NATURE WRITINGS

*William Cronon, editor*

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# Muir

*Nature Writings*

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The Story of My Boyhood and Youth
My First Summer in the Sierra
The Mountains of California
Stickeen
Essays

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# *Wild Wool*

MORAL improvers have calls to preach. I have a friend who has a call to plow, and woe to the daisy sod or azalea thicket that falls under the savage redemption of his keen steel shares. Not content with the so-called subjugation of every terrestrial bog, rock, and moor-land, he would fain discover some method of reclamation applicable to the ocean and the sky, that in due calendar time they might be made to bud and blossom as the rose. Our efforts are of no avail when we seek to turn his attention to wild roses, or to the fact that both ocean and sky are already about as rosy as possible—the one with stars, the other with dulse, and foam, and wild light. The practical developments of his culture are orchards and clover-fields that wear a smiling, benevolent aspect, and are very excellent in their way, though a near view discloses something barbarous in them all. Wildness charms not my friend, charm it never so wisely; and whatsoever may be the character of his heaven, his earth seems only a chaos of agricultural possibilities calling for grubbing-hoes and manures.

Sometimes I venture to approach him with a plea for wildness, when he good-naturedly shakes a big mellow apple in my face, and reiterates his favorite aphorism: "Culture is an orchard apple; nature is a crab." All culture, however, is not equally destructive and inappreciative. Azure skies and crystal waters find loving recognition, and few there be who would welcome the axe among mountain pines, or would care to apply any correction to the tones and costumes of mountain water-falls. Nevertheless, the barbarous notion is almost universally entertained by civilized men, that there is in all the manufactures of nature something essentially coarse which can and must be eradicated by human culture. I was, therefore, delighted in finding that the wild wool growing upon mountain sheep in the neighborhood of Mount Shasta was much finer than the average grades of cultivated wool. This *fine* discovery was made some three months ago, while hunting between Shasta and Lower Klamath Lake. Three fleeces were obtained—one that belonged to a large ram about four years





old, another to a ewe about the same age, and another to a yearling lamb. After parting their beautiful wool on the side and many places along the back, shoulders, and hips, and examining it closely with my lens, I shouted:

"Well done for wildness! Wild wool is finer than tame!"

My companions stooped down and examined the fleeces for themselves, pulling out tufts and ringlets, spinning them between their fingers, and measuring the length of the staple, each in turn paying tribute to wildness. It *was* finer, and no mistake; finer than Spanish Merino. Wild wool *is* finer than tame.

"Here," said I, "is an argument for fine wildness that needs no explanation. Not that such arguments are by any means rare, for all wildness is finer than tameness, but because fine wool is appreciable by everybody alike—from the most speculative president of national wool-growers' associations all the way down to the humblest gude-wife spinning by her ingleside."

Nature is a good mother, and sees well to the clothing of her many bairns—birds with smoothly imbricated feathers, beetles with shining jackets, and bears with shaggy furs. In the tropical south, where the sun warms like a fire, they are allowed to go thinly clad; but in the snowy north-land she takes care to clothe warmly. The squirrel has socks and mittens, and a tail broad enough for a blanket; the grouse is densely feathered down to the ends of his toes; and the wild sheep, besides his under-garment of fine wool, has a thick overcoat of hair that sheds off both the snow and the rain. Other provisions and adaptations in the dresses of animals, relating less to climate than to the more mechanical circumstances of life, are made with the same consummate skill that characterizes all the love-work of nature. Land, water, and air, jagged rocks, muddy ground, sand-beds, forests, underbrush, grassy plains, etc., are considered in all their possible combinations while the clothing of her beautiful wildlings is preparing. No matter what the circumstances of their lives may be, she never allows them to go dirty or ragged. The mole, living always in the dark and in the dirt, is yet as clean as the otter or the wave-washed seal; and our wild sheep, wading in snow, roaming through bushes, and leaping among jagged storm-beaten

cliffs, wears a dress so exquisitely adapted to its mountain life that it is always found as unruffled and stainless as a bird.

On leaving the Shasta hunting-grounds I selected a few specimen tufts, and brought them away with a view to making more leisurely examinations; but, owing to the imperfectness of the instruments at my command, the results thus far obtained must be regarded only as rough approximations.

As already stated, the clothing of our wild sheep is composed of fine wool and coarse hair. The hairs are from about two to four inches long, mostly of a dull bluish-gray color, though varying somewhat with the seasons. In general characteristics they are closely related to the hairs of the deer and antelope, being light, spongy, and elastic, with a highly polished surface, and though somewhat ridged and spiraled, like wool, they do not manifest the slightest tendency to felt or become taggy. A hair two and a half inches long, which is perhaps near the average length, will stretch about one-fourth of an inch before breaking. The diameter decreases rapidly both at the top and bottom, but is maintained throughout the greater portion of the length with a fair degree of regularity. The slender tapering point in which the hairs terminate is nearly black; but, owing to its fineness as compared with the main trunk, the quantity of blackness is not sufficient to greatly affect the general color. The number of hairs growing upon a square inch is about 10,000; the number of wool fibres is about 25,000, or two and a half times that of the hairs. The wool fibres are white and glossy, and beautifully spiraled into ringlets. The average length of the staple is about an inch and a half. A fibre of this length, when growing undisturbed down among the hairs, measures about an inch; hence the degree of curliness may easily be inferred. I regret exceedingly that my instruments do not enable me to measure the diameter of the fibres, in order that their degrees of fineness might be definitely compared with each other and with the finest of the domestic breeds; but that the three wild fleeces under consideration are considerably finer than the average grades of Merino shipped from San Francisco is, I think, unquestionable.

When the fleece is parted and looked into with a good lens, the skin appears of a beautiful pale-yellow color, and the delicate wool fibres are seen growing up among the strong hairs,



like grass among stalks of corn, every individual fibre being protected about as specially and effectively as if inclosed in a separate husk. Wild wool is too fine to stand by itself, the fibres being about as frail and invisible as the floating threads of spiders, while the hairs against which they lean stand erect like hazel wands; but, notwithstanding their great dissimilarity in size and appearance, the wool and hair are forms of the same thing, modified in just that way and to just that degree that renders them most perfectly subservient to the well-being of the sheep. Furthermore, it will be observed that these wild modifications are entirely distinct from those which are brought chancingly into existence through the accidents and caprices of culture; the former being inventions of God for the attainment of definite ends. Like the modifications of limbs—the fin for swimming, the wing for flying, the foot for walking—so the fine wool for warmth, the hair for additional warmth and to protect the wool, and both together for a fabric to wear well in mountain roughness and wash well in mountain storms.

The effects of human culture upon wild wool are analogous to those produced upon wild roses. In the one case there is an abnormal development of petals at the expense of the stamens, in the other an abnormal development of wool at the expense of the hair. Garden roses frequently exhibit stamens in which the transmutation to petals may be observed in various stages of accomplishment, and analogously the fleeces of tame sheep occasionally contain a few wild hairs that are undergoing transmutation to wool. Even wild wool presents here and there a fibre that appears to be in a state of change. In the course of my examinations of the wild fleeces mentioned above, three fibres were found that were wool at one end and hair at the other. This, however, does not necessarily imply imperfection, or any process of change similar to that caused by human culture. Water-lilies contain parts variously developed into stamens at one end, petals at the other, as the constant and normal condition. These half-wool half-hair fibres may therefore subserve some fixed requirement essential to the perfection of the whole, or they may simply be the fine boundary lines where an exact balance between the wool and hair is attained.

I have been offering samples of mountain wool to my friends, demanding in return that the fineness of wildness be fairly recognized and confessed, but the returns are deplorably tame. The first question asked is, "Wild sheep, wild sheep, have you any wool?" while they peer curiously down among the hairs through lenses and spectacles. "Yes, wild sheep, you *have* wool; but Mary's lamb had more. In the name of use, how many wild sheep think you would be required to furnish wool sufficient for a pair of socks?" I endeavor to point out the irrelevancy of the latter question, arguing that wild wool was not made for men but for sheep, and that, however deficient as clothing for other animals, it is just the thing for the brave mountain-dweller that wears it. Plain, however, as all this appears, the quantity question rises again and again in all its commonplace tameness. To obtain a hearing on behalf of nature from any other stand-point than that of human use is almost impossible. Domestic flocks yield more flannel per sheep than the wild, therefore it is claimed that culture has improved upon wildness; and so it has as far as flannel is concerned, but all to the contrary as far as a sheep's dress is concerned. If every wild sheep inhabiting the Sierra were to put on tame wool, probably only a few would survive the dangers of a single season. With their fine limbs muffled and buried beneath a tangle of hairless wool, they would become short-winded, and fall an easy prey to the strong mountain wolves. In descending precipices they would be thrown out of balance and killed, by their taggy wool catching upon sharp points of rocks. Disease would also be brought on by the dirt which always finds a lodgment in tame wool, and by the draggled and water-soaked condition into which it falls during stormy weather.

No dogma taught by the present civilization seems to form so insuperable an obstacle in the way of a right understanding of the relations which culture sustains to wildness, as that which declares that the world was made especially for the uses of men. Every animal, plant, and crystal controverts it in the plainest terms. Yet it is taught from century to century as something ever new and precious, and in the resulting darkness the enormous conceit is allowed to go unchallenged.

I have never yet happened upon a trace of evidence that



seemed to show that any one animal was ever made for another as much as it was made for itself. Not that nature manifests any such thing as selfish isolation. In the making of every animal the presence of every other animal has been recognized. Indeed, every atom in creation may be said to be acquainted with and married to every other, but with universal union there is a division sufficient in degree for the purposes of the most intense individuality; and no matter what may be the note which any creature forms in the song of existence, it is made first for itself, then more and more remotely for all the world and worlds.

Were it not for the exercise of individualizing cares on the part of nature, the universe would be felted together like a fleece of tame wool. We are governed more than we know, and most when we are wildest. Plants, animals, and stars are all kept in place, bridled along appointed ways, *with* one another, and *through the midst* of one another—killing and being killed, eating and being eaten, in harmonious proportions and quantities. And it is right that we should thus reciprocally make use of one another, rob, cook, and consume, to the utmost of our healthy abilities and desires. Stars attract each other as they are able, and harmony results. Wild lambs eat as many wild flowers as they can find or desire, and men and wolves eat the lambs to just the same extent. This consumption of one another in its various modifications is a kind of culture varying with the degree of directness with which it is carried out, but we should be careful not to ascribe to such culture any improving qualities upon those on whom it is brought to bear. The water-ousel plucks moss from the river-bank to build its nest, but it does not improve the moss by plucking it. We pluck feathers from birds, and less directly wool from wild sheep, for the manufacture of clothing and cradle-nests, without improving the wool for the sheep, or the feathers for the bird that wore them. When a hawk pounces upon a linnet and proceeds to pull out its feathers, preparatory to making a meal, the hawk may be said to be cultivating the linnet, and he certainly does effect an improvement as far as hawk-food is concerned; but what of the songster? He ceases to be a linnet as soon as he is snatched from the woodland choir; and when, hawk-like, we snatch the wild sheep from its

native rock, and, instead of eating and wearing it at once, carry it home, and breed the hair out of its wool and the bones out of its body, it ceases to be a sheep. These breeding and plucking processes are similarly improving as regards the secondary uses aimed at; and, although the one requires but a few minutes for its accomplishment, the other many years or centuries, they are essentially alike. We eat wild oysters alive with great directness, waiting for no cultivation, and leaving scarce a second of distance between the shell and the lip; but we take wild sheep home and subject them to the many extended processes of husbandry, and finish by cooking them—a process which completes all sheep improvements as far as man is concerned. It will be seen, therefore, that wild wool and tame wool—wild sheep and tame sheep—are not properly comparable, nor are they in any correct sense to be considered as bearing any antagonism toward each other; they are different things, planned and accomplished for wholly different purposes.

Illustrative examples bearing upon this interesting subject may be multiplied indefinitely, for they abound everywhere in the plant and animal kingdoms wherever culture has reached. Recurring for a moment to apples. The beauty and completeness of a wild apple-tree living its own life in the woods is heartily acknowledged by all those who have been so happy as to form its acquaintance. The fine wildly piquancy of its fruit is unrivaled, but in the great question of quantity as human food wild apples are found wanting. Man, therefore, takes the tree from the woods, manures and prunes and grafts, plans and guesses, adds a little of this and that, until apples of every conceivable size and pulpiness are produced, like nut-galls in response to the irritating punctures of insects. Orchard apples are to me the most eloquent words that culture has ever spoken, but they reflect no imperfection upon nature's spicy crab. Every cultivated apple is a crab, not improved, *but cooked*, variously softened and swelled out in the process, mellowed, sweetened, spiced, and rendered good for food, but as utterly unfit for the uses of nature as a meadow lark killed and plucked and roasted. Give to nature every apple—codling, pippin, russet—and every sheep so laboriously compounded—muffled Southdowns, hairy Cotswolds, wrinkled Merinoes—



and she would throw the one to her caterpillars, the other to her wolves.

It is now some 3,600 years since Jacob kissed his mother and set out across the plains of Padan-aram to begin his experiments upon the flocks of his uncle, Laban; and, notwithstanding the high degree of excellence he attained as a wool-grower, and the innumerable painstaking efforts subsequently made by individuals and associations in all kinds of pastures and climates, we still seem to be as far from definite and satisfactory results as we ever were. In one breed the wool is apt to wither and crinkle like hay on a sun-beaten hill-side. In another, it is lodged and matted together like the lush tangled grass of a manured meadow. In one the staple is deficient in length, in another in fineness; while in all there is a constant tendency toward disease, rendering various washings and dippings indispensable to prevent its falling out. The problem of the quality and quantity of the carcass seems to be as doubtful and as far removed from a satisfactory solution as that of the wool. Desirable breeds blundered upon by long series of groping experiments are often found to be unstable and subject to disease—bots, foot-rot, blind-staggers, etc.—causing infinite trouble, both among breeders and manufacturers. Would it not be well, therefore, for some one to go back as far as possible and take a fresh start?

The source or sources whence the various breeds were derived is not positively known, but there can be hardly any doubt of their being descendants of the four or five wild species so generally distributed throughout the mountainous portions of the globe, the marked differences between the wild and domestic species being readily accounted for by the known variability of the animal. No other animal seems to yield so submissively to the manipulations of culture. Jacob controlled the color of his flocks merely by causing them to stare at objects of the desired hue; and possibly Merinoes may have caught their wrinkles from the perplexed brows of their breeders. The California species (*Ovis montana*) is a noble animal, weighing when full grown some 350 pounds, and is well worthy the attention of wool-growers as a point from which to make a new departure. That it will breed with the domestic sheep I have not the slightest doubt, and I cordially

recommend the experiment to the various wool-growers' associations as one of great national importance. From my knowledge of the homes and habits of our wild sheep I feel confident that several hundred could be obtained for breeding purposes from the Sierra alone, and I am ready to undertake their capture. A little pure wildness is the one great present want, both of men and sheep.

*The Overland Monthly*, April 1875

# *Flood-Storm in the Sierra*

BEARS, wild sheep, and other denizens of the mountains are usually driven down out of the high Sierra about the beginning of winter, and are seldom allowed to return before late spring. But the extraordinary sunfulness of last winter, and my eagerness to obtain general views of the geology and topography of the Feather River basin, caused me to make a reconnoissance of its upper tributary valleys in the month of January. I had just completed this hasty survey and pushed my way down to comfortable winter quarters, when that fine storm broke upon the mountains which gave rise to the Marysville flood. I was then at Knoxville, a small village on the divide between the waters of the Yuba and Feather, some twenty miles back from the edge of the plains, and about 2,000 feet above the level of the sea. The cause of this notable flood was simply a sudden and copious fall of warm rain and warm wind upon the basins of the Yuba and Feather rivers at a time when these contained a considerable quantity of snow. The rain was of itself sufficient to produce a vigorous flood, while the snow which was so suddenly melted on the upper and middle regions of the basins may have been sufficiently abundant for the production of another flood equal in size to that of the rain. Now, these two distinct harvests of floodwaters were gathered simultaneously and poured down upon the plain in one magnificent avalanche. In the pursuit of clear conceptions concerning the formation of floods upon mountain rivers, we soon perceive that it is essential, not only that the water delivered by the tributaries be sufficient in quantity, but that it be delivered so rapidly that the trunk will not be able to discharge it without becoming choked and overflowed.

The basins of the Feather and Yuba are admirably adapted for the growth of floods. Their numerous tributary valleys radiate far and wide, comprehending large areas, and the tributaries are steeply inclined, while the trunks are comparatively level. While the storm under consideration was in progress, the thermometer at Knoxville ranged between 44 and 50°, and when warm wind and warm rain fall simultaneously upon