

THOUGHTS IN A DRY LAND

You have to get over the color green, you have to quit associating beauty with gardens and lawns; you have to get used to an inhuman scale.

The western landscape is of the wildest variety and contains every sort of topography and landform, even most of those familiar from farther east. Bits of East and Middle West are buried here and there in the West, but no physical part of the true West is buried in the East. The West is short-grass plains, alpine mountains, geyser basins, plateaus and mesas and canyons and cliffs, salinas and sinks, sagebrush and Joshua tree and saguaro deserts. If only by reason of their size, the forms of things are different, but there is more than mere size to differentiate them. There is nothing in the East like the granite horns of Grand Teton or Teewinot, nothing like the volcanic neck of Devil's Tower, nothing like the travertine terraces of Mammoth Hot Springs, nothing like the flat crestline and repetitive profile of the Vermilion Cliffs. You know that these differences are themselves regional—that the West, which stretches from around the ninety-eighth meridian to the Pacific, and from the forty-ninth parallel to the Mexican border, is actually half a dozen subregions as different from one another as the Olympic

rain forest is from Utah's slickrock country, or Seattle from Santa Fe.

You know also that the western landscape is more than topography and landforms, dirt and rock. It is, most fundamentally, climate—climate which expresses itself not only as landforms but as atmosphere, flora, fauna. And here, despite all the local variety, there is a large, abiding simplicity. Not all the West is arid, yet except at its Pacific edge, aridity surrounds and encompasses it. Landscape includes such facts as this. It includes and is shaped by the way continental masses bend ocean currents, by the way the prevailing winds blow from the West, by the way mountains are pushed up across them to create well-watered coastal or alpine islands, by the way the mountains catch and store the snowpack that makes settled life possible in the dry lowlands, by the way they literally create the dry lowlands by throwing a long rain shadow eastward. Much of the West except the narrow Pacific littoral lies in one or another of those rain shadows, such as the Great Basin and lower Colorado River country, or in the semi-arid steppes of the Montana, Dakota, Nebraska, Wyoming, Colorado, and New Mexico plains.

Aridity, more than anything else, gives the western landscape its character. It is aridity that gives the air its special dry clarity; aridity that puts brilliance in the light and polishes and enlarges the stars; aridity that leads the grasses to evolve as bunches rather than as turf; aridity that exposes the pigmentation of the raw earth and limits, almost eliminates, the color of chlorophyll; aridity that erodes the earth in cliffs and badlands rather than in softened and vegetated slopes, that has shaped the characteristically swift and mobile animals of the dry grasslands and the characteristically nocturnal life of the deserts. The West, Walter Webb said, is "a semi-desert with a desert heart." If I prefer to think of it as two long chains of mountain ranges with deserts or semi-deserts in their rain shadow, that is

not to deny his assertion that the primary unity of the West is a shortage of water.

The consequences of aridity multiply by a kind of domino effect. In the attempt to compensate for nature's lacks we have remade whole sections of the western landscape. The modern West is as surely Lake Mead and Lake Powell and the Fort Peck reservoir, the irrigated greenery of the Salt River Valley and the smog blanket over Phoenix, as it is the high Wind River Range or the Wasatch or the Grand Canyon. We have acted upon the western landscape with the force of a geological agent. But aridity still calls the tune, directs our tinkering, prevents the healing of our mistakes; and vast unwatered reaches still emphasize the contrast between the desert and the sown.

Aridity has made a lot of difference in us, too, since Americans first ventured up the Missouri into the unknown in the spring of 1804. Our intentions varied all the way from romantic adventurousness to schemes of settlement and empire; all the way from delight in dehumanized nature to a fear of the land empty of human settlements, monuments, and even, seemingly, history. Let me call your attention to one book that contains most of the possible responses. It is called *The Great Lone Land*, and it is about the Canadian, not the American, West; it was written by an Irish officer in the British army, William F. Butler. But the report out of which the book grew was responsible for the creation of the Royal Northwest Mounted Police, and so had a big hand in the development of western Canada. Butler was also an intelligent observer, a romantic, and a man who loved both wild country and words. He is writing in 1872:

The old, old maps which the navigators of the sixteenth century framed from the discoveries of Cabot and Cartier, of Verrazano and Hudson, played strange pranks with the geography of the New World. The coastline, with the estuaries of large rivers, was tolerably accurate; but the

center of America was represented as a vast inland sea whose shores stretched far into the Polar North; a sea through which lay the much-coveted passage to the long-sought treasures of the old realms of Cathay. Well, the geographers of that period erred only in the description of ocean which they placed in the central continent, for an ocean there is, and an ocean through which men seek the treasures of Cathay, even in our own times. But the ocean is one of grass, and the shores are the crests of the mountain ranges, and the dark pine forests of sub-Arctic regions. The great ocean itself does not present more infinite variety than does this prairie-ocean of which we speak. In winter, a dazzling surface of purest snow; in early summer, a vast expanse of grass and pale pink roses; in autumn too often a wild sea of raging fire. No ocean or water in the world can vie with its gorgeous sunsets; no solitude can equal the loneliness of a night-shadowed prairie; one feels the stillness, and hears the silence, the wail of the prowling wolf makes the voice of solitude audible, the stars look down through infinite silence upon a silence almost as intense. One saw here the world as it had taken shape and form from the hands of the Creator.

History builds slowly, starting from scratch, and understanding of a new country depends upon every sort of report, including some that are unreliable, biased, or motivated by personal interest—such a report, say, as Lansford Hastings's *The Emigrant's Guide to Oregon and California*. Across a century and three quarters since Lewis and Clark pushed off into the Missouri, we have had multitudinous reports on the West—Pike and Long; Catlin and Maximilian of Wied Neuwied; Ashley and Jedediah Smith and Frémont; Bonneville and the Astorians and Nathaniel Wyeth; Spalding and Whitman; the random Oregon and California gold rush diarists; the historians of the compact Mormon migration; the Pacific Railroad Surveys of the 1850s, which for many areas were the basis of precise knowledge; the Powell,

Hayden, King, and Wheeler surveys and the U.S. Geological Survey that united and continued them. And the dime novels and the Currier and Ives prints; the reports of missionaries and soldiers; the reporters and illustrators for *Leslie's* and *Harper's Weekly*; the painters, from Catlin and Miller and Bodmer to Bierstadt and Moran; the photographers, from Jackson and Hillers and Haynes and Savage onward; the Fenimore Coopers, Mark Twains, Bret Harte, Dan de Quilles, Horace Greeleys; the Owen Wisters and Frederick Remingtons; the Andy Adamases and Zane Greys and Eugene Manlove Rhodeses.

True or false, observant or blind, impartial or interested, factual or fanciful, it has all gone into the hopper and influenced our understanding and response at least as much as first-hand acquaintance has. But it took a long time. Even learning the basic facts—extents, boundaries, animals, ranges, tribes of men—took a long time. The physical exploration that began with Lewis and Clark was not completed until Almon Thompson led a Powell Survey party into Potato Valley in 1872, and discovered the Escalante River and verified the Henry Mountains, which Powell had seen from a distance on his voyages down the Colorado. The surveying and mapping of great areas of the West was not completed for decades after real exploration had ended; and the trial and error (emphasis on the error) by which we began to be an oasis civilization was forced upon us by country and climate, but against the most mule-headed resistance and unwillingness to understand, accept, and change.

In the actual desert, and especially among the Mormons, where intelligent leadership, community settlement, and the habit of cooperation and obedience were present, agricultural adaptation was swift. But in the marginal zone between humid Midwest and arid West it was easy to be deluded, for the difference of just one inch in rainfall or a slight variation in the seasonal distribution would make the difference between success and failure. And delusion was promoted. The individualism of the frontier, the folklore and habit learned in other regions,

the usual politics and boosterism, and land speculation encouraged settlement on terms sure sooner or later to defeat it. Cooperation was one lesson the West enforced, and it was learned hard. Bernard DeVoto once caustically remarked, in connection with the myth of western individualism, that the only real individualists in the West had wound up on one end of a rope whose other end was in the hands of a bunch of cooperators. But a lot of other individualists wound up in the hands of the bank, or trailed back eastward from the dry plains in wagons with signs reading, "In God we trusted, in Kansas we busted," leaving a half-ruined land behind them.

John Wesley Powell submitted his *Report on the Lands of the Arid Region of the United States, with a More Detailed Account of the Lands of Utah*, on April 1, 1878. That early, partly from studying Mormon, Hispano, and Indian irrigation, he understood and accepted both the fact of aridity and the adaptations that men, institutions, and laws would have to go through if we were ever to settle the West instead of simply raiding and ruining it. He comprehended the symbiotic relationship between highlands and lowlands; he understood rivers as common carriers, like railroads, which should not be encumbered by political boundaries. He knew that the Homestead Act and the rectilinear cadastral surveys that worked in well-watered country would not work in the West, and he advocated a change in the laws that would limit irrigated farms to eighty acres—all a man needed and all he could work—and enlarge stock farms to four full sections, needed by a small farmer's herd in the way of range. He proposed surveys and political divisions not by arbitrary boundaries but by drainage divides, and he and his pupils and associates virtually created the "Wyoming doctrine," which ties water rights to land.

A revolutionary. He might have spared the West the dust bowls of the 1890s, 1930s, and 1950s, as well as the worst consequences of river floods. He might have saved the lives and hopes of all the innocents who put their straddlebugs on dryland

homesteads in the Dakotas, Kansas, Nebraska, and Montana. But the boosters and the politicians always proclaimed that rain followed the plow; free land and movement westward were ingrained expectations. Habit, politics, and real estate boosterism won out over experience and good sense, and that is part of the history of the West, and of western landscape. Even yet the battle, though to some extent won, is not universally understood. There are historians who grow so incensed over the "myth" of the Great American Desert, which began with Pike and Long, that they resent any admission of aridity, as well as all "deficiency terminology" in connection with the shortgrass plains.

Ultimately, the settlers of the shortgrass plains learned that water was more important to them than land. They became, by degrees, that oasis civilization and settled down to a relatively thin population because that was what the land would bear.

Karl Frederick Kranzel, in *The Great Plains in Transition*, even suggests that men in the Dakotas and elsewhere had to develop the same mobility that marked the buffalo, antelope, wolves, coyotes, and horse Indians in that country. They go as far for a swim or for shopping as an antelope will go for a drink, and for very similar reasons. They often go hundreds of miles to farm. There is a kind of farmer called a suitcase farmer who spends the winter in some town or city, Grand Forks or Bismarck or Minneapolis, but who in early spring hitchhikes his trailer-home to his pickup and takes off for the West—Dakota, Montana, or Saskatchewan. There he plants his wheat and works his summer fallow, living through the summer in his trailer and driving forty or fifty miles for his supplies and entertainment. In the fall, he harvests and hauls his crop, does his fall plowing, hitchhikes up his trailer again, and returns to the fleshpots of Bismarck. I know one who goes every winter to San Miguel d'Allende. His alternative would be what the early homesteaders attempted—to make a home out in the desolate plains and live there isolated through the worst winters on the continent. Having lived that

life as a boy, I can tell you his mobility, which is as natural as the mobility of the buffalo, is a sensible adaptation.

That is only one sample of how, as we have gone about modifying the western landscape, it has been at work modifying us. And what applies to agricultural and social institutions applies just as surely to our pictorial and literary representations. Perceptions trained in another climate and another landscape have had to be modified. That means we have had to learn to quit depending on perceptual habit. Our first and hardest adaptation was to learn all over again how to see. Our second was to learn to like the new forms and colors and light and scale when we had learned to see them. Our third was to develop new techniques, a new palette, to communicate them. And our fourth, unfortunately out of our control, was to train an audience that would respond to what we wrote or painted.

Years ago I picked up an Iowa aunt of mine in Salt Lake City and drove her down to our cottage on Fish Lake. She was not looking as we drove—she was talking—and she missed the Wasatch, and Mount Nebo, and the Sanpete Valley, and even Sigurd Mountain—the Pahvant—which some people down there call the Big Rock Candy Mountain and which is about as colorful as a peppermint stick. The first thing she really saw, as we turned east at Sigurd, was the towering, level front of the Sevier Plateau above Richfield—level as a rooftop, steep as a cliff, and surging more than a mile straight up above that lush valley. I saw it hit her, and I heard it too, for the talk stopped. I said, "How do you like that, Aunt Min?" for like any Westerner I like to impress Iowans, and the easiest way to do it is with size. She blinked and ruffled up her feathers and assembled herself after the moment of confusion and said, "That's nice. It reminds me of the river bluffs in the county park at Fort Dodge."

She couldn't even see it. She had no experience, no scale, by which to judge an unbroken mountain wall more than a mile high, and her startled mental circuitry could respond with

nothing better than the fifty-foot clay banks that her mind had learned to call scenery. She was like the soldiers of Cardenas, the first white men who ever looked into the Grand Canyon. The river that the Indians had said was half a league wide they judged was about six feet, until they climbed a third of the way down and found that rocks the size of a man grew into things taller than the great tower of Seville, and the six-foot creek, even from four thousand feet above it, was clearly a mighty torrent.

Scale is the first and easiest of the West's lessons. Colors and forms are harder. Easterners are constantly being surprised and somehow offended that California's summer hills are gold, not green. We are creatures shaped by our experiences; we like what we know, more often than we know what we like. To eyes trained on universal chlorophyll, gold or brown hills may look repulsive. Sagebrush is an acquired taste, as are raw earth and alkali flats. The erosional forms of the dry country strike the attention without ringing the bells of appreciation. It is almost pathetic to read the journals of people who came west up the Platte Valley in the 1840s and 1850s and tried to find words for Chimney Rock and Scott's Bluff, and found and clung for dear life to the clichés of castles and silent sentinels.

Listen to Clarence Dutton on the canyon country, whose forms and colors are as far from Hudson River School standards as any in the West:

The lover of nature, whose perceptions have been trained in the Alps, in Italy, Germany, or New England, in the Appalachians or Cordilleras, in Scotland or Colorado, would enter this strange region with a shock, and dwell there for a time with a sense of oppression, and perhaps with horror. Whatsoever things he had learned to regard as beautiful and noble he would seldom or never see, and whatsoever he might see would appear to him as anything but beautiful and noble. Whatsoever might be

bold and striking would at first seem only grotesque. The colors would be the very ones he had learned to shun as tawdry and bizarre. The tones and shades, modest and tender, subdued yet rich, in which his fancy had always taken special delight, would be the ones which are conspicuously absent. But time would bring a gradual change.

Some day he would suddenly become conscious that outlines which at first seemed harsh and trivial have grace and meaning; that forms which seemed grotesque are full of dignity; that magnitudes which had added enormity to coarseness have become replete with strength and even majesty; that colors which had been esteemed unrefined, immodest, and glaring, are as expressive, tender, changeful, and capacious of effects as any others. Great innovations, whether in art or literature, in science or in nature, seldom take the world by storm. They must be understood before they can be estimated, and must be cultivated before they can be understood.

Amen. Dutton describes a process of westernization of the perceptions that has to happen before the West is beautiful to us. You have to get over the color green; you have to quit associating beauty with gardens and lawns; you have to get used to an inhuman scale; you have to understand geological time.

Painters of the West have been hunting a new palette for the western landscape, from Miller and Bodmer to Georgia O'Keeffe, Maynard Dixon, and Millard Sheets. They have been trying to see western landforms with a clear eye ever since the Baron von Egloffstein, illustrating the report of Lieutenant Ives, showed the Grand Canyon with rims like puffs of cloud, exaggerated its narrowness and depth, and showed nothing of what the trained eye sees first—the persistence of the level strata and the persistent profile of the cliffs. Writers have been trying to learn how to see, and have been groping for a vocabulary better than castles and silent sentinels, but often amateurs of a scientific bent, such as Dutton, have had to show them how. And audi-

ences, taught partly by direct contact with the landscape and partly by studying its interpreters, have been slowly acquiring a set of perceptual habits and responses appropriate to western forms and colors. Perception, like art and literature, like history, is an artifact, a human creation, and it is not created overnight.

The Westerner is less a person than a continuing adaptation. The West is less a place than a process. And the western landscape that it has taken us a century and three quarters to learn about, and partially adapt our farming, our social institutions, our laws, and our aesthetic perceptions to, has now become our most valuable natural resource, as subject to raid and ruin as the more concrete resources that have suffered from our rapacity. We are in danger of becoming scenery sellers—and scenery is subject to as much enthusiastic overuse and overdevelopment as grass and water. It can lead us into an ill-considered crowding on the heels of our resources. Landscape, with its basis of aridity, is both our peculiar splendor and our peculiar limitation. Without careful controls and restrictions and planning, tourists can be as destructive as locusts—can destroy everything we have learned to love about the West. I include you and me among the tourists, and I include you and me in my warning to entrepreneurs. We should all be forced to file an environmental impact study before we build so much as a privy or a summer cottage, much less a motel, a freeway, or a resort.

Sometimes I wonder if Lewis and Clark shouldn't have been made to file an environmental impact study before they started west, and Columbus before he ever sailed. They might never have got their permits. But then we wouldn't have been here to learn from our mistakes, either. I really only want to say that we may love a place and still be dangerous to it. We ought to file that environmental impact study before we undertake anything that exploits or alters or endangers the splendid, spacious, varied, magnificent, and terribly fragile earth that supports us.

If we can't find an appropriate government agency with which to file it, we can file it where an Indian would have filed it—with our environmental conscience, our slowly maturing sense that the earth is indeed our mother, worthy of our love and deserving of our care. That may be the last stage of our adaptation to the western landscape, and it may come too late.

LIVING DRY

The West is a region of extraordinary variety within its abiding unity, and of an iron immutability beneath its surface of change. The most splendid part of the American habitat, it is also the most fragile. It has been misinterpreted and mistreated because, coming to it from earlier frontiers where conditions were not unlike those of northern Europe, Anglo-Americans found it different, daunting, exhilarating, dangerous, and unpredictable, and entered it carrying habits that were often inappropriate and expectations that were surely excessive. The dreams they brought to it were recognizable American dreams—a new chance, a little gray home in the West, adventure, danger, bonanza, total freedom from constraint and law and obligation, the Big Rock Candy Mountain, the New Jerusalem. Those dreams had often paid off in parts of America settled earlier, and they paid off for some in the West. For the majority, no. The West has had a way of warping well-carentered habits, and raising the grain on exposed dreams.

The fact is, it has been as notable for mirages as for the

realization of dreams. Illusion and mirage have been built into it since Coronado came seeking the Seven Cities of Cibola in 1540. Coronado's failure was an early, spectacular trial run for other and humbler failures. Witness the young men from all over the world who fill graveyards in California's Mother Lode country. There is one I remember: *Nato a Parma 1830, morto a Moff 1850*, an inscription as significant for its revelation of the youth of many argonauts as for its misspelling of "Murphy's," the camp where this boy died. Witness too the homesteaders who retreated eastward from the dry plains with defeated signs on their covered wagons. Yet we have not even yet fully lost our faith in Cibola, or the nugget as big as a turnip, or even Kansas.

Anyone pretending to be a guide through wild and fabulous territory should know the territory. I wish I knew it better than I do. I am not Jed Smith. But Jed Smith is not available these days as a guide, and I am. I accept the duty, at least as much for what I myself may learn as for what I may be able to tell others. I can't come to even tentative conclusions about the West without coming to some conclusions about myself.

I have lived in the West, many parts of it, for the best part of seventy-seven years. I have found stories and novels in it, have studied its history and written some of it, have tried to know its landscapes and understand its people, have loved and lamented it, and sometimes rejected its most "western" opinions and prejudices, and pretty consistently despised its most powerful politicians and the general trend of their politics. I have been a lover but not much of a booster. Nevertheless, for better or worse, the West is in my computer, the biggest part of my software.

If there is such a thing as being conditioned by climate and geography, and I think there is, it is the West that has conditioned me. It has the forms and lights and colors that I respond to in nature and in art. If there is a western speech, I speak it; if there is a western character or personality, I am some variant of it; if there is a western culture in the small-c, anthropological

sense, I have not escaped it. It has to have shaped me. I may even have contributed to it in minor ways, for culture is a pyramid to which each of us brings a stone.

Therefore I ask your indulgence if I sometimes speak in terms of my personal experience, feelings, and values, and put the anecdotal and normative ahead of the statistical, and emphasize personal judgments and trial syntheses rather than the analysis that necessarily preceded them. In doing so, I shall be trying to define myself as well as my native region.

There are other ways of defining the West, but since Major John Wesley Powell's 1878 *Report on the Lands of the Arid Region* it has usually been said that it starts at about the 98th meridian of west longitude and ends at the Pacific Ocean. Neither boundary has the Euclidean perfection of a fixed imaginary line, for on the west the Pacific plate is restless, constantly shoving Los Angeles northward, where it is not wanted, and on the east the boundary between Middle West and West fluctuates a degree or two east or west depending on wet and dry cycles.

Actually it is not the arbitrary 98th meridian that marks the West's beginning, but a perceptible line of real import that roughly coincides with it, reaching southward about a third of the way across the Dakotas, Nebraska, and Kansas, and then swerving more southwestward across Oklahoma and Texas. This is the isohyetal line of twenty inches, beyond which the mean annual rainfall is less than the twenty inches normally necessary for unirrigated crops.

A very little deficiency, even a slight distortion of the season in which the rain falls, makes all the difference. My family homesteaded on the Montana-Saskatchewan border in 1915, and burned out by 1920, after laying the foundation for a little dust bowl by plowing up a lot of buffalo grass. If the rains had been kind, my father would have proved up on that land and become a naturalized Canadian. I estimate that I missed becoming Canadian by no more than an inch or two of rain; but that same deficiency confirmed me as a citizen of the West.

The West is defined, that is, by inadequate rainfall, which means a general deficiency of water. We have water only between the time of its falling as rain or snow and the time when it flows or percolates back into the sea or the deep subsurface reservoirs of the earth. We can't create water or increase the supply. We can only hold back and redistribute what there is. If rainfall is inadequate, then streams will be inadequate, lakes will be few and sometimes saline, underground water will be slow to renew itself when it has been pumped down, the air will be very dry, and surface evaporation from lakes and reservoirs will be extreme. In desert parts of the West it is as much as ten feet a year.

The only exception to western aridity, apart from the mountains that provide the absolutely indispensable snowsheds, is the northwest corner, on the Pacific side of the Cascades. It is a narrow exception: everything east of the mountains, which means two thirds to three quarters of Washington and Oregon, is in the rain shadow.

California, which might seem to be an exception, is not. Though from San Francisco northward the coast gets plenty of rain, that rain, like the lesser rains elsewhere in the state, falls not in the growing season but in winter. From April to November it just about can't rain. In spite of the mild coastal climate and an economy greater than that of all but a handful of nations, California fits Walter Webb's definition of the West as "a semi-desert with a desert heart." It took only the two-year drought of 1976-77, when my part of California got eight inches of rain each year instead of the normal eighteen, to bring the whole state to a panting pause. The five-year drought from 1987 to 1991 has brought it to the point of desperation.

So—the West that we are talking about comprises a dry core of eight public-lands states—Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming—plus two marginal areas. The first of these is the western part of the Dakotas, Nebraska, Kansas, Oklahoma, and Texas, authentically

dry but with only minimal public lands. The second is the West Coast—Washington, Oregon, and California—with extensive arid lands but with well-watered coastal strips and also many rivers. Those marginal areas I do not intend to exclude, but they do complicate statistics. If I cite figures, they will often be for the states of the dry core.

Aridity, and aridity alone, makes the various Wests one. The distinctive western plants and animals, the hard clarity (before power plants and metropolitan traffic altered it) of the western air, the look and location of western towns, the empty spaces that separate them, the way farms and ranches are either densely concentrated where water is plentiful or widely scattered where it is scarce, the pervasive presence of the federal government as landowner and land manager, the even more noticeable federal presence as dam builder and water broker, the snarling states' rights and antifederal feelings whose burden Bernard DeVoto once characterized in a sentence—"Get out and give us more money"—those are all consequences, and by no means all the consequences, of aridity.

Aridity first brought settlement to a halt at the edge of the dry country and then forced changes in the patterns of settlement. The best guide to those changes is Walter Webb's seminal study, *The Great Plains* (1931). As Webb pointed out, it took a lot of industrial invention to conquer the plains: the Colt revolver, a horseman's weapon, to subdue the horse Indians; barbed wire to control cattle; windmills to fill stock tanks and irrigate little gardens and hayfields; railroads to open otherwise unlivable spaces and bring first buffalo hides and buffalo bones and then cattle and wheat to market; gang machinery to plow, plant, and harvest big fields.

As it altered farming methods, weapons, and tools, so the dry country bent water law and the structure of land ownership. Eastern water law, adopted with little change from English

common law, was essentially riparian. The owner of a stream bank, say, a miller, could divert water from the stream to run his mill, but must flow it back when it had done his work for him. But in the arid lands only a little of the water diverted from a stream for any purpose—gold mining, irrigation, municipal or domestic consumption—ever finds its way back. Much is evaporated and lost. Following the practice of Gold Rush miners who diverted streams for their rockers and monitors, all of the dry-core states subscribe to the "Colorado doctrine" of prior appropriation: first come, first served. The three coastal states go by some version of the "California doctrine," which is modified riparian.

Because water is precious, and because either prior appropriation or riparian rights, ruthlessly exercised, could give monopolistic power to an upstream or riparian landowner, both doctrines, over time, have been hedged with safeguards. Not even yet have we fully adapted our water law to western conditions, as was demonstrated when the California Supreme Court in 1983 invoked the "Public Trust" principle to prevent a single user, in this case the Los Angeles Water and Power Authority, from ever again draining a total water supply, in this case the streams that once watered the Owens Valley and fed Mono Lake. The court did not question the validity of Los Angeles' water rights. It said only that those rights could not be exercised at the expense of the public's legitimate interest.

The conditions that modified water use and water law also changed the character of western agriculture. The open-range cattle outfits working north from Texas after the Civil War had only a brief time of uninhibited freedom before they ran into nesters and barbed wire. But the homesteaders who began disputing the plains with cattlemen quickly found that the 160 acres of a dryland homestead were a hand without even openers. Many threw in. Those who stuck either found land on streams or installed windmills; and they moved toward larger acreages

and the stock farm, just as the cattlemen eventually moved toward the same adjustment from the other end.

Powell had advocated just such an adjustment in 1878. In country where it took 20, 30, even 50 acres to feed one steer, those 160-acre homesteads were of no use to a stock raiser. But 160 acres of intensively worked irrigated land were more than one family needed or could handle. Furthermore, the rectangular cadastral surveys that had been in use ever since the Northwest Ordinance of 1787 paid no attention to water. Out on the plains, a single quarter or half section might contain all the water within miles, and all the adjacent range was dominated by whoever owned that water.

Powell therefore recommended a new kind of survey defining irrigable homesteads of 80 acres and grazing homesteads of 2,560, four full sections. Every plot should have access to water, and every water right should be tied to land title. Obviously, that program would leave a lot of dry land unsettled.

Unfortunately for homesteaders and the West, Powell's report was buried under dead leaves by Congress. Ten years later, his attempt to close the Public Domain until he could get it surveyed and its irrigable lands identified was defeated by Senator "Big Bill" Stewart of Nevada, the first in a long line of incomparably bad Nevada senators. In 1889 and 1890 the constitutional conventions of Montana, Idaho, and Wyoming territories would not listen when Powell urged them to lay out their political boundaries along drainage divides, so that watershed and timber lands, foothill grazing lands, and valley irrigated lands could be managed intelligently without conflict. The only place where a drainage divide does mark a political boundary is a stretch of the Continental Divide between Idaho and Montana. And to cap this history of old habits stubbornly clung to and hopes out of proportion to possibilities, when Powell addressed the boosters of the Irrigation Congress in Los Angeles in 1893 and warned them that they were laying up a heritage of litigation

and failure because there was only enough water to irrigate a fifth of the western lands, the boosters didn't listen either. They booed him.

Powell understood the consequences of aridity, as the boosters did not, and still do not. Westerners who would like to return to the old days of free grab, people of the kind described as having made America great by their initiative and energy in committing mass trespass on the minerals, grass, timber, and water of the Public Domain, complain that no western state is master in its own house. Half its land is not its own: 85 percent of Nevada is not Nevada but the United States; two thirds of Utah and Idaho likewise; nearly half of California, Arizona, and Wyoming—48 percent of the eleven public-lands states.

There are periodic movements, the latest of which was the so-called Sagebrush Rebellion of the 1970s, to get these lands "returned" to the states, which could then dispose of them at bargain-basement rates to favored stockmen, corporations, and entrepreneurs.

The fact is, the states never owned those lands, and gave up all claim to them when they became states. They were always federal lands, acquired by purchase, negotiation, or conquest before any western state existed. The original thirteen colonies created the first Public Domain when they relinquished to the federal government their several claims to what was then the West. The states between the Alleghenies and the Mississippi River were made out of it. All but one of the rest of the contiguous forty-eight were made out of the Louisiana and Florida purchases, the land acquired by the Oregon settlement with Great Britain, and the territory taken from Mexico in the Mexican War or obtained by purchase afterward. All of the western states except Texas, which entered the Union as an independent republic and never had any Public Domain, were created out of federal territory by formal acts of Congress, which then did everything it could to dispose of the public lands within them.

As far as a little beyond the Missouri, the system of disposal worked. Beyond the 98th meridian it did not, except in the spotty way that led Webb to call the West an "oasis civilization." Over time, large areas of forest land and the most spectacular scenery were reserved in the public interest, but much land was not considered worth reserving, and could not be settled or given away. The land laws—the Preemption Act, Homestead Act, Desert Land Act, Carey Act, Timber and Stone Act—produced more failure and fraud than family farms. Not even the Newlands Act of 1902, though it has transformed the West, has put into private hands more than a modest amount of the Public Domain.

Despite all efforts, the West remained substantially federal. In 1930 Herbert Hoover and his secretary of the interior, Ray Lyman Wilbur, tried to give a lot of abused dry land to the states, and the states just laughed. Then in 1934, in the worst Dust Bowl year, the Taylor Grazing Act acknowledged the federal government's reluctant decision to retain—and rescue and manage—the overgrazed, eroded Public Domain. In the 1940s the stockmen's associations tried to steal it, as well as the Forest Service's grazing lands, in a dry rehearsal of the later Sagebrush Rebellion. Bernard DeVoto, in the Easy Chair pages of *Harper's* magazine, almost single-handedly frustrated that grab.

But by the late 1940s people other than stockmen were interested, and more than grass was at stake. During and after World War II the West had revealed treasures of oil, coal, uranium, molybdenum, phosphates, and much else. States whose extractive industries were prevented from unhampered exploitation of these resources again cried foul, demanding "back" the lands they had never owned, cared for, or really wanted, and complaining that the acreages of the Bureau of Land Management, national forests, national parks and monuments, wildlife refuges, military reservations, and dam sites, as well as the arid poor farms where we had filed away our Indian respon-

sibilities, were off the state tax rolls and outside of state control and 'locked up' from developers who, given a free hand, would make the West rich and prosperous.

Never mind that grazing fees and coal and oil lease fees and timber sale prices are so low that they amount to a fat subsidy to those who enjoy them. (The flat fee of \$1.35 per animal-unit-month set by the Reagan administration as a grazing fee, and still in effect, is about 20 percent of what leasers of private land must pay in most districts. Many timber sales are below cost.) Never mind that half of the money that does come in from fees and leases is given back to the states in lieu of taxes. Never mind that the feds spend the other half, and more, rescuing and rehabilitating the lands whose proper management would bankrupt the states in which they lie. Never mind the federal aid highways, and the federally financed dams, and the write-offs against flood control, and the irrigation water delivered at a few dollars an acre-foot. Take for granted federal assistance, but damn federal control. Your presence as absentee landlord offends us, Uncle. Get out, and give us more money.

There are other objections, too, some of them more legitimate than those of stockmen, lumbermen, and miners greedy for even more than they are getting. There are real difficulties of management when the landscape is checkerboarded with private, state, and federal ownership. And federal space is tempting whenever the nation needs a bombing range, an atomic test site, missile silo locations, or places to dump nuclear waste or store nerve gas. Generally, the West protests that because of its public lands, it gets all the garbage; but some times, so odd are we as a species, one or another western state will fight for the garbage, and lobby to become the home of a nuclear dump.

More by oversight than intention, the federal government allowed the states to assert ownership of the water within their boundaries, and that is actually an ownership far more valuable but more complicated than that of land. The feds own the

watersheds, the stream and lake beds, the dam sites. Federal bureaus, with the enthusiastic concurrence of western chambers of commerce, have since 1902 done most of the costly impoundment and distribution of water. And federal law, in a pinch, can and does occasionally veto what states and irrigation districts do with that water. It is a good guess that it will have to do so more and more—that unless the states arrive at some relatively uniform set of rules, order will have to be imposed on western water by the federal government.

It will not be easy, and the federal government has created a nasty dilemma for itself by giving its blessing both to the legal fiction of state water ownership and to certain Native American rights to water. As early as 1908, in the so-called Winters doctrine decision, the Supreme Court confirmed the Indians' rights to water originating within or flowing through their reservations. Though those rights have never been quantified or put to use (a beginning has been made by the tribes on the Fort Peck Reservation), Indian tribes all across the West have legitimate but unspecified claims to water already granted by the states to white individuals and corporations. Even without the Indian claims, many western streams—for a prime example, the Colorado—are already oversubscribed. The Colorado River Compact allocated 17.5 million acre-feet annually among the upper basin, lower basin, and Mexico. The actual annual flow since 1930 has averaged about 12 million acre-feet.

Aridity arranged all that complicated natural and human mess, too. In the view of some, it also helped to create a large, spacious, independent, sunburned, self-reliant western character, and a large, open, democratic western society. Of that, despite a wistful desire to believe, I am less than confident.

Nineteenth-century America, overwhelmingly agricultural, assumed that settlement meant agricultural settlement. That assumption underlies—some say it undermines—Frederick

Jackson Turner's famous hypothesis, expressed in his 1893 lecture "The Significance of the Frontier in American History," that both democratic institutions and the American character have been largely shaped by the experience of successive frontiers, with their repeated dream of betterment, their repeated acceptance of primitive hardships, their repeated hope and strenuousness and buoyancy, and their repeated fulfillment as smiling and productive commonwealths of agrarian democrats.

Turner was so intent upon the mass movement toward free land that he paid too little attention to a growing movement toward the industrial cities, and his version of the American character is therefore open to some qualifications. He also paid too little attention to the drastic changes enforced by aridity beyond the 98th meridian, the changes that Powell before him and Webb after him concentrated upon.

The fact is, agriculture at first made little headway in the West, and when it was finally imposed upon the susceptible—and some unsusceptible—spots, it was established pretty much by brute force, and not entirely by agrarian democrats.

Until the Civil War and after, most of the West was not a goal but a barrier. Webb properly remarks that if it had turned out to be country adapted to the slave economy, the South would have fought harder for it, and its history would have been greatly different. He also points out that if the country beyond the Missouri had been wooded and well watered, there would have been no Oregon Trail.

Emigrants bound up the Platte Valley on their way to Oregon, California, or Utah, the first targets of the westward migration, almost universally noted in their journals that a little beyond Grand Island their nostrils dried out and their lips cracked, their wagon wheels began to shrink and wobble, and their estimates of distance began to be ludicrously off the mark. They observed that green had ceased to be the prevailing color of the earth, and

had given way to tans, grays, rusty reds, and toned white; that salt often crusted the bottoms of dry lakes (they used some of it, the sodium or potassium bicarbonate that they called saleratus, to leaven their bread); that the grass no longer made a turf, but grew in isolated clumps with bare earth between them; that there was now no timber except on the islands in the Platte; that unfamiliar animals had appeared: horned toads and prairie dogs that seemed to require no water at all, and buffalo, antelope, jackrabbits, and coyotes that could travel long distances for it.

They were at the border of strangeness. Only a few miles into the West, they felt the difference; and as Webb says, the degree of strangeness can be measured by the fact that almost all the new animals they saw they misnamed. The prairie dog is not a dog, the horned toad is not a toad, the jackrabbit is not a rabbit, the buffalo is not a buffalo, and the pronghorn antelope is more goat than antelope. But they could not mistake the aridity. They just didn't know how much their habits would have to change if they wanted to live beyond the 98th meridian. None of them in that generation would have denied aridity to its face, as William Gilpin, the first territorial governor of Colorado, would do a generation later, asserting that it was a simple matter on the plains to dig for wood and water, that irrigation was as easy as fencing, which it supplanted, and that the dry plains and the Rockies could handily support a population of two hundred million. That kind of fantasy, like Cyrus Thomas's theory that cultivation increases rainfall, that "rain follows the plow," would have to wait for the boosters.

Two lessons all western travelers had to learn: mobility and sparseness. Mobility was the condition of life beyond the Missouri. Once they acquired the horse, the Plains Indians were as nimble as the buffalo they lived by. The mountain men working the beaver streams were no more fixed than the clouds. And when the change in hat fashions killed the fur trade, and mountain men turned to guiding wagon trains, the whole intention of those trains was to get an early start, as soon as the grass greened

up, and then get *through* the West as fast as possible. The Mormons were an exception, a special breed headed for sanctuary in the heart of the desert, a people with a uniquely cohesive social order and a theocratic discipline that made them better able to survive.

But even the Mormons were villages on the march, as mobile as the rest until, like Moses from Pisgah's top, they looked upon Zion. Once there, they quickly made themselves into the West's stablest society. But notice: Now, a hundred and forty years after their hejira, they have managed to put only about 3 percent of Utah's land under cultivation; and because they took seriously the Lord's command to be fruitful and multiply, Zion has been overpopulated, and exporting manpower, for at least half a century. One of the bitterest conflicts in modern Utah is that between the environmentalists, who want to see much of that superlative wilderness preserved roadless and wild, and the stubborn Mormon determination to make it support more saints than it possibly can.

Lieutenant Zebulon Pike, sent out in 1806 to explore the country between the Missouri and Santa Fe, had called the high plains the Great American Desert. In 1819 the expedition of Major Stephen Long corroborated that finding, and for two generations nobody seriously questioned it. The plains were unfit for settlement by a civilized, meaning an agricultural, people, and the farther west you went, the worse things got. So for the emigrants who in 1840 began to take wheels westward up the Platte Valley, the interior West was not a place but a way, a trail to the Promised Land, an adventurous, dangerous rite of passage. In the beginning there were only two places on its two-thousand-mile length: Fort Laramie on the North Platte and Fort Hall on the Snake. And those were less settlements than way stations, refreshment-and-recruitment stops different

only in style from motel-and-gas-and-lunchroom turnouts on a modern interstate.

Insofar as the West was a civilization at all between the time of Lewis and Clark's explorations and about 1870, it was largely a civilization in motion, driven by dreams. The people who composed and represented it were part of a true Folk-Wandering, credulous, hopeful, hardy, largely uninformed. The dreams are not dead even today, and the habit of mobility has only been reinforced by time.

Ever since Daniel Boone took his first excursion over Cumberland Gap, Americans have been wanderers. When Charles Dickens, in the Mississippi Valley, met a full-sized dwelling house coming down the road at a round trot, he was looking at the American people head-on. With a continent to take over and Manifest Destiny to goad us, we could not have avoided being footloose. The initial act of emigration from Europe, an act of extreme, deliberate disaffiliation, was the beginning of a national habit.

It should not be denied, either, that being footloose has always exhilarated us. It is associated in our minds with escape from history and oppression and law and irksome obligations, with absolute freedom, and the road has always led west. Our folk heroes and our archetypal literary figures accurately reflect that side of us. Leatherstocking, Huckleberry Finn, the narrator of *Moby Dick*, all are orphans and wanderers: any of them could say, "Call me Ishmael." The Lone Ranger has no dwelling place except the saddle. And when teenagers run away in the belief that they are running toward freedom, they more often than not run west. Listen to the Haight-Ashbury dialogues in Joan Didion's *Slouching Towards Bethlehem*. Examine the American character as it is self-described in *Habits of the Heart*, by Robert Bellah and others.

But the rootlessness that expresses energy and a thirst for the new and an aspiration toward freedom and personal fulfillment

has just as often been a curse. Migrants deprive themselves of the physical and spiritual bonds that develop within a place and a society. Our migratoriness has hindered us from becoming a people of communities and traditions, especially in the West. It has robbed us of the gods who make places holy. It has cut off individuals and families and communities from memory and the continuum of time. It has left at least some of us with a kind of spiritual pellagra, a deficiency disease, a hungering for the ties of a rich and stable social order. Not only is the American home a launching pad, as Margaret Mead said; the American community, especially in the West, is an overnight camp. American individualism, much celebrated and cherished, has developed without its essential corrective, which is belonging. Freedom, when found, can turn out to be airless and unsustaining. Especially in the West, what we have instead of place is space. Place is more than half memory, shared memory. Rarely do Westerners stay long enough at one stop to share much of anything.

The principal invention of western American culture is the motel, the principal exhibit of that culture the automotive roadside. A principal western industry is tourism, which exploits the mobile and the seasonal. Whatever it might want to be, the West is still primarily a series of brief visitations or a trail to somewhere else; and western literature, from *Roughing It* to *On the Road*, from *The Log of a Cowboy* to *Lonesome Dove*, from *The Big Rock Candy Mountain* to *The Big Sky*, has been largely a literature not of place but of motion.

Trying to capture America in a sentence, Gertrude Stein said, "Conceive a space that is filled with moving." If she had been reared in Boston she might not have seen it so plainly; but she was reared in Oakland. She knew that few Westerners die where they were born, that most live out their lives as a series of uprootings.

Adaptation is the covenant that all successful organisms sign with the dry country. In *The Land of Little Rain* Mary Austin, writing of the Owens Valley in the rain shadow of the Sierra, remarked that "the manner of the country makes the usage of life there, and the land will not be lived in except in its own fashion. The Shoshones live like their trees, with great spaces between. . . ."

She might have added, though I don't remember that she did, how often Shoshonean place names contain the syllable *pah*: Tonopah, Ivanpah, Pahrump, Paria. In the Shoshonean language, *pah* means water, or water hole. The Pah-Utes are the Water Utes, taking their name from their rarest and most precious resource. They live mainly in Utah and Nevada, the two driest states in the Union, and in those regions water is safety, home, life, place. All around those precious watered places is only space, forbidding and unlivable, what one must travel through between places of safety.

Thoroughly adapted, the Pah-Utes (Paiutes) were migratory between fixed points marked by seasonal food supplies and by water. White Americans, once they began to edge into the dry country from east, west, and south, likewise established their settlements on dependable water, and those towns have a special shared quality, a family resemblance.

For the moment, forget the Pacific Coast, furiously bent on becoming Conurbia from Portland to San Diego. Forget the metropolitan sprawl of Denver, Phoenix, Tucson, Albuquerque, Dallas-Fort Worth, and Salt Lake City, growing to the limits of their water and beyond, like bacterial cultures overflowing the edges of their agar dishes and beginning to sicken on their own wastes. If we want characteristic western towns we must look for them, paradoxically, beyond the West's prevailing urbanism, out in the boondocks where the interstates do not reach, mainline planes do not fly, and branch plants do not locate. The towns that are most western have had to strike

a balance between mobility and stability, and the law of sparseness has kept them from growing too big. They are the places where the stickers stuck, and perhaps were stuck, the places where adaptation has gone furthest.

Whether they are winter wheat towns like Minot, North Dakota, on the subhumid edge, whose elevators and bulbous silver water towers announce them miles away, or county towns like Roundup, Montana, in ranch country, or intensely green towns like Fallon, Nevada, in irrigated desert valleys, they have a sort of forlorn, proud rightness. They look at once lost and self-sufficient, scruffy and indispensable. A road leads in out of wide emptiness, threads a fringe of service stations, taverns, and a motel or two, widens to a couple of blocks of commercial buildings, some still false-fronted, with glimpses of side streets and green lawns, narrows to another strip of automotive roadside, and disappears into more wide emptiness.

The loneliness and vulnerability of those towns always moves me, for I have lived in them. I know how the world of a child in one of them is bounded by weedy prairie, or the spine of the nearest dry range, or by flats where plugged tin cans lie rusting and the wind has pasted paper and plastic against the sagebrush. I know how precious is the safety of a few known streets and vacant lots and familiar houses. I know how the road in each direction both threatens and beckons. I know that most of the children in such a town will sooner or later take that road, and that only a few will take it back.

In mining country, vulnerability has already gone most or all of the way to death. In those ghosts or near ghosts where the placers have been gutted or the lodes played out, the shafts and drifts and tailings piles, the saloons and stores and hotels and houses, have been left to the lizards and a few survivors who have rejected the command of mobility. The dealer the town the more oppressive the emptiness that surrounds and will soon reclaim it. Unless, of course, the federal government has stalled an atomic testing site, or new migrant entrepreneurs

have come in to exploit the winter skiing or bring summer-festival culture. Then the ghost will have turned, at least temporarily, into a Searchlight, an Aspen, a Telluride, a Park City—a new way station for new kinds of migrants.

We return to mobility and the space that enforces it. Consider the observations of William Least Heat Moon, touring the blue highways of America. "The true West," he says (and notice that he too finds the true West somewhere outside the cities where 75 percent of Westerners live),

differs from the East in one great, pervasive, influential, and awesome way: space. The vast openness changes the roads, towns, houses, farms, crops, machinery, politics, economics, and, naturally, ways of thinking. . . . Space west of the line is perceptible and often palpable, especially when it appears empty, and it's that apparent emptiness which makes matter look alone, exiled, and unconnected. . . . But as the space diminishes man and his constructions in a material fashion it also—paradoxically—makes them more noticeable. *Things show up out here.* The terrible distances eat up speed. Even dawn takes nearly an hour just to cross Texas. (*Blue Highways*, p. 136)

Distance, space, affects people as surely as it has bred keen eyesight into pronghorn antelope. And what makes that western space and distance? The same condition that enforces mobility on all adapted creatures, and tolerates only small or temporary concentrations of human or other life.

Aridity.

And what do you do about aridity if you are a nation accustomed to plenty and impatient of restrictions and led westward by pillars of fire and cloud? You may deny it for a while. Then you must either try to engineer it out of existence or adapt to it.

STRIKING THE ROCK

The summer of 1948 my family and I spent on Struthers But's ranch in Jackson Hole. I was just beginning a biography of John Wesley Powell, and beginning to understand some things about the West that I had not understood before. But during that busy and instructive interval my wife and I were also acting as western editors and scouts for a publishing house, and now and then someone came by with a manuscript or the idea for a book. The most memorable of these was a famous architect contemplating his autobiography. One night he showed us slides of some of his houses, including a million-dollar palace in the California desert of which he was very proud. He said it demonstrated that with imagination, technical know-how, modern materials, and enough money, an architect could build anywhere without constraints, imposing his designed vision on any site, in any climate.

In that waterless pale desert spotted with shad scale and creosote bush and backed by barren lion-colored mountains, another sort of architect, say, Frank Lloyd Wright, might have

designed something contextual, something low, broad-eaved, thick-walled, something that would mitigate the hot light, something half-underground so that people could retire like the lizards and rattlesnakes from the intolerable daytime temperatures, something made of native stone or adobe or tamped earth in the colors and shapes of the country, something no more visually intrusive than an outcrop.

Not our architect. He had built of cinderblock, in the form of Bauhaus cubes, the only right angles in that desert. He had painted them a dazzling white. Instead of softening the lines between building and site, he had accentuated them, surrounding his sugary cubes with acres of lawn and a tropical oasis of oleanders, hibiscus, and palms—not the native *Washingtonia* palms either, which are a little scraggly, but sugar and royal palms, with a classier, more Santa Barbara look. Water for this estancia, enough water to have sustained a whole tribe of desert Indians, he had brought by private pipeline from the mountains literally miles away.

The patio around the pool—who would live in the desert without a pool?—would have fried the feet of swimmers three hundred days out of the year, and so he had designed canopies that could be extended and retracted by push button, and under the patio's concrete he had laid pipes through which cool water circulated by day. By night, after the desert chill came on, the circulating water was heated. He had created an artificial climate, inside and out.

Studying that luxurious, ingenious, beautiful, sterile incongruity, I told its creator, sincerely, that I thought he could build a comfortable house in hell. That pleased him; he thought so too. What I didn't tell him, what he would not have understood, was that we thought his desert house immoral. It exceeded limits, it offended our sense not of the possible but of the desirable. There was no economic or social reason for anyone's living on a barren flat, however beautiful, where every form of life sought shelter during the unbearable daylight hours.