

Seton, E. Y.

The prong-horned antelope.

(1906)

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The Prong-Horned Antelope

33

bargain both for housewife and ourselves was made.

The shoe shop did not display a large gold sign or show any indication outside of its nature, but those of us who wished a pair of wooden *klompen*, and visited the shop for that purpose, soon found that shoes were a minor consideration, and fell to sketching the interior, continuing our purchasing only as an excuse for our staying. The walls were of wood, painted Indian red. Things partly used and partly saved were strewn here and there. Yellow tarpaulins and blue fishing coats hung from the rafters, and a Delft tiled fireplace with old copper and brass belongings shone in its dark casement. Before this were piled the shoes—all sizes jumbled together, and before I had a pair that "mated" I discovered that it was the customer's pleasure and not the storekeeper's to transact whatever business was done.

Days of work under the tiled and moss-grown roof of the attic studio, lined with old patched sails, bleached and rotted by sun and water, but breathing stories of the sea;

Lypje, with cheeks and neck like rose-leaves on ivory, tall, hoydenish, but good-natured, and her old uncle, whose days for the trawling net and line were over; children, round-eyed and wondering, but mischievous in the end; and newly found friends who always knew of old friends—these made the days short and the mind contented.

One evening, when the wind blew cool and the deep blue of night darkened the heavens, the proprietor's daughters, of which he had three, walked with me to the little cabin boat I had seen during my first day on the canal. My pack, which was considerably added to by costumes and sketches, was placed upon the roof; and, as the captain tugged at the hawser and the mate pushed with his pole, I made my adieu and silently, by the light of a solitary lamp, found my way to a seat in the low-roofed cabin among a group of the villagers. The bumping of the boat signalled her destination in the town, where the waiting train hustled me once more into the ceaseless din and nerve-racking elements of a big city.

Scribner's Magazine, July 1906.

THE PRONG-HORNED ANTELOPE

THE PRONG-BUCK OF AMERICA (*ANTILOCAPRA*
AMERICANA, ORD. 1818)

BY ERNEST THOMPSON SETON

ILLUSTRATIONS BY THE AUTHOR AND FROM PHOTOGRAPHS



IN that eventful *annus domini* 1535, when Jacques Cartier ascended the St. Lawrence to be the white discoverer of Hochelaga, Francisco Vasquez de Coronado also landed in Mexico and became a pioneer and an empire builder of world-wide fame. Five years later he set forth on his memorable march northward as far, we now believe, as Kansas, discovering and possessing in the name of the Cross and the King.

Without doubt he was the first white man to see the Antelope herds. Mr. Charles F. Lummis writes me that:

"Coronado's Expedition unquestionably

VOL. XL.—4

saw Antelope; but there is no name and no definite description of them in his record. The nearest he comes to it is on the Buffalo plains, where Castañeda speaks of 'siervos, remendados de blanco' (the stags patched with white).

"Herrera mentions them under their proper name of *berrendos* (Decade II, p. 288, 1601). I do not recall any mention of them in Gomara."

In 1651 Hernandez described this animal. He calls it *Teuthalmaçame* or *Temamaçame*; evidently these were the native Aztec names, and in the same paragraph he uses the name "*Berendos*," by which it is yet known in Mexico. But it did not receive

its scientific name until 1815, when in Guthrie's Geography Ord described it as *Antelope Americanus*, and still later in the *Journal de Physique*, 1818, when he made for it the genus *Antilocapra*.

The word Cabrit or Cabrie, used by the half-breeds of the North-west, is doubtless, as Richardson suggests, a Basque corruption of the Spanish *cabra*, a goat. The names *Le Squenoton* and *Squinaton*, recorded by Dobbs and his anonymous predecessor, probably do not belong to this species.

Merriam has recently (1901) described the Mexican Antelope as a new sub-species, *mexicana*, but this name is possibly antedated by Hamilton Smith's *palmata* (1827). I have not attempted to demark the areas of the races.

The map shows a surprisingly slight shrinkage in the ranges of the species; a shrinkage which, unfortunately, does not correspond with the actual reduction of its numbers. The ancient territory of the Pronghorns was about 2,000,000 square miles; and a safe estimate, founded on the reports of travellers, would be five Antelope to every square mile of that.

Major J. B. Pond wrote me as follows: "In the winter of 1868-69, I travelled on the new railroad for the first time from Denver to Cheyenne. The Antelope had all left the open plains, and were now sheltering among the foot-hills. For ten or twelve miles in Cache le Poudre Valley and all the way west of the train, about three-quarters to one-half a mile away, was one long band of Antelope, twenty to forty rods wide, practically continuous and huddled together for warmth. Their numbers changed the color of the country. That winter many wagon-loads were brought to Denver and sold, three or four carcasses for two bits (25c.) that being the smallest coin in use."

If there is no error in these figures it meant 2,000,000 Antelope. Probably these came from within a radius of 200 miles, and certainly this was but a small proportion of the entire Antelope population of America.

From these various facts it will be seen that in many regions the species probably exceeded ten to the square mile, and though there were vast areas which fell far below this, they were offset by the congestion elsewhere; therefore, in estimating their pristine population at five to a square mile, I have been reasonably conservative.

The present range covers about 1,000,000

square miles. But who will say that there are 5,000,000 Antelope left? If there are 100,000 wild Antelope to-day I am agreeably surprised. At least half of them must be in Mexico.

In some regions, I am told, there is a slight increase, but in others a sad diminution in the last five years. Mr. A. A. Anderson estimates that in 1905 there were not more than a quarter of the Antelope in Wyoming that there were in 1900. Nevertheless, the nation has awakened up to the fact that the Antelope is worth preserving and that a national effort is needed to do it.

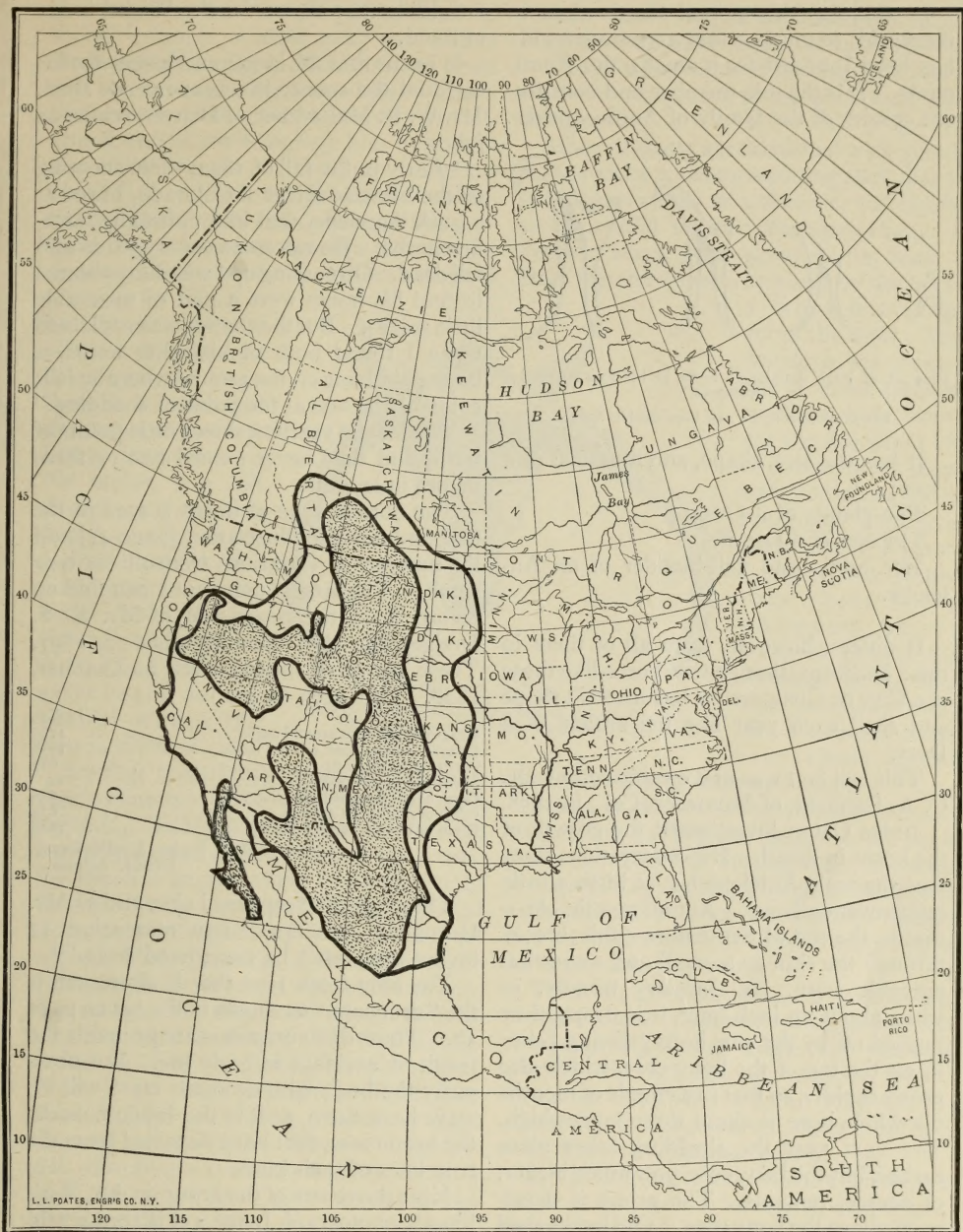
All the States now have game laws for the protection of Antelope; some of them have declared a close season for a term of years, and it is possible that we may yet keep the Pronghorn from going the way of the Wild Pigeon and the Buffalo.

The largest buck Antelope in the Zoölogical Park, is, according to Mr. Hornaday, "37½ inches at the shoulder." A fair-sized buck stands 36 inches at the shoulder—the top of the head rising a foot higher—and he weighs about 100 pounds. A four-month's old buck which I weighed in Jackson's Hole, October, 1898, ~~went~~ 60 pounds, and stood 28 inches at the shoulder. A large one killed by Mr. E. S. Dodge, of Oracle, Arizona, weighed 125 pounds. The females are smaller and lighter.

The colors of the adult male Antelope are rich tan, which, under the brilliant skies of the Plains, looks purplish, varied with pure white patches, as shown on page 41. The upper part of the muzzle, the patch under each ear, eyes, horns, hoofs, and sometimes the mane, are black. The female is similar in color, but with the black areas less, and often without that under the ears. Mr. W. T. Hornaday has a large male head also without the black side-patches.

On the photograph by Mr. Wallihan [page 45] the second figure from the right shows a curious color variation, the principal one known. The usual pattern on the throat is there, but distorted throughout as though the stencil had been jarred when the work was half done.

The young are at first grayish brown, darkening on the face, paling on the rump, and with faint suggestions of the adult colors, but never spotted, as in the Deer family.



Range of Prong-horned Antelope.

Compiled by Ernest Thompson Seton from the records of many travellers and from those of the Biological Survey of the U. S. Department of Agriculture, also in part from Mr. W. T. Hornaday's map. The outer line is the primitive range. The tint shows the range in 1900.

In anatomy this animal stands alone in the world; so much so that a separate family has been founded for it among the Ruminants. It is the sole member and constituent species of the family of Antilocapridæ.



Diagram of buck Antelope's horns in his four successive Autumns.
The black part is the new horn coming inside.

It has the size, shape, and mammæ of a Deer;
The glands of a Goat;
The feet of a Giraffe;
The horns and gall-bladder of an Antelope.

It differs, however, from all of them in this: Its horns, though true horns like those of a Cow or Goat, are yet branched in shape and shed each year like the antlers of a Deer.

This last fact was first established by Dr. C. A. Canfield, of Monterey, Cal., in 1858.

Judge Caton investigated the growth of the horns in detail. His observations show that the male Antelope has at birth a little bump over each eye. At four months old—that is, the end of September—this breaks through the skin as a small and somewhat movable horn. In January usually, or when about an inch long, it is dropped or pushed off by the new horn growing below it, on the top of the bony core, which also grows rapidly, so that in a couple of months the whole horn is about three inches high. The next year the shedding takes place earlier, but the bony core, now much bigger, of course, remains. The prong is developed above the bony core. Old bucks shed in October—that is, immediately after the rut. They have the advantage over the Deer tribe in one particular—the Deer are hornless for some time after shedding the antler, but the Antelope's new horn is already well sprouted before the old one is shed. The accompanying outlines [page 36] may be considered as diagrammatic expression of the horn development. Actual ma-

terial like that shown for the Wapiti is not at hand.

It seems that the larger and lustier the individual the sooner his weapons are shed. Mr. W. R. McFadden, of Denver, relates as follows:

“Early in the fall of 1894, while shooting on the Elkhead River of Colorado, I fired at a buck Antelope, that had unusually large, fine horns. He ran some twenty yards and fell dead. On coming up I was disappointed to find his horns were a pair of miserable little spikes. But the change was explained when I found both of his other horns, a large pair, lying on the ground where he fell; evidently he was at the point of shedding.”

The female yearling shows little points of horn, and they never exceed two or three inches in length.

The normal type of horns is seen in the first figure in the illustration [page 41] and the number of variations from this is very small. The largest pair that I can find on record is in the possession of Mr. E. S. Dodge, who shot them October 22, 1897. These are given in *Recreation* for October, 1898. (Not seen by me.)

	Inches.
Length of left horn around curve.....	17 ³ / ₄
Length of right horn around curve.....	17 ³ / ₈
Spread of horns at tip.....	6 ¹ / ₂
Spread at widest part.....	15
Girth of left horn at base.....	6 ¹ / ₂
Girth of right horn at base.....	6 ¹ / ₄
Girth of horn at largest place.....	10 ¹ / ₂

E. S. Dodge, Arcadia Ranch, Oracle, Arizona.

These are of exceptional size, and as Mr. Hornaday remarks, “any measuring 12 inches may fairly be considered large.”*

The only freak type that is often seen is the “droopers,” as shown in the cut on page 37. These disfigurements are probably the result of accident in early life. But obviously the buck with droopers once, will always have them, as it is the fundamentals, the horn cores, that have departed from the true lines of their kind.

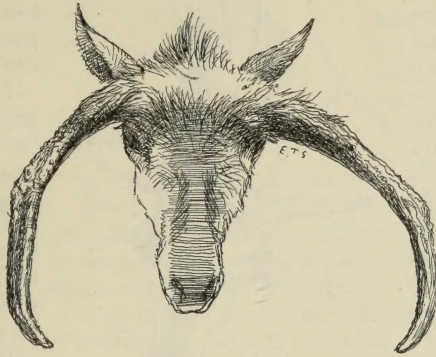
Near the centre of the group in Mr. Wallihan's photograph [page 45] is seen a wild buck with drooping horns.

A singular specimen in the collection of Mr. Louis M. Thompson, of Red Bank, N. J., has but one horn, the only unicorn buck that I know of.

Long ago Darwin confessed himself puzzled by the form of the Antelope's horn, the incurve of the points apparently rendering

*“Am. Nat. Hist.,” p. 117.

them useless for attack. It seemed as though a simple, straight spike would be so much more effective. The incurved point and its half-way snag seemed like buttons on the rapier, like efforts to disarm the well-armed knight while leaving him in possession of his weapons. But many observations made on the Antelope in the Washington Zoo Park, while I was painting their portraits, showed me how true it is that not the smallest detail in nature is without a distinct purpose for which it has been carefully adapted through ages of experiment. From these I learned that the prong, so far from being the button on the rapier, is a hilt that protects the bare flesh farther up, as described later in the paragraph on the duel; and the recurved point enables the buck to strike his adversary in the throat where the skin is thinnest.



Antelope with drooping horns.

From photograph in *Recreation*, June, 1897, by W. H. R., who got them at Laramie, Wyoming, in 1893.

Another remarkable detail of the Antelope's anatomy is the white area on each buttock. Although it seems at first like the rest of his spots, a mere patch of white coat, it is found to be specialized for an important service. It is composed of hair graded from short in the centre to long at the front edges. Under the skin of the part is a circular muscle by means of which the hair can, in a moment, be raised and spread radially into two great blooming twin chrysanthemums, more or less flattened at the centre. When this is done in bright sunlight, they shine like tin pans, giving flashes of light that can be seen farther than the animal itself, affording a conspicuous identification mark that must be of great service to the species. [Page 38.]

As soon, therefore, as an Antelope sees some strange or thrilling object, this muscle acts, and the rump patch is instantly changed into a great double disc of white that shines afar like a patch of snow; and by its flashing spreads the alarm. This, it will be seen, is simply a heliograph. Man flatters himself that he was the inventor of flash communication; but he is wrong; the

Antelope had it first. They used it thousands of generations before man ever dreamed of it.

The bristling mane of the species is erected under excitement at the same time with the discs.

Many animals are furnished with glands that produce a strong-smelling stuff that in some cases serves as a defence, but mostly as a method of intercommunication. A Peccary has a scent gland on his back, a Deer has one on each foot and on the hock, a Goat has them about the head. The Antelope has every one of these kinds of smellers, each tainting the adjoining air in a way of its own, and doubtless for a purpose that none other could answer. Judge Caton thinks that these many pungent odors help to protect the Antelope from flies and mosquitoes; but it seems likely that their chief

service is for intercommunication.

Those on the jaw seem related to the sexual system, as they are largest in the buck and most active in rutting time; those on the rump, have a place in their heliographic code; and the purpose of the others though not yet understood, is almost certainly to serve in conveying news.

The uniform of the species is itself an important means of intercommunication. Its conspicuous coloring labels the creature afar that this is surely an Antelope, for information of a friend or foe. Thus one realizes that it is useless to follow, and the other that it is needless to flee.

It is interesting to note that the Antelope's tail does not count in its code of expression, although in the Whitetailed Deer—which is not furnished with the disco-graph—the tail is greatly developed and specialized as a means of communication. Parallel cases are the Wapiti, whose tail is inert, but whose crupper-patch is very active, and the Moose, whose tail is a dummy, or sleeping member of the firm, but whose hip on each side is furnished with an erectile patch that seems to serve the purpose of expression.

The Prong-Horned Antelope

The voice of the Antelope is a querulous, grunting bleat, uttered by the mother when she is calling to the kid. At other times I have not heard it. But a sort of shrill whistle or snort is used as an alarm, and they have also a short bark of curiosity. The kid utters a little bleat or squeak, but the rest of the signalling is done by appeals to the eye and nose.

The eye of the Antelope is of marvellous beauty and magnitude, "larger than that of any other quadruped of its size" (Caton), and there is every evidence that it is as keen as it is beautiful. This is readily understood in relation to the fact that it is a creature of the open; its eyes are more often serviceable to it than its ears, or even its nose, and the majority of its signals, unlike those of woodland animals, are dependent upon vision for their success.

The Prongbuck is the only horned ruminant in North America that has but two hoofs on each foot. Nature's economic plan has been to remove all parts that cease to be of use, and so save the expense of growing and maintaining them. Thus man is losing his back or wisdom teeth since civilized diet is rendering them superfluous. The ancestor of the Antelope had four hoofs to the foot, like the Deer or Pig, but the back

pair on each has been dropped. At an earlier step the common ancestor of the Antelope and Deer had five well-developed toes on each extremity, but it seems that while this makes an admirable foot for wading in treacherous swamps, it is, for mechanical reasons, a *slow*

foot; the fewer the toes the greater the speed. The Deer, still living in swamps, could not afford to dispense entirely with the useful little hind or mud-hoofs. There they are still, for bog use, though much modified from the original equal-toed type, more nearly shown in the Fig. But the Antelope living in the hard, dry uplands had no use for bog-trotters, and exchanged them for a higher rate of speed, so that it now has only two toes on each foot.

The Horse family went yet further. They shunned the very neighborhood of swamps; all their life was spent on the firm, dry level country; speed and sound feet were their holds on existence, and these they maintained at their greatest pitch by adopting a foot with a single hoof-clad toe.



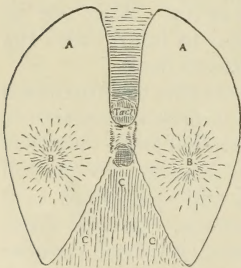
An Antelope pose.

Coronado and his contemporaries discovered the Antelope, but they were too

busy adding to the spiritual Kingdom of their Masters, in consideration of the material plunder thereof, to give a second thought to this wonderful wild thing. It remained for the immortal Lewis and Clarke, 250 years later, to tell the world about the Prong-horn of the Plains.

They comment with wonder on its great strength and its great weakness—that is, its speed and its curiosity, that has so often rendered its speed of no avail. By common consent the Antelope is given first place for swiftness among the four-foots of America.

"Their walk is a slow and somewhat pompous gait, their trot elegant and graceful, and their gallop or 'run' light and inconceivably swift. They pass along, up or down hills, or along the level plain with the same apparent ease, while so rapidly do their legs perform their graceful movements in propelling their bodies over the ground, that like the spokes of a fast-turning wheel, we can hardly see them, but instead, observe a gauzy or film-like appearance where they should be visible." (Aud. & Bach. "Quads. of N. A.," vol. II, p. 198.)



Skin of crupper-discs.

At AA the hair was about four inches long; at and below BB less than two inches; at CCC, between the two patches, it was one-quarter inch long.



Antelope poses.

Mr. W. T. Hornaday says: "In running it has three very distinct gaits. When fleeing from danger it carries its head low like a running sheep, and gallops by long leaps; when showing off it holds its head as high as possible and trots. . . . Occasionally it gallops with high head by stiff-legged leaps like the Mule Deer." ("Amer. Nat. Hist.," 1904, p. 117.)

Why does the Antelope occasionally make these high, and but slightly progressive bounds? Undoubtedly for the same reason as the Jack Rabbit makes a "spy hop." They are to give it a momentary high outlook whence it can scan the surroundings and take in the situation.

I have gathered many observations to get an idea of the actual speed of certain quadrupeds and have arrived at a scale, which, however, I submit with much hesitation. Of course we have no actual gauge on the speed of the wild species; it must be arrived at by various devices and comparisons, eliminating all guesses. The estimates of hunters, etc., are always too high; besides it is a misleading fact that of two animals going at the same rate, the smaller always *appears* to be going faster.

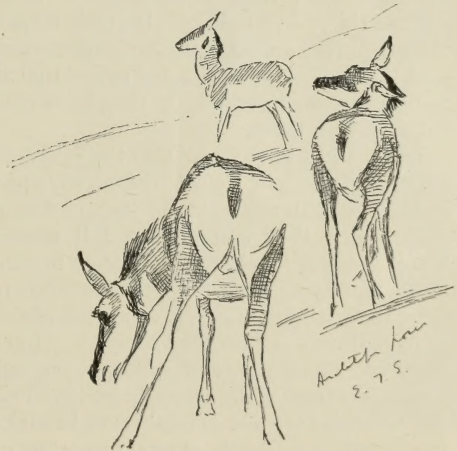
I think it is safe to say that the Horse, the ancient standard of speed, still holds his own. There seems no good reason for supposing that any creature on legs, two, three, or four, ever went for any distance so fast as a blooded race-horse; and Caiman's mile in 1 minute 38½ seconds, cited by Arbitrator in *The London Field* for December 31, 1904, is probably the fastest pace reliably recorded for anything afoot.

On the uplands of Mexico in 1892 and 1893, I several times saw my hunting comrade, William Allen, ride on his favorite "Spider" right into a bunch of Antelope going their best and with everything in their favor. Spider was locally known as a racer, although only a quarter-blood.

On the Little Missouri I saw some first-class greyhounds overtake a Mule Deer on the level, but fail utterly when it came to a buck Antelope. These same Dogs could catch a Coyote in a very short race.

I have computed the speed of many other animals by counting their bounds to the minute and then afterward measuring their bounds in the snow, and I have made a number of comparative observations from railway trains and motor cars going at a known speed; and above all, I have always kept in mind the fact, when on record, that such can catch so-and-so in a fair race. The mineralogists make a scale of hardness, on units, each of which can scratch the one below it, and be scratched by the one above: I have acted on this plan in making my scale of swiftness, only for "scratch" I read "catch."

Capt. R. B. Marcy says: "We have had several good opportunities since we have been upon the plains of witnessing the relative speed of the different animals found



Antelope poses.

The Prong-Horned Antelope

here, and our observations have confirmed the opinion I have before advanced. For example, the Greyhounds have, upon several different occasions, run down and captured the Deer and the Prairie-rabbits, which are also considered very fleet; but although they have had very many races with the Antelope under favorable circumstances, yet they have never, in one instance, been able to overtake them; on the contrary, the longer the chase continued, the greater has been the distance between them. The *Cervus Virginianus* (our Red-deer) has generally been considered the fleetest animal upon the continent after the Horse, but the *Antilocapra Americana*, or Prong-horned Antelope of the plains, is very much swifter." ("Exp. Red River," 1854, p. 62.)

Greyhounds have doubtless caught many Antelopes in open chase, but I never yet heard of one Greyhound catching a full-grown, un-wounded buck Antelope by fair running.

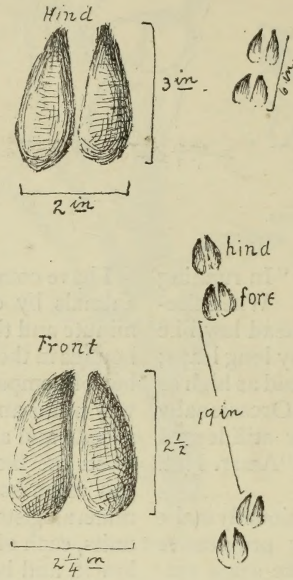
I have often heard rail-rovers tell of races between trains and Antelope. When running at the ordinary rate of twenty-five to thirty miles an hour, the engine could not pass these fleet coursers, but when the engineers turned on all speed so as to run at a thirty-five-mile rate, the train forged ahead, and in a mile or so the Antelope turned aside and gave it up, disgusted to find that at last there was something on the plains that could outrun them.

In general I have found that the wild animals are less swift than is commonly supposed; their strong point is the quickness with which they can get up full speed. Their "muzzle" velocity is indeed a matter of life and death, for most predaceous creatures, especially the Cats, give up the chase at once if they fail on the first dash. Furthermore, I have been continually impressed by the smallness of difference in speed. The few seconds that one animal saves in making its mile is evidently of vital importance. The scale I have attempted, is founded on

the animal's best rate for a mile. A rate that is representative has been chosen, rather than the phenomenal, or the record of each species.

Thus the best Horse record for a mile is at the rate of over thirty-six miles an hour. I prefer, however, to set the Horse at thirty-four miles an hour, as many Horses attain this rate.

	Best speed for a mile is at the rate of
Racehorse.....	34 miles per hour.
Prong-horned Antelope.....	32 " " "
Greyhound.....	30 " " "
Texan Jack Rabbit.....	28 " " "
Common Fox.....	26 " " "
Northern Coyote.....	24 " " "
Foxhound.....	22 " " "
American Grey.....	20 " " "
Wolf.....	20 " " "



Tracks of large Antelope.

In this connection it is interesting to note that the best speed of a man for 100 yards is $9\frac{3}{8}$ seconds; this is at the rate of $21\frac{1}{2}$ miles an hour. A man's best speed for a mile is 4 minutes $12\frac{3}{4}$ seconds, or at the rate of 14 miles an hour. An ordinary runner makes a mile in five minutes, *i. e.*, at the rate of 12 miles an hour, so that what actually counts in the race is, as usual, the *trifle more speed* that each animal can command.

All travellers and hunters agree that the Antelope can cover an astounding distance in a single leap, but none of them tell us what they mean by "astounding"; whether fifteen feet or fifty, remains to be ascertained. Judge Caton, however, points out that their leaping power is almost confined to the horizontal. They are so essentially creatures of the open plains and so unaccustomed to high jumping that a four-foot fence was enough to confine them.

This animal is credited with uncontrollable curiosity. In the old days of Lewis and Clarke the recognized method of tolling Antelope within shot was to wave a handkerchief on a stick in their plain view, the gunner himself remaining concealed, and usually, after much doubt and many circlings, the herd ventured within range. At one time, we are told by travellers, any unusual object was enough to attract the Antelope.

But they learned wisdom in later years.



Drawn by Ernest Thompson Seton.

Antelope sighting danger



Antelope in National Zoological Park.
Discs closed.



The same Antelope with discs half spread.

On the Plains of New Mexico I never could toll Antelope, nor did I hear of anyone succeeding in that country. In fact, the local hunters maintained that it was "played out"—the Antelope were too wary now to be taken in.

My own experience with Antelope was chiefly on the Plains of the Canadian River and in western Wyoming, and I was there much struck by the smallness of the home locality that seemed to satisfy each band.

A level stretch of open prairie two miles across was ample range for a herd of twenty the whole season. If there was water on it they seemed satisfied to stay indefinitely.

Dr. Edward L. Munson, U. S. A., says: "For some weeks a band of several hundred were in a large pasture four miles square, several miles from Havre." (*Forest & Stream*, January, 1897.)

Mr. W. N. Byers, of Denver, Col., tells me that for several years in Middle Park he used to see one particular large buck Antelope near the road within a mile of the same place. He supposed it was there on account of a salt lick near.

Dr. Canfield (of California) says: "Any particular band of Antelope does not leave the locality where they grow up, and never range more than a few miles in different directions." (Caton, "Ant. Deer Am.," p. 43.)

It is a common remark that when hunted the Antelope runs in a circle. A little reflection will show that this is true of all animals, and that this circle is always around the region that the creature knows, namely, its own home locality.

During the summer the bands are scattered, but the individual range is even smaller. I have seen an old Antelope that made her summer home on the flat top of a butte that was less than 200 acres in extent. The males seem to be less local at this time than the females, and commonly wander in twos.

But all this permanent residence of one spot seems to have been in regions where the winter was mild and the snow light. In the northern part of the range a different habit prevailed. At the first heavy snow the Antelope of the Upper Jackson's Hole moved 150 miles southward to the Red Desert. Those on the prairies of the Saskatchewan moved into the *coulées* and brakes 100 miles southward and westward. Those of the Plains went toward the foot-hills, and those on the open country about the Black Hills flocked thither from all points of the compass.

Prof. Edward Carter tells me that they used to winter in vast numbers about Colorado Springs, and were common in the surrounding country all the rest of the year.

As already noted, Major Pond told me of the first year when the railroad from Cheyenne to Denver was open, and he then saw the Antelope crowded in every sheltered valley along that line during a severe storm that drove them off the Plains. At Medicine Hat, Alberta, I was informed that a snow-storm in winter would concentrate the Antelope in *coulées* and places of shelter. But these are temporary congregations, and according to Dr. E. L. Munson, a few days of fine weather would cause them to scatter again. He also remarks that "he found Antelope rare during the summer along the Sun River and the Teton, but reasonably plenty in winter."

Richardson says: "Some of them remain the whole year on the South Branch of that river [Saskatchewan], but they are merely summer visitors to the North Branch [about 200 miles away]. They come every year to the neighborhood of Carlton-house, when the snow has mostly gone . . . and they retire to the southwards again in the autumn as soon as the snow begins to fall." Then he adds an item which affords interesting light on the relentless process of developing a migratory instinct. "Almost every year," he says, "a small herd linger on a piece of rising ground not far from Carlton-house, until the snow has become too deep on the plains to permit them to travel over them. Few, or none of that herd, however, survive until the spring, as they are persecuted by the Wolves during the whole winter." (F. B. A., vol. i, p. 263.)

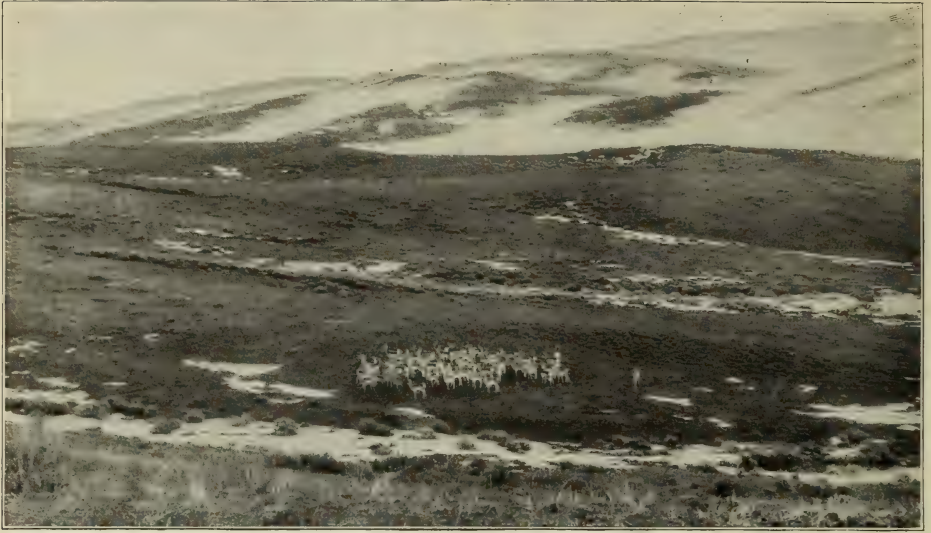
From this we may conclude that the Antelope is a creature of small home locality, but a permanent resident there when climate and food supply permit, as they do in the southern part of its range. But in the colder, snowier regions it is driven to journey in search of better conditions, and though these movements are as often northward as southward, they are seasonal and somewhat regular, so that they are truly migrations.

The Antelope is a creature of the dry, open plains, the land of grass, cactus, and sage, and its food is, by long habit, confined to them. Judge Caton could not induce his captive specimens to touch twigs, browse, or leaves. They would eat grain and fresh bread, but rejected fruit and acorns. "They are fond of common salt," he says, "and should have it always by them when in parks, and if soda be mixed with it no doubt it would be better for them, for their native plains generally abound with crude or sulphate of sodium, and long use may make this better for them than in the form of the chloride; at least it is worth the trial by those who have pet Antelopes." [Page 42.]

Once every day during the hours of sun-heat the Antelope cautiously wend their way to the familiar pond or spring or stream. There they drink copiously, for they seem to need much water. Nevertheless, those who are familiar with the arid region of the continent will see at a glance that the map includes as Antelope range vast areas that are without water during the greater part of the year. What do the Antelope do there?



Antelope approaching to attack.
From a photograph by Mrs. E. T. Seton.



From a photograph by A. G. Wallihan.

Antelope on their winter range.

The answer is simple; these regions are provided with vegetation that has the power of storing up water for its own use—that can, during the few showers of winter, lay up enough moisture to carry it over the whole year; and chief among these provident plants are the great bulging cactuses. Each is a living tank charged with fluid so precious that it must, perforce, wear a body-guard of poisonous bayonets to keep back the horde of wayfarers so ready to slake their thirst at the cactus's expense. In these the Antelope finds its desert springs. Mr. T. S. Van Dyke, who first called my attention to the fact, says:

“On the arid Plains of Lerdo, in Mexico, where I hunted in 1884, the Deer and Antelope do not drink. The proof is conclusive to my mind. I know that the only water for forty miles was the little pool less than 200 feet across, that was only a quarter of a mile from my camp. Whitetail, Mule Deer and Antelope abounded in all that region, and yet the mud on the banks never showed a sign of one coming there to drink. It seems that the fleshy leaves of the abundant cactus supply them both with food and drink.”

Mr. Edward H. Wuerpel, the well-known artist of St. Louis, writes me similarly (March 30, 1901):

“When I lived in Mexico six years ago Antelope were still abundant on the upland

plains as far south as Coahuila. There is no water in the region they inhabit, but they find the cactus leaves supply enough moisture.”

But what about the spines that are supposed to be the sufficient defence of these living tanks? Mr. Wuerpel writes further: “While crossing the region with oxen, we used to burn the spines off the cactus and feed it to the cattle, and they suffered no inconvenience for lack of water, although without it for perhaps two days.”

But who burns off the spikes for the Antelope? This is a point on which I can shed no light, but it is a well-known fact that the oxen and wild cattle of Mexico are utterly repelled by the cactus spines, which the Antelope and the Deer have learned in some way to overcome. What that way is, we have yet to learn.

If captured when fully adult, Antelope are usually considered irreclaimable. But taken when a few days old, they are the most tamable of our horned creatures, and indeed almost too ready to follow anyone who finds them and stays long enough to establish a slight bond of acquaintance.”

They are very delicate at this age, and difficult to bring up. Mr. J. H. G. Bray, of Medicine Hat, tells me, however, that he has reared many Antelope kids by feeding them on cow's milk one-third water and a



From a photograph, copyright, 1894, by A. G. Wallihan.

Group of wild Antelope.

little sugar, giving them many feedings a day. Even when fully grown they are not hardy and rarely live long in confinement. Fatal enteritis seems to be the principal trouble.

The worst enemies of the Wild Antelope are first, repeating rifles; and next, Sheep, which destroy their winter range. But Coyotes, Wolves, and Eagles kill many of them, especially when young.

The adult Antelope is rarely attacked by Eagles. The only case I ever heard of first-hand was related to Mr. Harry J. Wells, of Clayton, New Mexico. Coyotes are to be feared chiefly when the latter are so hard pressed that they organize a hunt with a system of relays, and thus run down the quarry that is so much swifter than themselves. But they kill numbers of the little ones before they are able to follow the old one.

On their extreme northern range they have another dread enemy whose occasional ravages are thus commented on by Dr. E. L. Munson. "Mr. Parotti has been in this country as hunter and guide for nearly twenty years. He tells me that the fearful winter of 1893, when the thermometer registered 61 degrees below in this post [Fort Assiniboine, Mont.], killed off four-fifths of the Antelope—that they starved to death by thousands on account of the deep snow.

He found after that winter, what he estimated were 900 carcasses where the Antelope had drifted into a deep ravine and evidently had no strength to get out. Before that time Antelope were plenty through here, but that winter killed nearly all off. While they were shot by thousands, the number so destroyed was only an insignificant fraction of the total." (*F. & S.*, March 27, 1897.)

During the winter they are in mixed bands of all ages and sizes. In my time these bands were commonly ten to fifty in number, but in earlier days, I am told, several hundred, even thousands, would run together.

Early in spring the usual inevitable disposition to scatter manifests itself. The separation of the sexes seems to be due to an instinctive dislike of each other as the time approaches for the young to be born. It becomes yet stronger as the hour draws near. At that time each female strives to be utterly alone. She avoids even the few remaining companions of her own sex and retires to some secluded spot.

The event takes place in late May or early June on the Yellowstone, and the fawns or kids are commonly two in number.

Their mother hides them close together for several days, visiting them at frequent intervals, ceaselessly scanning air and plain

for signs of danger, and never going far away, excepting, perhaps, when forced to seek water; a necessary absence which she cuts as short as she possibly can, and anything like the squeak of a kid will bring her back at restless speed with blazing eye and bristling hair ready to fight to the death an ordinary foe, or if it be one too strong, to intercept and mislead him by every device the mother wit can bring to bear. There are



Heads of young bucks.

not many creatures native to the plains that she will not face in such a case.

It seems likely that few Antelope kids are killed by their natural enemies, except such as are surprised during the brief absences of the devoted mother.

This is a danger inseparable from polygamy. If the Antelope had developed monogamy the young would have two adults to protect them; at least one would likely be near at all times, and the superior prowess of the buck might even eliminate the chief danger of their young lives.

Though strong enough to follow the mother, they are yet ready at her signal to hide when danger threatens, and the marvellous way in which they "play dead" is most inspiring.

June 13, 1897, I rode to the top of Junction Butte, in Yellowstone Park. As my head rose above the level I caught sight of an Antelope walking along, and followed by a smaller animal that turned out to be the kid. Very soon the mother saw me and communicated her alarm to the young one, which dropped at once to the ground. The mother ran off to one side uttering the loud grunting bleat of the species. Evidently she

was trying to decoy me away, but I rode straight to where the young one dropped, and found him crouching flat on the bare ground, and yet so well concealed by his protective color and his stillness that I never should have found him had I not marked him down. I rode around him and spent some twenty minutes making the sketch which, finished afterward, appears on page 47. During this time he gave no sign of life, even a fly crawling over his eye and nose did not make him forget that his duty was to "lay low" at whatever cost.

Just how his mother ordered him to hide I cannot tell. I am satisfied that he did not see the danger. She may have grunted, but I am inclined to think that the danger signal was a flash of her crupper-discs.

This young one I take to have been two weeks old. His

colors were quite unlike those of the old one, being soft, unspotted shades of gray and brown that matched him with the ground, helping him to hide, constituting a *protective* coloration, in contrast to the *directive* livery of the old one; a livery which he does not assume until he is able to save himself by running.

On June 12, 1897, we rode down the Yellowstone in the Park with Mr. E. Hofer. Three Antelope were in sight. By imitating the squeak of a young one, Hofer brought the old one up close, and shortly afterward we found two of the young close together, but they were well grown, much larger than the one of the 13th, and yet crouching in the sage while the mother circled 200 yards away uttering her alarm bleat. When we



Sketch of a young Antelope "laying low."

got within a few feet of them they jumped up and ran away swiftly, but crouched again when out of sight over the next ridge. I took them to be about three weeks old. In this case the mother's alarm cry may have been the sufficient order to hide.

As soon as the young can follow there is a disposition on the part of the mothers to form little bands. In early July two or three of the old ones with their kids may then be seen together. They unite for the sake of company and mutual protection, so that this is truly a social gathering.

By the end of July the kids on the Yellowstone are about half grown and have now assumed the livery of the old ones. Early in August the young bucks begin to join the bands of their mothers and little brothers. By September older bucks drift in, and the Antelope band shows all ages, sizes, and sexes mingled together in a huge happy family. As this is too soon for the sexual passions to play their firebrand part, we have in this ideal month of September an ideal scene that is probably unique among our Horned Ruminants. Many old hunters

have described it to me. The following from Mr. W. R. McFadden, of Denver, gives a glimpse of one of their games.

"In the head of Middle Park, Col., about the 12th or 15th of September, 1882, I crawled out after a band of Antelope on the plain. There was a fine big buck and only one. I got out to a buffalo wallow, and raising up to shoot I saw the buck playing a game with about eight kids. They were careering about; he was leading. They would chase him and caper and prance around him. After about half an hour the little ones got tired and quit. But the buck was still fresh, and he set out, apparently, to run himself down. Rushing at full gallop round and round the bushes, here and there, anywhere to keep going, and yet close to the crowd. He must have run ten minutes all alone at full speed while I watched, and still seemed fresh as ever. On another occasion I have seen a dozen kids and two or three big bucks at play in the same way."

The band increases as September passes, the merry games relax not, and the good fellowship existing is exemplified when Fox or



From a photograph, supplied by the Superintendent.

Young Antelope in National Zoological Park.

Coyote menace any of the young. Each one seems now to act for the good of the entire herd. A mid-September incident of Antelope hunting in Jackson's Hole recurs to me. I had crawled through brush and sage for half a mile after a mixed band of forty. I was within 300 yards and, in cover of a certain clump of sage, expected to get within 100 yards before selecting my specimen, when a loud "kau," afar to my right called my attention to the fact that I was in plain view of a young sentinel buck whose head showed above the sage 200 yards to my left. In an instant every crupper-disc was flashing; the band lined up. The next moment I knew they would be going. I turned my sights on the nearest; it was the sentinel, and now he is among the specimens on view at the National Museum.

This ideal family gathering is broken up at length, not by any outside enemy, but by the annual mating—I cannot call it pairing—season. Toward the end of September the kids of the year are weaned, and about the same time the procreative instinct is aroused in the bucks. At first the feeling is one merely of feverish unrest without definite purpose; sudden impulses drive them to expend their energies in aimless exercise.

Later the females manifest signs of response, and the battles that ensue show all the savagery and greed that is characteris-

tic of the extremely polygamous creature that the Antelope is. Canfield says of his domesticated Antelope, "He was the most salacious animal I have ever seen." (Caton, p. 45.)

In the Washington Zoo I repeatedly saw their manner of fighting, and was made to realize how exactly each detail of the apparently harmless horn had a purpose, offensive or defensive, for which it was highly specialized.

Two bucks were having one of their periodical struggles for the mastery. They approached with noses to the ground, and after fencing for an opening, closed with a clash. As they thrust and parried, the purpose of the prong was clear. It served the Antelope exactly as does the guard on the bowie-knife or a sword, for countless thrusts that would have slipped up the horn and reached the head were caught with admirable adroitness in this fork.

And the inturned harmless looking points! I had to watch long before I saw how dangerous they might be when the right moment arrived. After several minutes of fencing one of the bucks got under his rival's guard, and making a sudden lunge, which the other failed to catch in the fork, he brought his inturned left point to bear on the unprotected throat of his opponent, who saved himself from injury by rearing quickly and throwing himself backward, though

it seemed to me that such a move could scarcely have foiled a dangerous thrust if they had been fighting a deadly duel.

I find further that in their fights the wild Antelope are usually struck in this way. Mr. McFadden tells me that he has seen two bucks badly ripped by a rival's horn; one in the throat, the other in the side of the neck close to the throat.

I recall a scene, the sequel of an Antelope duel on the Bighorn Basin many years ago, in which evidently the defeated buck took the most serious possible view of the situation.

It was in the October of 1898. I was riding across the Bighorn Basin (Wyoming) with Mrs. Seton and Mr. A. A. Anderson, when we noticed near the horizon some bright white specks. They were moving about, disappearing and showing again. Then two of them seemed to dart erratically over the plain, keeping always just so far apart. Soon these left the others and careered about like twin meteors, this way and that, then our way; at first in changing line, but later directly toward us.

Their wonderful speed soon ate up the intervening mile or two, and we now saw clearly that they were Antelope, one in pursuit of the other. High over their heads a Golden Eagle was sailing.

On they came; the half-mile shrank to a couple of hundred yards, and we saw that they were bucks, the hind one larger, dashing straight toward us still. As they yet neared we could see the smaller one making desperate efforts to avoid the savage lunges of the big one's horns, and barely maintaining the scant six feet that were between him and his foe.

We reined up to watch, for now it was clear that the smaller buck had been defeated in battle and was trying to save his life by flight. But his heaving flanks and gaping, dribbling mouth showed that he could not hold out much longer. Straight

on he came toward us, the deadliest foes of his race, the ones he fears the most.

He was clearly between two deaths—which should he choose? He seemed not to hesitate—the two hundred yards shrank to one hundred, the hundred to fifty—then the pursuer slacked his speed. It would be folly to come farther. The fugitive kept on until he dashed right in among our startled horses. The Eagle alighted on the rock two hundred yards away.

The victorious buck veered off, shaking his sharp black horns and circling at a safe distance around our cavalcade to intercept his victim when he should come out the other side. But the victim did not come out. He felt he was saved, and he stayed with us. The other buck, seeing that he was balked, gave up the attempt, and turning back, sailed across the plain till he became again a white speck that rejoined the other specks, no doubt the does that had caused the duel.

The vanquished buck with us stood for a time panting, with his tongue out, and showing every sign of dire distress. It would have been easy to lasso him, but none of us had any desire to do him harm. In a very short time he regained his wind, and having seen his foe away to a safe distance, he left our company and went off in the opposite direction. The Eagle realized now that he was mistaken in supposing that something was to be killed, and that there would be pickings for him. He rose in haste and soared to a safe distance.

This incident suggests a number of psychological problems, which will be hard to solve if we accept certain old-time theories of animal creation, but which will solve themselves if we admit that the Antelope is our fellow-creature, with feelings somewhat akin to our own. Had one of us been in the place of the vanquished buck, we should probably have done just as he did.

THE WAY OUT

By Lucia Chamberlain

ILLUSTRATIONS BY H. J. PECK



THE greatest sense was of intolerable heat, withering as the breath of fire. The greatest sound was the monotonous wash of leaves in an uneasy wind. It came fitfully, in gasps, like the respiration of the mountain itself, troubling the trees of the grove on the canyon pitch, blanching whiter in its going the bleached grass of the clearing before the cabin. The whole mountain was clothed in haze, heavy blue along the western spurs, heavy brown toward the east. Under it was the agitation of leaves and the interminable song of the shrill-voiced creatures of the grass.

The scorching, palpitant, languid air kept the creatures of trees and earth quiescent. Not a squirrel stirred on the naked divides. Not a wing cut the foggy blue. Even the yellow pony before the door drooped his vicious head till the bridle trailed in the dust.

But the man who walked the drifted leaves under the towering, twisted oaks, or paced the clearing before the cabin in its flaming ring of poppies, moved and moved incessantly. Some agitation, some force within him, seemed to lift him above the limits of sensation. His great, loose-knitted body moved with a slouching swing, his big hands opened and shut with nervous contraction, or plunged fumbling in the pockets of his battered corduroy coat. He carried his shaggy head forward with a listening look. His eyes were now on the white curtain that covered the window looking on the grove, now with a vaguer anxiety they swept the semicircle of the fallow summit, sloping down to gray of chapparal, lower still to black of oaks, dim, all dancing together in the glistening mist. Then, with a keener, a concentrated attention, his look returned to the white window. It drew him like a magnet. His big, rude, indeterminate features were drawn in lines of tension unusual to that lax physiognomy. The vague color of his eyes was sharpened with a hot light like anger, or fear. Now he hesitated at the door,

as if some insupportable suspense drew his hand toward the latch. Then he wheeled, sullen, dogged, submissive, and swung off over the deep leaf-drift of the grove.

The air bit hot to his lungs. He got it full in the face as he came to the edge of the grove, a sharp puff of wind with the sting of the furnace; then a hush, leaves stilled, air stagnant. He stood at the pitch of the road. It descended abruptly some twenty feet, then cut away, a gradually lifting white line, around the mountain, up the steep Frog Back, and over its naked vertebræ, a white glint on the sky. Here the watcher's eyes were fixed. Long eyes they were, set in long wrinkles that come from much sighting between hard sun and broken land. But the hand held out, palm westward, to feel a second gust was smooth and uncalloused—not a rancher's, hardly even a hunter's—an idle hand, but sensitive in every finger to the quality of the quivering air.

There was a pause, while the mountain held its uneasy breath. Then the white grass of the Frog Back blenched with rapid, rippled shadows, a wave of dust came flying down the road, and all the sighing branches of the grove bent westward.

The watcher glanced quickly, furtively, behind him. Had the gust stirred the white curtain, or had some hand? His great frame drew up tense as a spring. The door was opening. Two men came on to the porch. Their figures were just visible between the ragged yellow passion-vines. One, little and weather-worn, had already his grip on the pony's mane, his toe in the stirrup. He talked over his shoulder at the other, who mopped his face and nodded his answers. His back was toward the grove, but by the set of his shoulders and the spread of his feet, he seemed the aggressive, the controlling power.

The watcher in the grove came forward a couple of strides, hesitated. They did not see him. He stood, his eyes eating their gestures, his ears strained for the tones of the words he could not distinguish. The

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