

naturally

C O L O R E D H O O V E S



The lingering controversy involving the white-colored hoof has cast a shadow over the horse world for almost a century.

By Jaime Jackson

ONE FOCUS of my research involving wild, free-roaming horses of the Great Basin area included a look at hoof color.

An interesting aspect of this research concerns the light it sheds upon a controversy involving hoof color that has lingered for nearly a century: *the enigma of the white-colored hoof*.

Influenced by the assumption that white hooves are inferior to dark colored ones, many horse enthusiasts avoid horses with white hooves. For others, these hooves provide a convenient scapegoat for a host of alleged hoof-color based problems.

In view of what I found among nature's sound outback horses, it is

not unreasonable to review the evidence concerning this indictment. Are white hooves really inferior to black ones?

Historical Observations

During the late 19th and early part of this century, the United States Bureau of Ethnology and the

Smithsonian Institution sent anthropologists into Indian country to investigate Native American culture. This included the horse complex of the Plains Indians.

What they, and earlier observers of Indian horsemanship, found has left an indelible but questionable impression in the minds of horse enthusiasts. Their testimonies and journals spawned a trail of secondary written works and anecdotal tales which surfaced in a range of "popular" western books, lay treatises on Indians, their horses and barnyard gossip.

John Ewers, professor emeritus of anthropology at Tulane Univ., described in his writings the Blackfeet Indian culture through the words of elderly Blackfeet informants who lived "in the old ways"

One white hoof, buy him!
Two white feet, try him!
Three white feet, deny him!
Four white feet and a white
nose, take off his hide and
feed it to the crows.

—old lyric taken from
*R.F. Wiseman's Complete
Horseshoeing Guide (1973)*

before the coming of the white man.

Ewers wrote in his classic, *The Horse In Blackfeet Indian Culture*, that "Most Blackfoot shied away from the horse with light-colored hoofs, believing it to be a tender-hoofed animal."

Ewers was not alone in his observation of hoof color preferences among the tribes of North America. Although most reports are sketchy and some sources totally unreliable, a few chroniclers are particularly noteworthy,

This includes the Oxford-educated, Canadian explorer and surveyor for the Hudson Bay Co., David Thompson. As he crossed the Rocky Mountains in 1807, he wrote in his journal: "The yellow hoof with white hair is a brittle hoof and soon wears away; for this reason, as much as possible, the natives take only black-hoofed horses on their war expeditions."

Neither Thompson or Ewers were biologists trained to scrutinize

the hoof's morphology. They were not able to apply the necessary criteria to target true hoof breakdown based on pigmentation. What they and others were led to understand by mixed-blood interpreters could have had other explanations.

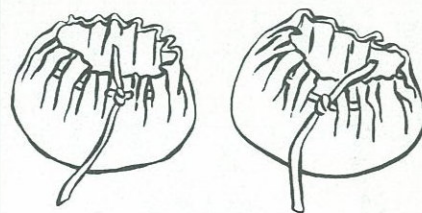
Two Possibilities

There were still relatively few horses among northern tribes at the turn of the 19th century; spectacularly colored horses with white hooves were even scarcer.

The burgeoning Plains Indian horse culture was still in its infancy as Thompson's expedition crisscrossed northern tribal territories. Intertribal trading brought the horse to sedentary or semi-nomadic tribes of the Pacific Northwest and eastern woodlands. The majority of horses reaching these and other warrior tribes via the Indian trade were dark-colored horses with black hooves.

However, the highly coveted

RAWHIDE HORSESHOES SIMILAR TO
BLACKFOOT TYPE, ARAPAHO

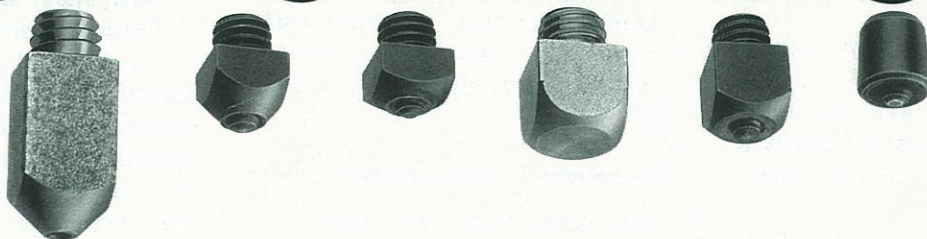


spotted and dappled horses were at a premium. So why risk using them in battle if more plentiful, less coveted bays and chestnuts could be ridden?

A second explanation began to take shape once the horse culture blossomed among the Plains Indians. Numerous paint and dapple horses abounded, probably best understood by the old Plains Indian horse stealing customs.

Ewers was told by an elderly

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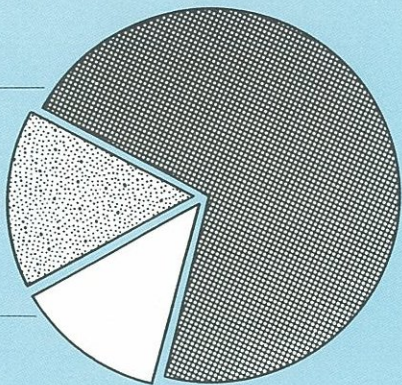
DISTRIBUTION OF HOOF COLOR

BLACK 70%

MIX-COLOR 17%

WHITE 13%

Percentages for entire Litchfield sample



Blackfoot warrior informant, Short Face, "that when there was sufficient light for horse raiders to distinguish the colors of horse's hoofs, they tried to take dark-hoofed horses from the enemy."

What Short Face was actually trying to say was dark-colored hooves were less conspicuous than light-colored ones.

During nighttime raids, brightly colored steeds with light colored hooves could possibly advertise the thief's presence at camp's edge.

Supporting this thesis is the fact that Plains Indian warriors have been noted by other eyewitnesses to wrap their war ponies' hooves in leather "booties" to muffle their hoof beats (see page 52).

Farrier Concerns

The nature of the white hoof enigma based on these historical footnotes has tempered my thinking as a farrier for many years. Nothing in my experience as a farrier has led me to conclude white hooves are any better or worse than black ones.

However, my research with wild horses in America's outback caused me to rethink matters. It gave me the ammunition and confidence to challenge this unfair indictment of

inferiority which continues to shackle the white-hoofed horse.

Among the wild horses which I studied, there were three distinct hoof-color patterns as shown at left:

★ 13% white (yellow)-colored.

★ 17% mixed-colored or striated, colored as suggested in various combinations of yellow and black that run in

bands or streaks from the coronet down to the hoof's bearing surface.

★ 70% black-colored, perfused mainly or entirely with black pigmentation.

Fully 30% of all hooves in the rugged outback were white or mixed-colored! If white hooves were as troublesome as Thompson, Ewers and others suggested, we would expect to see fewer white hooves in the outback and noticeable levels of hoof color based lameness. But as I and Bureau of

Land Management veterinarians can testify, this isn't the case.

Hoof color was usually the same color as the hair immediately above the coronary band. This was not always easy to see until I brushed the hairline clean and looked more closely at captive horses.

This suggests hoof color is possibly related to various forms of survival value that have nothing to do with hoof durability. In this view, hoof color follows from the same genetic organization that dictates other forms of survival, such as camouflage.

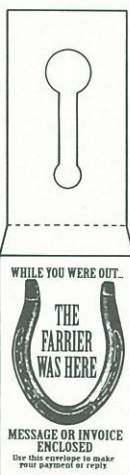
The Case for Durability

The notion that white hooves can't make the grade and are prone to tenderfootedness and weakness does not hold up in the rugged outback test of wild horses. My findings are based on 500 or so hooves I examined at arm's length in the Bureau of Land Management's holding centers, plus countless hooves I have seen from somewhat greater distances among wild horses running freely in their home ranges.

Regardless of pigmentation or

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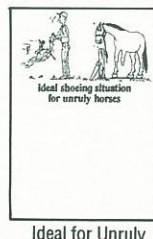
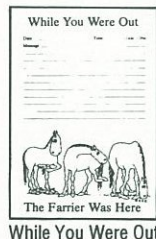
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Author Jaime Jackson is a professional farrier from Tilly, Ark., and the author of "The Natural Horse" book.

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the lack of it, these horses exhibited equally the distinguishing natural hoof form and structural integrity. Nowhere among the 1,000 or so wild horses that I followed did I see the type of abrasion-based tenderfootedness which Thompson, Ewers and others alleged to be the case.

Figure 1 shows a typical white-colored hoof. Even in winter, the white hooves I examined retained the same dense, sturdy, smoothly worn and unblemished appearance seen during dry, summer months.

Another facet of my research was to measure hooves in as many



FIGURE 1. Above, note typical white-colored hoof found on wild horses. Even in winter, the natural hooves had same dense, sturdy, smoothly worn and unblemished appearance as found in summer.

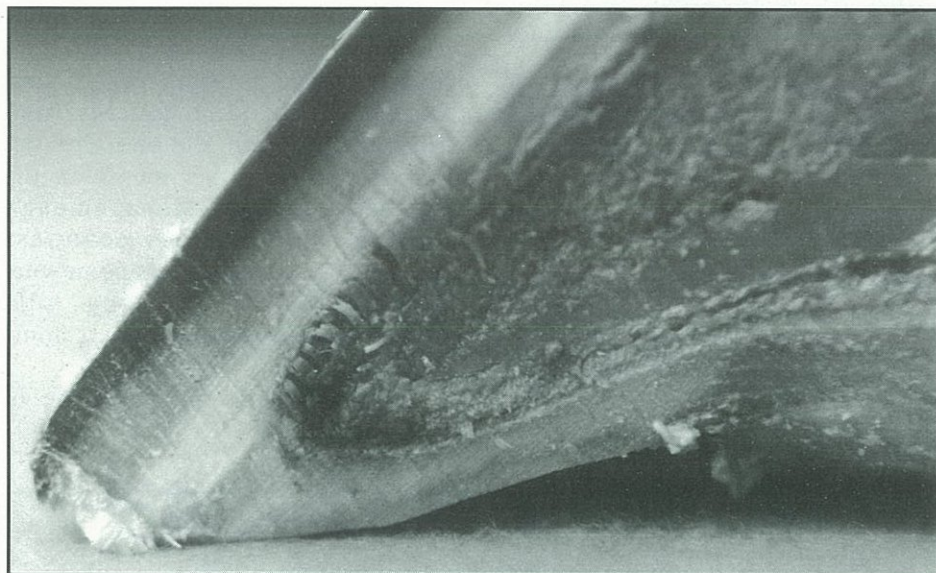


FIGURE 2. At left, is cross-sectional view of dark-colored wild horse hoof. Dark pigmentation exists only in outer striations of hoof wall. Inner portion is composed of unpigmented horn which is shown as light horn in photo.

ways as possible to gain a mathematical and statistical sense of size and proportion among naturally shaped hooves. Measurements included front and hind toe angles, toe lengths and volar/palmer (bearing surface) sizes.

Statistical Evidence

I was curious to know what would happen if I sorted all the hoof measurements (for over 100 horses in my principle sample) by hoof color. If one hoof color was predisposed to trouble—as Thompson's narrative seems to imply or to elimination by natural selection—I figured it should show up in the form of distorted results when compared to the statistical av-

erages for the entire sample.

Nothing different emerged in my statistical analysis. All categories broke down with the same results for all hoof colors: white hooves as a group reflected the same measurement averages as the entire sample of horses. I concluded white hooves must be as strong in the rugged out-back as darker colored hooves.

Laboratory Evidence

A few years ago, Doug Leach, a leading equine researcher from Canada (now working in the U.S.), reported his findings and ideas concerning hoof color to the American Farrier's Assn.

Writing in the *American Farriers Journal*, he reported: "Hoof color

has traditionally been implicated as an important factor in the durability and strength of horse hooves. However, it has been shown that black and white hooves do not differ in water content, chemical composition, hardness or compressive strength" (1).

Leach's research revealed only the outer two-thirds of the hoof wall may contain pigment.

Leach looked at the role pigment might play in hoof durability as suggested by some educators. He deduced a "vertical shear force"—likened to an axe splitting a piece of firewood along its grain—would be produced between pigmented and unpigmented areas of the hoof wall when the hoof was subjected to compression in its support phase.

He contended the result of this force would produce a breakdown if the white hoof was weaker. Leach found no such breakdowns.

I decided to check his report on several wild horse hoof specimens obtained from BLM veterinarians. Figure 2 shows a dark-colored wild horse hoof specimen in a sagittal (cross-sectional) view. As Leach explained, dark pigmentation exists only in the outer striations of the hoof wall. The inner portion, adjacent to the lamella which bind the outer wall to the coffin bone, is composed of unpigmented horn (seen as light horn in the close-up photo).

Leach projected that any shear force would likely occur along the vertical boundary separating the outer pigmented and inner unpigmented portions of the wall. A second shear force would probably tend to occur between the pigmented and unpigmented portions of the outer portions of the wall (Figure 3).

As a farrier, I have not seen such splitting or unraveling in bi-colored hooves. However, it could be confused with hooves suffering from excess moisture or severe laminitis due to founder.

My hoof dissections revealed the inner, unpigmented one-third portion of the outer wall endures most of the naturally shaped hoof's active contact with the ground during support (Figure 4). From a structural standpoint, this suggests the absence of pigment could be significant in terms of abrasion resistance.

In other words, pigmentation may contribute nothing more than what can be deduced with the naked eye—color and pattern. Unpigmented horn could contribute to abrasion resistance. This is precisely the opposite of what we have all been led to believe!

I believe Leach was right: there is no apparent structural difference between black and white colored hooves (2).

However, it is interesting to note that even Leach could not escape the seduction of the historical passages that have confounded so many horse enthusiasts to this day.

In the *American Farriers Jour-*

nal interview, he abandoned the compelling evidence of his findings. Instead, he responded to the continually nagging question posed by alleged problematic white-colored hooves:

"In old diaries of Canadian explorers it is clearly documented that white-hoofed horses that were used for long distance journeys apparently became lame because the crusty snow particles quickly wore white hooves down and weakened them."

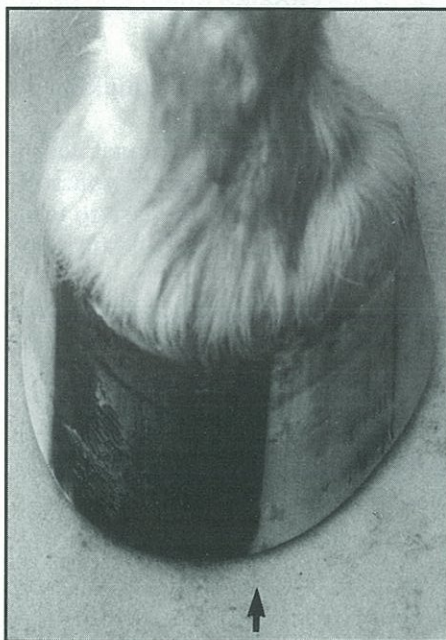


FIGURE 3. The arrow shows direction of hypothetical shear force occurring between pigmented and unpigmented regions of hoof wall.

Hoof Care Considerations

In summary, the enigma of the white hoof just goes to show how easily humans often fall victim to matters of "old wives tales."

My advice to owners and breeders of Paint Horses, Appaloosas and other breeds with white hooves is to welcome nature's cornucopia of color. Throw away those bottles of "hoof black" which mislead the unwitting and conceal the real truth.

I tell them to work closely with their farriers. I tell these owners today's farriers are educated better than ever in the science of hoof care and that they know the capabilities and limitations of a horse's hooves.

The valuable model of the naturally shaped hoof also cannot be overlooked. Without it, a solid foundation for truly natural hoof care is undermined. This again leaves us vulnerable to the whims and legacies of unsubstantiated opinions descended from the past.

Article Notes

1. Leach, Dr. Doug, "The Structure and Function of the Equine Hoof," *American Farriers Journal* 5 (1) (1981): 179.

2. I am not so sure of his claim that there are no differences in chemical composition between white and black hooves. By definition, the presence of pigmentation, or the lack of it, implies differences in chemical matter. Nor am I sure white hooves are in fact colored due to an absence pigmentation. Sagittal sections of wild horse hoof specimens I have dissected suggest strongly that white/yellow pigment is present. Further research concerning this may be in order.

CROSS-SECTION (SAGITTAL) VIEW OF HOOF
SHOWING GRADATIONS OF CONCAVITY

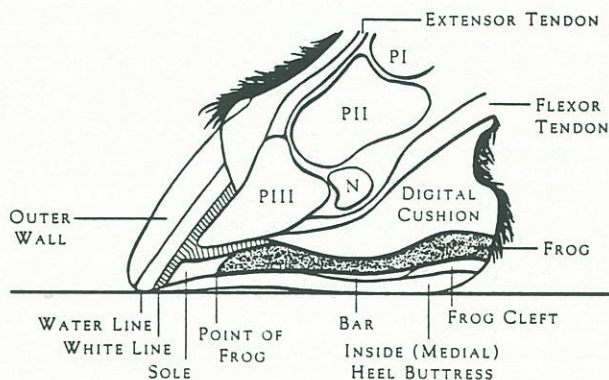


FIGURE 4. The water line of the hoof endures considerable direct contact with the ground during the hoof's support phase. There is more contact in this area than with any other portion of the hoof's outer wall, sole or frog.