through the exertions of one's body, step by step, toward those intangible spiritual goals that are otherwise so hard to grasp. We are eternally perplexed by how to move toward forgiveness or healing or truth, but we know how to walk from here to there, however arduous the journey. Too, we tend to imagine life as a journey, and going on an actual expedition takes hold of that image and makes it concrete, acts it out with the body and the imagination in a world whose geography has become spiritualized. The walker toiling along a road toward some distant place is one of the most compelling and universal images of what it means to be human, depicting the individual as small and solitary in a large world, reliant on the strength of body and will. In pilgrimage, the journey is radiant with hope that arrival at the tangible destination will bring spiritual benefits with it. The pilgrim has achieved a story of his or her own and in this way too becomes part of the religion made up of stories of travel and transformation.

same word which is used to refer to Buddhist practice, the practitioner (gyōja) is then also the walker, one who does

Tolstoy captures this in a longing that comes to Princess Marya in *War and Peace* as she feeds the myriad Russian pilgrims that pass by her home: "Often as she listened to the pilgrims' tales she was so fired by their simple speech, natural to them but to her full of deep meaning, that several times she was on the point of abandoning everything and running away from home. In imagination she already pictured herself dressed in coarse rags and with her wallet and staff, walking along a dusty road." She has imagined her life of genteel seclusion become clear, sparse, and intense with a purpose she can move toward. Walking expresses both the simplicity and the purposefulness of the pilgrim. As Nancy Frey writes of the long-distance pilgrimage to Santiago de Compostela in Spain, "When pilgrims begin to walk several things usually begin to happen to their perceptions of the world which continue over the course of the journey: they develop a changing sense of time, a heightening of the senses, and a new awareness of their bodies and the landscape. . . . A young German man expressed it this way: 'In the experience of walking, each step is a thought. You can't escape yourself.'"

In going on pilgrimage, one has left behind the complications of one's place in the world—family, attachments, rank, duties—and become a walker among walkers, for there is no aristocracy among pilgrims save that of achievement and dedication. The Turners talk about pilgrimage as a liminal state—a state of being between one's past and future identities and thus outside the established order, in a state of possibility. Liminality comes from the Latin *limin*, a threshold, and a pilgrim has both symbolically and physically stepped over such a line: "Liminals are stripped of status and authority, removed from a social structure maintained and sanctioned by power and force, and leveled to a homogeneous social state through discipline and ordeal. Their secular powerlessness may be compensated for by a sacred power, however—the power of the weak, derived on the one hand from the resurgence of nature when structural power is removed, and on the other from the reception of sacred knowledge. Much of what has been bound by social structure is liberated, notably the sense of comradeship and communion, or *communitas*."

We started easily enough, on a flat wooden bridge across a stream that watered the banks around it into rare lushness, then up through Greg and MaLin's dogleg cornfield bordered by oaks. From there we went over an irrigation ditch and

not reside anywhere, who abides in emptiness. All of this is of course related to the notion of Buddhism as a path.

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# Chapter 1

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## TRACING A HEADLAND:

### An Introduction

Where does it start? Muscles tense. One leg a pillar, holding the body upright between the earth and sky. The other a pendulum, swinging from behind. Heel touches down. The whole weight of the body rolls forward onto the ball of the foot. The big toe pushes off, and the delicately balanced weight of the body shifts again. The legs reverse position. It starts with a step and then another step and then another that add up like taps on a drum to a rhythm, the rhythm of walking. The most obvious and the most obscure thing in the world, this walking that wanders so readily into religion, philosophy, landscape, urban policy, anatomy, allegory, and heartbreak.

The history of walking is an unwritten, secret history whose fragments can be found in a thousand unemphatic passages in books, as well as in songs, streets, and almost everyone's adventures. The bodily history of walking is that of bipedal evolution and human anatomy. Most of the time walking is merely practical, the unconsidered locomotive means between two sites. To make walking into an investigation, a ritual, a meditation, is a special subset of walking, physiologically like and philosophically unlike the way the mail carrier brings the mail and the office worker reaches the train. Which is to say that the subject of walking is, in some sense, about how we invest universal acts with particular meanings. Like eating or breathing, it can be invested with wildly different cultural meanings, from the erotic to the spiritual, from the revolutionary to the artistic. Here this

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*Isn't it really quite extraordinary to see that, since man took his first step, no one has asked himself why he walks.*

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history begins to become part of the history of the imagination and the culture, of what kind of pleasure, freedom, and meaning are pursued at different times by different kinds of walks and walkers. That imagination has both shaped and been shaped by the spaces it passes through on two feet. Walking has created paths, roads, trade routes; generated local and cross-continental senses of place; shaped cities, parks; generated maps, guidebooks, gear, and, further afield, a vast library of walking stories and poems, of pilgrimages, mountaineering expeditions, meanders, and summer picnics. The landscapes, urban and rural, gestate the stories, and the stories bring us back to the sites of this history.

This history of walking is an amateur history, just as walking is an amateur act. To use a walking metaphor, it trespasses through everybody else's field—through anatomy, anthropology, architecture, gardening, geography, political and cultural history, literature, sexuality, religious studies—and doesn't stop in any of them on its long route. For if a field of expertise can be imagined as a real field—a nice rectangular confine carefully tilled and yielding a specific crop—then the subject of walking resembles walking itself in its lack of confines. And though *the* history of walking is, as part of all these fields and everyone's experience, virtually infinite, *this* history of walking I am writing can only be partial, an idiosyncratic path traced through them by one walker, with much doubling back and looking around. In what follows, I have tried to trace the paths that brought most of us in my country, the United States, into the present moment, a history compounded largely of European sources, inflected and subverted by the vastly different scale of American space, the centuries of adaptation and mutation here, and by the other traditions that have recently met up with those paths, notably Asian traditions. The history of walking is everyone's history, and any written version can only hope to indicate some of the more well-trodden paths in the author's vicinity—which is to say, the paths I trace are not the only paths.

I sat down one spring day to write about walking and stood up again, because a desk is no place to think on the large scale. In a headland just north of the Golden Gate Bridge studded with abandoned military fortifications, I went out walking up a valley and along a ridgeline, then down to the Pacific. Spring had come after an unusually wet winter, and the hills had turned that riotous, exuberant green I forget and rediscover every year. Through the new growth poked grass from the

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*how he walks, if he has ever walked, if he could walk better, what he achieves in walking . . . questions that are tied*

year before, bleached from summer gold to an ashen gray by the rain, part of the subtler palette of the rest of the year. Henry David Thoreau, who walked more vigorously than me on the other side of the continent, wrote of the local, "An absolutely new prospect is a great happiness, and I can still get this any afternoon. Two or three hours' walking will carry me to as strange a country as I expect ever to see. A single farmhouse which I had not seen before is sometimes as good as the dominions of the King of Dahomey. There is in fact a sort of harmony discoverable between the capabilities of the landscape within a circle of ten miles' radius, or the limits of an afternoon walk, and the threescore years and ten of human life. It will never become quite familiar to you."

These linked paths and roads form a circuit of about six miles that I began hiking ten years ago to walk off my angst during a difficult year. I kept coming back to this route for respite from my work and for my work too, because thinking is generally thought of as doing nothing in a production-oriented culture, and doing nothing is hard to do. It's best done by disguising it as doing something, and the something closest to doing nothing is walking. Walking itself is the intentional act closest to the unwilling rhythms of the body, to breathing and the beating of the heart. It strikes a delicate balance between working and idling, being and doing. It is a bodily labor that produces nothing but thoughts, experiences, arrivals. After all those years of walking to work out other things, it made sense to come back to work close to home, in Thoreau's sense, and to think about walking.

Walking, ideally, is a state in which the mind, the body, and the world are aligned, as though they were three characters finally in conversation together, three notes suddenly making a chord. Walking allows us to be in our bodies and in the world without being made busy by them. It leaves us free to think without being wholly lost in our thoughts. I wasn't sure whether I was too soon or too late for the purple lupine that can be so spectacular in these headlands, but milkmaids were growing on the shady side of the road on the way to the trail, and they're called the hillsides of my childhood that first bloomed every year with an extravagance of these white flowers. Black butterflies fluttered around me, tossed along by wind and wings, and they called up another era of my past. Moving on foot seems to make it easier to move in time; the mind wanders from plans to recollections to observations.

The rhythm of walking generates a kind of rhythm of thinking, and the pas-

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*to all the philosophical, psychological, and political systems which preoccupy the world.—HONORÉ DE BALZAC,*

land. "In it," explains Felix Grayeff's history of this school, "stood shrines to Apollo and the Muses, and perhaps other smaller buildings. . . . A covered colonnade led to the temple of Apollo, or perhaps connected the temple with the shrine of the Muses; whether it had existed before or was only built now, is not known. This colonnade or walk (peripatos) gave the school its name; it seems that it was here, at least at the beginning, that the pupils assembled and the teachers gave their lectures. Here they wandered to and fro; for this reason it was later said that Aristotle himself lectured and taught while walking up and down." The philosophers who came from it were called the Peripatetic philosophers or the Peripatetic school, and in English the word *peripatetic* means "one who walks habitually and extensively." Thus their name links thinking with walking. There is something more to this than the coincidence that established a school of philosophy in a temple of Apollo with a long colonnade—slightly more.

The Sophists, the philosophers who dominated Athenian life before Socrates, Plato, and Aristotle, were famously wanderers who often taught in the grove where Aristotle's school would be located. Plato's assault on the Sophists was so furious that the words *sophist* and *sophistry* are still synonymous with deception and guile, though the root *sophia* has to do with wisdom. The Sophists, however, functioned something like the chautauquas and public lecturers in nineteenth-century America, who went from place to place delivering talks to audiences hungry for information and ideas. Though they taught rhetoric as a tool of political power, and the ability to persuade and argue was crucial to Greek democracy, the Sophists taught other things besides. Plato, whose half-fabricated character Socrates is one of the wildest and most persuasive debaters of all times, is somewhat disingenuous when he attacks the Sophists.

Whether or not the Sophists were virtuous, they were often mobile, as are many of those whose first loyalty is to ideas. It may be that loyalty to something as immaterial as ideas sets thinkers apart from those whose loyalty is tied to people and locale, for the loyalty that ties down the latter will often drive the former from place to place. It is an attachment that requires detachment. Too, ideas are not as reliable or popular a crop as, say, corn, and those who cultivate them often must keep moving in pursuit of support as well as truth. Many professions in many cultures, from musicians to medics, have been nomadic, possessed of a kind of diplomatic immunity to the strife between communities that keeps others local. Aristotle himself had at first intended to become a doctor, as his father

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*was an undergraduate, he recalls in his autobiography, Pilgrim's Way (1940), that "the works of Aristotle are*

## Chapter 2

### THE MIND AT THREE MILES AN HOUR

#### I. PEDESTRIAN ARCHITECTURE

Jean-Jacques Rousseau remarked in his *Confessions*, "I can only meditate when I am walking. When I stop, I cease to think; my mind only works with my legs." The history of walking goes back further than the history of human beings, but the history of walking as a conscious cultural act rather than a means to an end is only a few centuries old in Europe, and Rousseau stands at its beginning. That history began with the walks of various characters in the eighteenth century, but the more literary among them strove to consecrate walking by tracing it to Greece, whose practices were so happily revered and misrepresented then. The eccentric English revolutionary and writer John Thelwall wrote a massive, turgid book, *The Peripatetic*, uniting Rousseauian romanticism with this spurious classical tradition. "In one respect, at least, I may boast of a resemblance to the simplicity of the ancient sages: I pursue my meditations on foot," he remarked. And after Thelwall's book appeared in 1793, many more would make the claim until it became an established idea that the ancients walked to think, so much so that the very picture seems part of cultural history: austere draped men speaking gravely as they pace through a dry Mediterranean landscape punctuated with the occasional marble column.

This belief arose from a coincidence of architecture and language. When Aristotle was ready to set up a school in Athens, the city assigned him a plot of

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cloud.—WALLACE STEVENS, "OF THE SURFACE OF THINGS" As a result of walking tours in Scotland while he

had been, and doctors in that time were members of a secretive guild of travelers who claimed descent from the god of healing. Had he become a philosopher in the era of the Sophists, he might have been mobile anyway, for settled philosophy schools were first established in Athens in his time.

It is now impossible to say whether or not Aristotle and his Peripatetics habitually walked while they talked philosophy, but the link between thinking and walking recurs in ancient Greece, and Greek architecture accommodated walking as a social and conversational activity. Just as the Peripatetics took their name from the *peripatos* of their school, so the Stoics were named after the stoa, or colonnade, in Athens, a most unstoically painted walkway where they walked and talked. Long afterward, the association between walking and philosophizing became so widespread that central Europe has places named after it: the celebrated Philosophenweg in Heidelberg where Hegel is said to have walked, the Philosophen-damm in Königsberg that Kant passed on his daily stroll (now replaced by a railway station), and the Philosopher's Way Kierkegaard mentions in Copenhagen.

And philosophers who walked—well, walking is a universal human activity. Jeremy Bentham, John Stuart Mill, and many others walked far, and Thomas Hobbes even had a walking stick with an inkhorn built into it so he could jot down ideas as he went. Frail Immanuel Kant took a daily walk around Königsberg after dinner—but it was merely for exercise, because he did his thinking sitting by the stove and staring at the church tower out the window. The young Friedrich Nietzsche declares with superb conventionality, "For recreation I turn to three things, and a wonderful recreation they provide!—my Schopenhauer, Schumann's music, and, finally, solitary walks." In the twentieth century, Bertrand Russell recounts of his friend Ludwig Wittgenstein, "He used to come to my rooms at midnight, and for hours he would walk backwards and forwards like a caged tiger. On arrival, he would announce that when he left my rooms he would commit suicide. So, in spite of getting sleepy, I did not like to turn him out. One such evening after an hour or two of dead silence, I said to him, 'Wittgenstein, are you thinking about logic or about your sins?' 'Both' he said, and then reverted to silence." Philosophers walked. But philosophers who thought about walking are rarer.

*forever bound up with me with the smell of peat and certain stretches of granite and heather.* —ON JOHN BUCHAN.

## II. CONSECRATING WALKING

It is Rousseau who laid the groundwork for the ideological edifice within which walking itself would be enshrined—not the walking that took Wittgenstein back and forth in Russell's room, but the walking that took Nietzsche out into the landscape. In 1749 the writer and encyclopedist Denis Diderot was thrown into jail for writing an essay questioning the goodness of God. Rousseau, a close friend of Diderot's at the time, took to visiting him in jail, walking the six miles from his home in Paris to the dungeon of the Château de Vincennes. Though that summer was extremely hot, says Rousseau in his not entirely reliable *Confessions* (1781–88), he walked because he was too poor to travel by other means. "In order to slacken my pace," writes Rousseau, "I thought of taking a book with me. One day I took the *Mercur de France* and, glancing through it as I walked, I came upon this question propounded by the Dijon Academy for the next year's prize: Has the progress of the sciences and arts done more to corrupt morals or improve them? The moment I read that I beheld another universe and became another man." In this other universe, this other man won the prize, and the published essay became famous for its furious condemnation of such progress.

Rousseau was less an original thinker than a daring one; he gave the boldest articulation to existing tensions and the most fervent praise to emerging sensibilities. The assertion that God, monarchical government, and nature were all harmoniously aligned was becoming untenable. Rousseau, with his lower-middle-class resentments, his Calvinist Swiss suspicion of kings and Catholicism, his desire to shock, and his unshakable self-confidence, was the person to make specific and political those distant rumblings of discord. "In the *Discourse on the Arts and Letters*, he declared that learning and even printing corrupt and weaken both the individual and the culture. "Behold how luxury, licentiousness, and slavery have in all periods been punishment for the arrogant attempts we have made to emerge from the happy ignorance in which eternal wisdom had placed us." The arts and sciences, he asserted, lead not to happiness nor to self-knowledge, but to distraction and corruption.

Now the assumption that the natural, the good, and the simple are all aligned seems commonplace at best; then, it was incendiary. In Christian theology, nature and humanity had both fallen from grace after Eden; it was Christian civi-

FIRST BARON TWEEDSMUIR, IN CHALLENGE: AN ANTHOLOGY OF THE LITERATURE OF MOUNTAINEERING . . . while he

ities of places, of sights, of actions, of sensations—of handcuffs, thorns, dust, heat, thirst, radiation risk, the testimony of radiation victims—but also of spectacular desert light, the freedom of open space, and the stirring sight of the thousands who shared our belief that nuclear bombs were the wrong instrument with which to write the history of the world. We bore a kind of bodily witness to our convictions, to the fierce beauty of the desert, and to the apocalypses being prepared nearby. The form our demonstrations took was walking: what was on the public-land side of the fence a ceremonious procession became, on the off-limits side, an act of trespass resulting in arrest. We were engaging, on an unprecedentedly grand scale, in civil disobedience or civil resistance, an American tradition first articulated by Thoreau.

Thoreau himself was both a poet of nature and a critic of society. His famous act of civil disobedience was passive—a refusal to pay taxes to support war and slavery and an acceptance of the night in jail that ensued—and it did not overlap directly with his involvement in exploring and interpreting the local landscape, though he did lead a huckleberryparty the day he got out of jail. In our actions at the test site the poetry of nature and criticism of society were united in this camping, walking, and trespassing, as though we had figured out how a berrying party could be a revolutionary cadre. It was a revelation to me, the way this act of walking through a desert and across a cattle guard into the forbidden zone could articulate political meaning. And in the course of traveling to this landscape, I began to discover other western landscapes beyond my coastal region and to explore those landscapes and the histories that had brought me to them—the history not only of the development of the West but of the Romantic taste for walking and landscape, the democratic tradition of resistance and revolution, the more ancient history of pilgrimage and walking to achieve spiritual goals. I found my voice as a writer in describing all the layers of history that shaped my experiences at the test site. And I began to think and to write about walking in the course of writing about places and their histories.

Of course walking, as any reader of Thoreau's essay "Walking" knows, inevitably leads into other subjects. Walking is a subject that is always straying. Into, for example, the shooting stars below the missile guidance station in the northern headlands of the Golden Gate. They are my favorite wildflower, these small magenta cones with their sharp black points that seem aerodynamically shaped for a flight that never comes, as though they had evolved forgetful of the

*stick, bearing witness to the strength or length of the rage.—LUCY LIPPARD, OVERLAY We learn a place and how*

fact that flowers have stems and stems have roots. The chaparral on both sides of the trail, watered by the condensation of the ocean fog through the dry months and shaded by the slope's northern exposure, was lush. While the missile guidance station on the crest always makes me think of the desert and of war, these banks below always remind me of English hedgerows, those field borders with their abundance of plants, birds, and that idyllic English kind of countryside. There were ferns here, wild strawberries, and, tucked under a coyote bush, a clump of white iris in bloom.

Although I came to think about walking, I couldn't stop thinking about everything else, about the letters I should have been writing, about the conversations I'd been having. At least when my mind strayed to the phone conversation with my friend Sono that morning, I was still on track. Sono's truck had been stolen from her West Oakland studio, and she told me that though everyone responded to it as a disaster, she wasn't all that sorry it was gone, or in a hurry to replace it. There was a joy, she said, to finding that her body was adequate to get her where she was going, and it was a gift to develop a more tangible, concrete relationship to her neighborhood and its residents. We talked about the more stately sense of time one has afoot and on public transit, where things must be planned and scheduled beforehand, rather than rushed through at the last minute, and about the sense of place that can only be gained on foot. Many people nowadays live in a series of interiors—home, car, gym, office, shops—disconnected from each other. On foot everything stays-connected, for while walking one occupies the spaces between those interiors in the same way one occupies those interiors. One lives in the whole world rather than in interiors built up against it.

The narrow trail I had been following came to an end as it rose to meet the old gray asphalt road that runs up to the missile guidance station. Stepping from path to road means stepping up to see the whole expanse of the ocean, spreading uninterrupted to Japan. The same shock of pleasure comes every time I cross this boundary to discover the ocean again, an ocean shining like beaten silver on the brightest days, green on the overcast ones, brown with the muddy runoff of the streams and rivers washing far out to sea during winter floods, an opalescent motting of blues on days of scattered clouds, only invisible on the foggiest days, when the salt smell alone announces the change. This day the sea was a solid blue running toward an indistinct horizon where white mist blurred the transition to cloudless sky. From here on, my route was downhill. I had told Sono about an ad

*to visualize spatial relationships, as children, on foot and with imagination. Place and the scale of place must be*

I found in the *Los Angeles Times* a few months ago that I'd been thinking about ever since. It was for a CD-ROM encyclopedia, and the text that occupied a whole page read, "You used to walk across town in the pouring rain to use our encyclopedias. We're pretty confident that we can get your kid to click and drag." I think it was the kid's walk in the rain that constituted the real education, at least of the senses and the imagination. Perhaps the child with the CD-ROM encyclopedia will stray from the task at hand, but wandering in a book or a computer takes place within more constricted and less sensual parameters. It's the unpredictable incidents between official events that add up to a life, the incalculable that gives it value. Both rural and urban walking have for two centuries been prime ways of exploring the unpredictable and the incalculable, but they are now under assault on many fronts.

The multiplication of technologies in the name of efficiency is actually eradicating free time by making it possible to maximize the time and place for production and minimize the unstructured travel time in between. New timesaving technologies make most workers more productive, not more free, in a world that seems to be accelerating around them. Too, the rhetoric of efficiency around these technologies suggests that what cannot be quantified cannot be valued—that that vast array of pleasures which fall into the category of doing nothing in particular, of woolgathering, cloud-gazing, wandering, window-shopping, are nothing but voids to be filled by something more definite, more productive, or faster paced. Even on this headland route going nowhere useful, this route that could only be walked for pleasure, people had trodden shortcuts between the switchbacks as though efficiency was a habit they couldn't shake. The indeterminacy of a ramble, on which much may be discovered, is being replaced by the terminate shortest distance to be traversed with all possible speed, as well as by the electronic transmissions that make real travel less necessary. As a member of the self-employed whose time saved by technology can be lavished on daydreams and meanders, I know these things have their uses, and use them—a truck, a computer, a modem—myself, but I fear their false urgency, their call to speed, their insistence that travel is less important than arrival. I like walking because it is slow, and I suspect that the mind, like the feet, works at about three miles an hour. If this is so, then modern life is moving faster than the speed of thought, or thoughtfulness.

Walking is about being outside, in public space, and public space is also being

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*measured against our bodies and their capabilities.*—GARY SNYDER, "BLUE MOUNTAINS CONSTANTLY

abandoned and eroded in older cities, eclipsed by technologies and services that don't require leaving home, and shadowed by fear in many places (and strange places are always more frightening than known ones, so the less one wanders the city the more alarming it seems, while the fewer the wanderers the more lonely and dangerous it really becomes). Meanwhile, in many new places, public space isn't even in the design: what was once public space is designed to accommodate the privacy of automobiles; malls replace main streets; streets have no sidewalks; buildings are entered through their garages; city halls have no plazas; and everything has walls, bars, gates. Fear has created a whole style of architecture and urban design, notably in southern California, where to be a pedestrian is to be under suspicion in many of the subdivisions and gated "communities." At the same time, rural land and the once-inviting peripheries of towns are being swallowed up in car-commuter subdivisions and otherwise sequestered. In some places it is no longer possible to be out in public, a crisis both for the private epiphanies of the solitary stroller and for public space's democratic functions. It was this fragmentation of lives and landscapes that we were resisting long ago, in the expansive spaces of the desert that temporarily became as public as a plaza.

And when public space disappears, so does the body as, in Sono's fine term, adequate for getting around. Sono and I spoke of the discovery that our neighborhoods—which are some of the most feared places in the Bay Area—are't all that hostile (though they aren't safe enough to let us forget about safety altogether). I have been threatened and mugged on the street, long ago, but I have a thousand times more often encountered friends passing by, a sought-for book in a store window, compliments and greetings from my loquacious neighbors, architectural delights, posters for music and ironic political commentary on walls and telephone poles, fortune-tellers, the moon coming up between buildings, glimpses of other lives and other homes, and street trees noisy with songbirds. The random, the unscreened, allows you to find what you don't know you are looking for, and you don't know a place until it surprises you. Walking is one way of maintaining a bulwark against this erosion of the mind, the body, the landscape, and the city, and every walker is a guard on patrol to protect the ineffable.

Perhaps a third of the way down the road that wandered to the beach, an orange net was spread. It looked like a tennis net, but when I reached it I saw that it fenced off a huge new gap in the road. This road has been crumbling since I began to walk on it a decade ago. It used to roll uninterruptedly from sea to

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WALKING" *Then one day walking round Tavistock Square I made up, as I sometimes make up my books, To*

ridgetop. Along the coastal reach of the road a little bite appeared in 1989 that one could edge around, then a little trail detoured around the growing gap. With every winter's rain, more and more red earth and road surface crumbled away, sliding into a heap at the ruinous bottom of the steep slope the road had once cut across. It was an astonishing sight at first, this road that dropped off into thin air, for one expects roads and paths to be continuous. Every year more of it has fallen. And I have walked this route so often that every part of it springs associations on me. I remember all the phases of the collapse and how different a person I was when the road was complete. I remember explaining to a friend on this route almost three years earlier why I liked walking the same way over and over. I joked, in a bad adaptation of Heraclitus's famous dictum about rivers, that you never step on the same trail twice, and soon afterward we came across the new staircase that cut down the steep hillside, built far enough inland that the erosion wouldn't reach it for many years to come. If there is a history of walking, then it too has come to a place where the road falls off, a place where there is no public space and the landscape is being paved over, where leisure is shrinking and being crushed under the anxiety to produce, where bodies are not in the world but only indoors in cars and buildings, and an apotheosis of speed makes those bodies seem anachronistic or feeble. In this context, walking is a subversive detour, the scenic route through a half-abandoned landscape of ideas and experiences.

I had to circumnavigate this new chunk bitten out of the actual landscape by going to a new detour on the right. There's always a moment on this circuit when the heat of climbing and the windblock the hills provide give way to the descent into ocean air, and this time it came at the staircase past the scree of a fresh cut into the green serpentine stone of the hill. From there it wasn't far to the switchback leading to the other half of the road, which winds closer and closer to the cliffs above the ocean, where waves shatter into white foam over the dark rocks with an audible roar. Soon I was at the beach, where surfers sleek as seals in their black wet suits were catching the point break at the northern edge of the cove, dogs chased sticks, people lolled on blankets, and the waves crashed, then sprawled into a shallow rush uphill to lap at the feet of those of us walking on the hard sand of high tide. Only a final stretch remained, up over a sandy crest and along the length of the murky lagoon full of water birds.

It was the snake that came as a surprise, a garter snake, so called because of the yellowish stripes running the length of its dark body, a snake tiny and en-

the Lighthouse, in a great, apparently involuntary rush.—VIRGINIA WOOLF, MOMENTS OF BEING In my

chanting as it writhed like waving water across the path and into the grasses on one side. It didn't alarm me so much as alert me. Suddenly I came out of my thoughts to notice everything around me again—the catkins on the willows, the lapping of the water, the leafy patterns of the shadows across the path. And then myself, walking with the alignment that only comes after miles, the loose diagonal rhythm of arms swinging in synchronization with legs in a body that felt long and stretched out, almost as sinuous as the snake. My circuit was almost finished, and at the end of it I knew what my subject was and how to address it in a way I had not six miles before. It had come to me not in a sudden epiphany but with a gradual sureness, a sense of meaning like a sense of place. When you give yourself to places, they give you yourself back, the more one comes to know them, the more one seeds them with the invisible crop of memories and associations that will be waiting for you when you come back, while new places offer up new thoughts, new possibilities. Exploring the world is one of the best ways of exploring the mind, and walking travels both terrains.

room, the world is beyond my understanding, / But when I walk I see that it consists of three or four hills and a