

The Woodsman's Designs to Extinguish the Western Cattleman and His Grass

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Consider the remarkable similarities between the fates of the American Indian and the western cattleman. At a distance the Indian was extolled as a noble savage, a fine expression of natural man. Increasing proximity and conflicts over territory soon found him a brutal savage, denying the interlopers a share of their rightful inheritance. Conflicts increased and with the aid of mortal diseases, superior numbers, and arms, he was either destroyed or expelled to smaller and smaller refuges, usually areas that promised nothing to the intruder. Finally he became an occupant on restricted reservations, his way of life destroyed, and living in large measure on gratuities supplied by his conquerors.

The cattleman's fate did not reach this extreme, but he survived on restricted areas that promised little to the challenger, the woodsman. When the cattleman first made his appearance on the western horizons, he was hailed as an innovative entrepreneur who would make the western grasslands the grazing lands and pastures of the nation. With cattle and sheep he would harvest the bounty of nature and contribute to the economy. By supplanting the subsistence Indian hunters, he would pacify an area known for conflicts with the natives. Then came increased proximity with another species of land user, the man with the plow, largely a woodsman.

The woodsman's purpose was to turn the grasses upside down and cultivate the land in small farm units. He brought fences and numerous homesteads that despoiled the wide open country. Conflict arose, often to the point of gunfire; space could not accommodate both intruders. The woodsmen not only outnumbered the cattlemen, but were also tied more closely to Washington and legislators; so the conflict took on serious legal aspects.

The Specter of the Great American Desert

It is noteworthy that the cattleman's empire evolved in the Great American Desert of the Plains, a desert which never really existed in modern terms. To the woodsman its treeless nature was enough to condemn it as agricultural land. Early in the American history it began beyond the wide Missouri and extended to the mountains and beyond. With westward expansion it was pushed to about central Kansas, or the 20-inch rainfall line. Then came the rain-makers and the weather modifiers who erased it east of

the Rocky Mountains. With this changing vision the American cattleman found himself in retreat.

Historic pronouncements on the Plains, as well as settlement policies, give some important clues regarding the fate of the area. Descriptive terms darkened the prospects of the Plains, such as "irredeemable sterility," "steppes of Tartary and Asia," "a land where no one permanently abides," "a land of restless and ferocious hordes of savages," and the "Great American Desert." Lieut. Zebulon Montgomery Pike was the first American to enter the Southwest, in 1806, and in his observations we find all the ingredients of a desolate waste. The area "may become as celebrated as the sandy deserts of Africa, . . . not a speck of vegetable matter existed, . . . It would be a means of restricting the population to some certain limits and thereby insure the permanency of the Union, . . . incapable of cultivation"; white settlements must be halted near the borders of the Missouri and Mississippi, leaving the desert to "wandering and uncivilized aborigines of the country," Major Stephen H. Long, who came in 1819, likewise condemned the area as a waste land and coined the term "Great American Desert." This negative term was now fixed for several decades and appeared in many publications, including geography texts.

The imaginative Washington Irving also saw a great threat in the largely empty areas. They would be gathering places of displaced Indians, as well as lawless elements ejected by the Spanish and American settlements, forming a marginal race of predators on horses who would plunder the settlements. This negative image lingered in the minds of woodsmen, who even transferred lawlessness to cattlemen.

Several basic dates and developments reveal much about the changing image of the desert Plains area. In 1541 Coronado penetrated the Plains to central Kansas and later recorded "after having journeyed across these deserts seventy-seven days, I arrived at the province they call Quivira." When Jefferson, two and a half centuries later, purchased the Louisiana Territory, largely to solve the Mississippi navigation problem, he found the boundary "involved in some obscurity" and settlements "separated from each other by immense and trackless deserts." By the 1830s the government decided to solve the eastern Indian problem by the Indian Removal Act which assigned them to the desert Plains so long as the grass grows. Thus, up to that date the Plains held no attraction for settlers or cattlemen because there was no contest for space.

After the 1820's and '30's, things began to stir in the

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Plains area. The Santa Fe and Oregon trails were established and the Mormons and gold seekers began their trecks westward. New Englanders moved to eastern Kansas in the 1850's to hold the area against slavery, although local Indian tribes had not ceded the lands. Encroachment began soon along a wider front.

A New Meteorology

The fate of the western cattleman cannot be understood without recognizing the new dimensions in the field of meteorology which occurred during the nineteenth century. Up to this time weather and climate were of primary interest to physicians concerned with the quality of air with relation to disease. Early in the century the Surgeon General of the U.S. Army instructed the scores of military outposts to gather sample weather data for the purpose of furthering the field of medical geography. Several important publications were prepared to establish the disease-weather connection. Rather suddenly during the 1840's, this activity fell into the hands of James Pollard Espy, who was interested in the anatomy of storms and the physics of the air. His famous *The Philosophy of Storms*, published in 1841, made him world renowned for his work on the role of moisture in energizing air movements. He gave insight into the adiabatic process of heating and cooling air and its moisture holding capacity. He also became the first American to champion weather prognostication with the use of weather maps. He was preceded in this work by William C. Redfield, who first noted the nature of whirlwinds and storms. After Espy, William Ferrel gained almost instant immortality by formulating Ferrel's Law. Elisab Loomis gained fame by preparing the first synoptic weather charts during the 1830's. The field of meteorology was fast maturing and weather forecasting was officially established in the U.S. Department of Agriculture early in the 1890's.

The above pioneer meteorologists or weather men posed no threat to the cattleman of the West, but as fate would have it, another set of prominent professionals came forth after the Civil War propounding a new set of meteorological concepts that challenged the deserts and grasslands of the West and so placed large cattle grazing operations in total jeopardy. The new meteorology focused on the landscape and only indirectly on the conditions and processes of the air! The meteorology found important precipitation enhancers in trees, the plow, managed electricity, and stored water. These could all be supplied by man, making him an important rainmaker. Westerners were especially delighted with these prospects and saw unlimited homesteads in the West, including the grasslands of the cattleman.

It should be remembered that many of the new rainmakers were prominent professionals in the arts and in government, not secretive operators promising to end droughts with smelling salts, powers, and electrical gadgetry. These professionals were far better known than the

scores of investigators in pure meteorology who were seeking to solve the mysteries of the air and weather. Most of them were also tied to prominent government offices and so commanded public attention, especially in the West where settlers were sought. Their landscape meteorology was fatal, directly, or indirectly, to the large ranchers.

Consider some of the names of the advocates of the new meteorology: George P. Marsh, F.G. Hough, Nathaniel Egleston, and B.E. Fernow. These men all qualified for *Who's Who in America*. The last three played prominent roles in the office of Commissioner of Agriculture and used its publications to promote the tree-rainfall syndrome, and, indirectly, close settlements. It was Marsh, however, who provided the basic bible of these advocates in his *Man and Nature, or, Physical Geography as Modified by Human Action*, first published in 1864, but followed by more printings and new editions. In his service as diplomat in Italy, Marsh noted the many ruins of civilization bordering the Mediterranean lands. He, as well as the many sources he cites, attributed their decline largely to deforestation and overgrazing. Apparently precipitation had also been reduced and the tree-rainfall syndrome is strongly implied.

Marsh's work strongly impressed Franklin B. Hough, a trained physician, statistician, and conservationist. As a member of the American Association for the Advancement of Science, he presented a paper before that organization in 1872 which led to a memorial to Congress pleading the case of forests and their close relationship to climate and precipitation. Congress responded by creating a Division of Forestry in the Commission of Agriculture office under the auspices of Mr. Hough. There, with limited funds, he prepared a long report in which more than 100 pages are devoted to "Connection Between Forest and Climate." This same topic was then labored in subsequent reports of the Division for the rest of the century by Nathaniel Egleston and B.E. Fernow. Numerous similar articles also appeared in the annual and special reports of the Commissioner of General Land Office, U.S. Geological Survey, and even in reports of the Smithsonian Institution.

To the above apostles of tree planting we should add the name of Sterling Morton, a pioneer Nebraska farmer who became Secretary of Agriculture in Washington and also served as President of the American Forestry Association. His initiative gave us Arbor Day, now recognized in many countries. In a speech in 1887 he envisioned "gigantic groves and towering forests of waving trees" on the western prairies and plains. So firm was the belief that trees would enhance precipitation that Senator Hitchcock of Nebraska introduced a bill in 1872 that became the Timber Culture Act of 1873. It provided for 160 acres free, on the condition that 40 acres of trees be planted. The bill was strongly supported by Congressman Halderman of Pennsylvania who asserted "To produce rain it is literally true that a forest is as good as a mountain." The Act produced much chicanery, few trees, and no precipitation.

¹See Walter Kollmorgen and Johanna Kollmorgen "Landscape Meteorology in the Plains Area," *Annals, AAG*, vol. 61, Dec. 1973, pp. 424-41.

In such western states as Kansas and Nebraska, the cattlemen were also far outnumbered by a complex of farmers, real estate agencies, money sharks, farm agencies, government agencies, and also railroad promoters. Land promoting agencies were established by state governments, but equally important were academies of science and agricultural and horticultural societies. These latter groups hailed the new meteorology and saw the day when petty yeomen would prevail to the Rockies and beyond.

The Plow

In the 1860's the tree was supplemented with another powerful tool to erase the desert and the grasslands. This important discovery must be credited to two important Nebraskans, namely, Samuel Aughey and C.D. Wilber. Aughey joined the staff of the University of Nebraska in the early 1870's; his close friend and collaborator, Wilber, was a promoter and real estate operator but also an imaginative and gifted writer. Aughey, by observation and experimentation, found that plowed ground absorbed about eight times as much moisture as unplowed ground and this moisture not only sustained crops, but also fed springs and rivers and even the clouds. Hence more rainfall. These apparent results prompted Wilber to coin the popular phrase "Rain Follows the Plow." This electric discovery, which soon echoed from coast to coast, did not augur well for cattlemen in the grasslands. Why permit them to appropriate large tracts of grasslands when cultivators and tree planters could modify the elements?

The reputation of grasslands deteriorated with the advance of rainmaking ideas. Even before the Civil War it was discovered that grasslands created an almost impenetrable sod—a questionable concept. Vivid expressions were coined to describe this situation, such as, "vegetable canvas," "asphalt covering," "impervious as a cow-boy's slicker," "compact as a rock," and "brick-like surface." Hence rainfall, instead of nourishing local vegetation, ran off in gutters to the sea. The plow could serve as the redeemer of this largely wasteland. Wilber in his uninhibited enthusiasm even dared to assert that all deserts are only "temporary conditions of the earth's surface" and "can by the industry and skill of man, be changed into fertile and productive fields." Indians, on the other hand, "have always been co-workers" with forces that maintain desert conditions. Cattlemen, whom Wilber disliked lustily, were as bad as the Indians.

Electrical Influences

Electricity was more of a mystery in the late 1800s than now, and to numerous observers it seemed to play a role in precipitation. Joe S. Wilson, who served as the Commissioner of the General Land Office in the 1860's, was impressed by Marsh's report and promoted the idea that the grasslands of the West could be salvaged for the cultivator. He surmised, among other things, that tree planting in the West would expedite electrical forces. He pointed out that "a growing tree is a good conductor of

electricity, and with more trees increased electrical forces would influence the local masses of vapor." At any rate, he believed that precipitation had decreased where woods were destroyed.

Other speculators noted that railroad and telegraph lines were spreading all over the frontier and these were good conductors and transmitters of electricity. Obviously lightning and thunderbolts had something to do with storms and so a greater charge of electricity flowing over rails and wires seemed to assure more rain. H.R. Hilton of Topeka presented a more complex theory. He found that the plow and resultant changes in vegetation enhanced the rainmaking potential of upper moisture-bearing clouds. Unplowed surface was hard, hot, with little vegetation, and shed much of the precipitation. With increased soaking came a thick cover of vegetation not only transmitting more moisture to the clouds, but also reducing the insulating blanket of hot air at the surface. Increased moisture in the surface air improved "electric courtesies" between surface and upper air, leading to more precipitation.

Enhancing Atmospheric Moisture and Rain

Even while the prophets of pluvial culture were erasing the desert, even grasslands, irrigation developed in isolated places of the West. Such projects were under way in California and Utah by mid-century, came to Colorado in the 1870's, and to the Arkansas Valley in Kansas in the 1880's. An ambitious but largely futile irrigation project was initiated in the Arkansas Valley in the 1880's. Shortly one of the observers reported that these works were moving the rainbelt westward, and even with small projects in western Kansas "there has never been any scarcity of rainfall." Even John Wesley Powell, the most noted name associated with the drier west, and a promoter of irrigation, asserted that increased irrigation, as well as water storage, would increase the humidity of the air and so the precipitation. The result would be less and less reliance on artificial watering.

A Mr. Hay developed the theory of moisture enhancement of the sky a step further. Not only did he approve of expanded irrigation works, but the harvesting of much of the runoff with thousands of small artificial lakes. These would send columns of moisture into the air and trigger necessary showers.

Irrigation projects were at first modest because the meteorology would modify the larger landscape. But periodic droughts appeared, created havoc here and there, and then came the classic drought of the late 1880's and early 1890's, which brought about a major abandonment of newly settled lands. The ranks of the rainmakers were seriously depleted but the ranks of proponents of irrigation greatly augmented. Private and state projects usually failed, and so powerful forces developed in the West demanding federal programs. The Reclamation Act of 1902 followed.

Of interest here are the promises that brought this Act into existence. No longer were irrigation projects viewed as islands in the desert, but as empires of small, happy

settlers. Little attention was paid to available water and technology, and so estimates of irrigable lands ranged from 70 million to 600 million acres. All these figures meant major intrusions into the domain of the cattleman if we consider the appropriation of streams. Only in the most rugged areas could he survive, and only if he could find water.

Cost of projects was also dismissed as nearly irrelevant, mostly up to \$10 per acre and \$25 at most. Such small investments would soon provide land for millions of small, happy farmers whose land would be valued at \$500 to \$1,000 per acre. How could Congress deny such a bonanza?

Like the rainmakers, the irrigators harvested bitter fruits. Costs were much higher than expected, most settlers found difficulty in finding suitable crops, failed to make repayments, and bankruptcy was common. Large operators became common on subsidized projects; migrant workers living under deplorable conditions did much of the work. In time, the entire West became dependent on Eastern subsidies to finance larger and larger water projects. The extent to which cattlemen survived is the measure of the failure of the Reclamation Act. At most, federal irrigation projects amount to about 10 million acres, nearly all of them subsidized.

The Promise of Dry Farming

While federal irrigation projects went forward from 1902, it was soon realized that water for irrigation was not available to large areas with terrain suitable for farming. At that time certain cultivators discerned the rudiments of what became known as dry farming. At first this was a simple program of deep plowing, allowing good soak-in, but fallowing was combined with it in places. But fallowing did not become widespread in the Plains area until the 1930's when encouraged by government subsidies. Like other panaceas, it passed through stages from hyperbole to a complex system of land treatment.

Beginning in 1907, a series of Dry Farming Congresses promised to redeem nearly all the grasslands and much of the desert area of the West from the cattleman. Practically all crops could be produced by dry farming, including corn, fruits, and garden products. Production would equal and even exceed that of the cornbelt because the cornbelt really had too much rain, certainly in some years. In fact, dry farming would make the western half of the United States the more productive area of the Union. J.A. Widtsoe, a champion of the new method, claimed that a conservative estimate of the potential area of dry land farming amounted to 600 million acres. Obviously, this left little space for the cattleman.

Dry farming became more complex through time, and its introduction in the Plains area was generally encouraged by agricultural support programs. It did not prove a panacea. It was extended much too far into marginal areas where crop failures became more and more common. Both this program and irrigation rely on Eastern capital and are now among the highest subsidized econ-

omies in the country. In the absence of these subsidies, periods of hunger and starvation would be experienced, just as in marginal farming lands in Africa and elsewhere. In these foreign lands, transfer of wealth is usually precluded because of general poverty.

Land Alienation Laws

It should be clear by now that the proposals and programs of the rainmakers, the irrigationists, and dry farmers, plus the deep bias against large land holdings and cattlemen, did not permit the development of rational land alienation laws. As the late Walter Prescott Webb pointed out years ago: "There has never been written into Federal statutes a single law governing lands in the arid regions that meets the needs of the stock farmer or the ranchman." Important land alienation laws that were designed mainly to multiply family-farm operations and thus frustrated the stockmen numbered seven. These were, briefly:

- 1) The Preemption Act of 1841, permitting purchase of up to 160 acres at \$1.25 per acre.
- 2) The Homestead Act of 1862, providing 160 acres free, other than filing fees.
- 3) The Timber Culture Act of 1873, providing 160 acres free, other than filing fees, and requiring that part of the holding be planted to trees.
- 4) The Desert Land Act of 1877, allowing purchase of up to 640 acres at \$1.25 per acre, and calling for some irrigation developments.
- 5) The Kinkaid Act of 1904, essentially an enlarged Homestead Act, allowing entries up to 640 acres; applied only to the drier portion of western Nebraska, largely Sandhills.
- 6) The Enlarged Homestead Act of 1909, permitting entries up to 320 acres.
- 7) The Stock-Raising Homestead Act of 1916, permitting entries up to 640 acres.

Although these laws do show a tendency to enlargement, none of them met the needs or expectations of the stockman, and, in many cases, not even of the family farmer. Texas, it should be pointed out, did not cede its public lands when it became a state and so did not share these limitations.

Notice that the land alienation laws deal with units of 160 acres and multiples thereof up to 640 acres. In the western areas it takes from 20 to 40 acres to support one cow-unit. Three hundred and twenty acres would therefore support 16 cows under the 20-acre limit, about 11 cows under the 30-acre limit, and 8 under the 40-acre limit. If we expand the unit to 640 acres, the cattleman could support twice that number of animal units, or 16 cows under the 40-acre per-cow ratio. Obviously we are here dealing with pure fantasy. All of the enlargement laws were made in response to widespread bankruptcies and pleas by cattlemen for legal provision to achieve viable ranching units. A stockman commented on the Kinkaid Act in 1905 that this Act "was brought about by people who believed that there were yet fools enough to

populate the country and abandon it.”

In 1957 Walter Prescott Webb published an article in *Harper's Magazine* titled “The American West, Perpetual Mirage.” It provides an image that continues to haunt. He points to the eight mountain and intermountain states as the true and perpetual desert. Bordering it east and west are large areas into which the desert expands and contracts with some irregularity. Hence desert conditions pulsate forward and backward. The result is that the annual cycle of reaping and harvesting is broken and longer cycles of income prevail, to which the local economy is not attuned—so the reliance on outside support for survival. This image can also be applied to other desert margins, conspicuously in Africa. Famines as well as rescue help from outside sources are the result. This suggests a nomadic form of life, for man and animals. In this light we may well pay our respects to the Plains Indians, who followed the buffalo, who followed the grass, which followed the rains.

Changing Image of Grass

It is gratifying to know that the image of grasses has changed radically from pioneer days. Our remaining native prairie grasses are now judged one of our greatest resources. They not only support myriads of forms of life, stabilize soils against rain and winds, heal open wounds where grass has been exterminated by man or nature, but have given us some of our most productive soils by adding organic matter. Efforts to expand them or even to replant them are carried out with some urgency. Over a million acres of abandoned cropland has been re-seeded to native grasses in the state of Kansas alone. Our largest block of tall grass prairie is now found in the non-arable Flint Hills section of Oklahoma and Kansas. Some preserves of the original grassland, for edification of the public, have already been established and efforts are under way to expand this program. In a large measure our image of grass has come full cycle for the benefit of present and future generations.

Innovation, Creativity, with Only One Leg

Merritt “Bud” Parks

In the days before the government had decided it was wise to encourage soil and range conservation, an individual in Oregon stood out as an example of vision and foresight in coping with the severe problems of the time. He was John H. Harrison, whose intellect and sense of humor impressed everyone he met. The 35-year portion of his life spent on the Oregon Desert near Fort Rock left an indelible mark on the land as a prototype and pointed the way to the improved conservation methods of later years.

During the period of 1914 to 1917, when it became apparent that their situation was almost hopeless, homesteaders straggled out of the Fort Rock Valley and the Oregon Desert. With nine and one half inches of annual rainfall, it was not farming country.

Their hardships seemed to produce resourceful people who were able to find productive lives elsewhere. Many of the homesteaders, writing of the experiences later, thought of it less as the disaster which it was, but rather as a time of some adventure.

The land they left behind had taken a severe beating. Mercifully, some fields reverted to sagebrush; but others, exposed to wind erosion, wore down to hardpan and mineral earth where nothing has grown for over 75 years. For the few people who remained, the grim struggle for survival produced widespread uncontrolled grazing which, over the years, was probably more devastating than the plow. When the homesteaders left, many of their houses were later burned, leaving little to show for their efforts

but a devastated landscape.

Harrison lived through the homestead era. His actions in the aftermath period appear astonishingly insightful, and his ideas left an imprint on a tremendous area of land.

Harrison was believed to be a native of Arkansas, had studied law, and had come west to be the Indian Agent at the Klamath Agency. It was said that he did not like the ethics and principles employed at the reservation and, believing he saw an opportunity at Fort Rock, resigned.

Arriving in 1908, he purchased a state-owned school section, Sec. 16, (T25S, R15E) three and a half miles north of the village of Fort Rock, Oregon, and homesteaded additional acres. He had a house and outbuildings to form a rather impressive compound.

After the homesteaders left, grazing in the valley was up for grabs as there was no entity with authority to control the abandoned areas. The remaining stockmen cut fences in corners where cattle might get trapped away from water, all the while trying to control some tracts with good fences where forage could be saved for use later in the season. This situation continued for nearly two decades and resulted in appalling overgrazing and wind erosion.

Harrison did not participate in this devil-take-the-hindmost operation. Rather, he rented or paid taxes on a huge blocked area of abandoned land to establish some sort of legitimacy. He then removed interior homestead fences and built good outside fences enclosing large areas. These were referred to as the North pasture, the 10,000 acre pasture, etc. At times he owned substantial