



# Heat and Horses A Survival Guide

by  
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*This article is based upon original research that is published in the **Encyclopaedia of Equestrian Exploration**, written by the author. The author authorises and encourages the public dissemination of this article in the hope that this vital information may help save equine lives.*

There are two types of hot weather riders, those who are prepared and those who are surprised. I was one of those naïve ones who paid dearly by not paying heed to the deadly heat.

While travelling alone across Pakistan's North West Frontier Province, my mare, Shavon, and I found ourselves on a paved road that was so hot her hooves left deep prints in the melting tarmac.

In a country where the temperature can reach nearly 140 degrees Fahrenheit (60 degrees Celsius) I knew we were in for a scorching hot ride through a blistering landscape.

*The author and his mare, Shavon, are seen shortly before Pakistan's deadly heat injured them.*



Even though I lacked a thermometer, by midmorning I estimated it was 100 plus degrees Fahrenheit (37 degree Celsius). To make matters worse, both sides of the road were lined with tall fields of sugar cane. There wasn't a breath of breeze and the humidity was awful.

As if I needed to finalize my folly, I made the concluding mistake of continuing to ride Shavon through the increasing heat. I am not one of those authors who pretend to know all the answers or not to have made mistakes; quite the contrary. To my eternal regret, it wasn't long before the poor Palomino was black with sweat.

Like many emergencies, this one crept up on me by tiny degrees of inefficiency. At first the perspiration ran off me. Then my body drained and dried.

By mid-morning, I thought, it could be worse. And then it became so. First the skin on the back of my hands felt papery. Then they were on fire. The agony was so great I tore a cotton scarf into strips and wrapped my hands in rags.

As the sun rose still higher the air was scalding. Boiling in the saddle I tried to remember being cold or wearing a thick sweater. But the thought choked me. Instead of stopping, I mistakenly kept riding on, becoming more depressed with every step.

I lacked any appetite. My mouth felt as if it was filled with flannel. Being young and foolhardy, I hadn't thought to carry a canteen, mistakenly believing that I would find water along the way. So I rode thirsty. Some was true thirst. Part of it was the dire desire to drink which rose alongside the fear in my throat.

As the heat rose, Shavon's steps slowed. I don't know what she was thinking about but I was dreaming of juicy fruit and cold water. All the while the white hot sun overhead continued to bake us.

Before riding out of Peshawar, I had been told by old Asian hands that it used to be a court martial offence for a soldier serving in the NWFP to venture out into the sun without wearing his solar toupee. But I had neglected to believe them; the result being that even with my turban on my brain was frying.

Later I realized how wise those old fellows were; but not until my world narrowed. The air was searing. The sky remained cloudless. The sun was doing its best to kill me.

But even fools get lucky.

By late afternoon Shavon and I reached the town of Charsadda. Soon after stopping I was knocked flat by sunstroke. The resultant illness and headache cannot be described.

Luckily a local pharmacist rescued my inexperienced soul. Things being what they were in Pakistan, the treatment for my sun-induced idiocy was rather primitive. I was led into a dark room and told to lie down on a cool concrete floor. The pharmacist then shoved a needle into my left arm and told me to hold up a bag of saline water with my right hand. The resultant drip probably saved my life.

It certainly taught me a lesson.

You set off on a cloudless day, neglecting to remember that you and your horse are riding under the might of a solar power that can take your lives. Then, before you know it, things start to go very wrong. You try to stay calm. This is the here and now of it. Easy does it, you say in order to calm your nerves. You've got a chance, you repeat over and over.

If you're lucky, like I was, you and your horse will pull through. Thankfully Shavon underwent nothing worse than a distressful day.

But you should never find yourself out on such a road, cloaked in the ignorance that nearly took my life and caused my dear Shavon to suffer needlessly.

Regardless, if you're in Afghanistan or Alabama, the sun has no respect for you or your horse. If you venture out into it without caution, you are putting your lives at risk.

## **Horses and Heat**

Because horses stand dry heat better than damp, humidity is always a concern. But dry heat or not, the amount of exertion a horse is capable of undergoing is affected by other factors.

For example, more often than not the danger of riding in hot weather will be compounded when circumstances force you to travel alongside a paved road, as the asphalt reflects the heat straight up onto you and your weary mount.

Clay Marshall and Hawk Hurst endured this reflected heat while riding through the American Southwest.

“We were locked in our own misery with no escape from the elemental torture. It was as if we were riding through an oven, with visual heat waves approaching from every angle, every gust of wind, every chunk of asphalt, every passing windshield, and every unturned stone,” Clay later wrote in his book, *Ninety Days By Horse*.



*Irish Long Rider Hugh MacDermot discovered that the Argentine desert is a lonely place. While it is possible to travel if the sun is blazing, a Long Rider must restructure his daily routine in order to enhance the chances of success and safety.*

Even under normal conditions the act of locomotion only requires about 20% of the body's raw energy. Much of the remaining energy is transferred into body heat. Here's where your worries begin because this heat builds up in the horse three times faster than in your body.

Like us, the horse will lose some heat via respiration. The problem is that the shape of his body, and its larger percentage of heat-generating muscle, reduces his ability to dissipate heat through the evaporation of sweat.

Thus, though you are travelling together, his ability to dissipate heat is seriously reduced compared to yours. In a word, even though the climate may not be causing you undue stress, the horse will suffer more than you do.

Filipe Leite observed this during his journey from Canada to Brazil. During the summer of 2013, he made this important observation while riding in southern Mexico.

“One day I was watching the horses eat while sweating profusely at 7 a.m. Frenchie was literally soaked just from chewing his hay. I couldn't believe it! I have never experienced this kind of heat in my life. Like the horses, I too am soaked from morning to night. The humidity is so thick it is like a wall.”

To add to your concerns, if your horse is not acclimatised, has a thick coat, or is overweight and unfit, he will sweat all the more. This in turn will cause his body to work hard just to cool itself down.

## Water

The first line of biological defence is water.

Like all other living organisms, water is an essential element without which your horse cannot survive.

But a horse doesn't just drink water. Nearly 70% of his body is composed of this life-giving liquid. Most of it is concentrated in the individual cells of his body and acts as a vital component in his blood. Additionally, his internal organs, principally his large intestine, serve as a fluid reservoir which may hold up to 16 gallons of water. Thus, water will account for about 660 pounds of the body mass in a 1,000 pound horse.

Horses on average drink about a gallon of water per day for every 100 pounds of body weight. Therefore a thousand pound horse should be consuming ten gallons a day. However, it's not unusual for a horse to drink more than it needs.



*In 1989 North American Long Riders Walter Nelson (right) and Doug Preston retraced the route taken by the Spanish explorer Coronado during his 16<sup>th</sup> century search for the legendary “Seven Cities of Gold.” During this gruelling thousand mile ride across the deserts of Arizona and New Mexico, Walter paid careful attention to his horse's health, watering it at every opportunity.*



The daily requirements will depend on a variety of factors including heat, humidity, how heavy his load is and how far you have travelled. Under stressful conditions a horse may increase his daily water intake by as much as four times the minimum amount.

Your job is to provide him with every opportunity to replace his body fluids and restore his depleted electrolytes. Never withhold water, as every drink, no matter how small, works in his favour.

## Sweat

Where does all that water go?

Part of it is lost in vast amounts of sweat. It is not unusual for a Thoroughbred running one mile in two minutes to produce more than two gallons of sweat. The quantity of water your horse loses will depend on the temperature, humidity and how hard he is working.

*When American Long Rider Samantha Szesciorka made an extensive journey across the Nevada desert, she kept her horse, Sage, cool by placing a wet shirt round his neck.*



Regardless of the exact amount, as the animal sweats it loses precious water and the body salts known as electrolytes. Because a horse's sweat is hypertonic, it contains a higher proportion of salts than blood does. Should water be lost and electrolytes not replaced, the horse will become dehydrated.

But long before that, it has become thirsty.

## Thirst

Because sodium is more concentrated in the human blood stream, the signal to relieve thirst is dispatched quickly. This crucial signal acts slower in a horse. Consequently,

even though a horse may have lost a large amount of water by sweating, his body will not immediately acknowledge thirst.

A dilemma then arises because even though you have provided water, the horse's body has not recognized that he is dehydrated and thirsty.

## **Salt**

Like water, salt is an element which all animals need in one form or another to survive. Because it helps balance cell fluids and retain water, horses and humans cannot live without it. In fact they both crave it.

Most horses will consume small but sufficient amounts of salt if it is made available on a daily basis. They will not routinely over indulge. However the amount of salt needed and digested varies between horses and is affected by extenuating circumstances.

A horse will consume about one ounce of salt per day, if he is not working hard or being exposed to hot weather. As soon as he starts to sweat heavily, additional attention must be paid to his need for salt, as excessive sweating requires an increase of 1% to his normal daily ration.

Most horse owners in the developed world provide salt to their horses via the use of a large, hard salt block. These durable square blocks, which are often placed in a pasture or left in a feed trough, are not only seen as being a time-saving device, they are advertised as also including other trace minerals which encourage good health.

There are two drawbacks to salt blocks for Long Riders.

First, even if you are travelling in a country where such an item is for sale, you can hardly ask your road or pack horse to carry a twenty-five pound block of salt, can you?

Plus, there is a biological consideration which most horse owners are not aware of.

Salt blocks were designed for cattle, not horses. A cow is equipped with a rough tongue that allows her to obtain enough salt by licking the block. Because a horse's tongue is not rough, it has a difficult time obtaining the salt it needs and desires by merely licking the block.

Evidence of this problem can be seen by inspecting a horse's salt block. Scrapes, teeth marks or signs of gnawing are not signs of how much the horse loves salt. They are indications that the horse is not receiving enough salt by licking the block. Because they prefer to focus on the owner's convenience rather than the equine's need, this drawback is not mentioned by salt block manufacturers.

As travelling horsemen we need to be keenly aware of how important salt is to our horse's health, especially in hot weather, all the while realizing that this vital element may be hard to find and difficult for your horse to digest. Is there a solution?

Normally, your horse would be allowed to consume the amount of salt his body desired and needed. This delicate balance would vary from day to day, depending on his work and the weather. But if he is being bedded down in a different place every night then this normal routine won't work.

Depending on what country you ride through, you should obtain and carry a small amount of livestock salt. This has additional trace minerals and is not as pure as common table salt. However, should this not be available, then you may have to use what you can find.

When it comes to providing the salt to your horse, you can mix his small daily requirement with his grain ration. Another method is to sprinkle his hay with water, then sprinkle on the salt and rub it into the hay. Adding a small dash of salt to the horse's water has also been used effectively.

Remember, too much salt can be deadly. Yet scientists have confirmed that a horse's body will still be working to recover lost salt the day after intense exercise. So a delicate and careful balance is required. Also, don't fail to forget that pecking order may be a factor if you are feeding, watering or offering salt to more than one horse.

## **Riding a Deadly Road**

I'm not the only one to have been hammered on the sun's merciless anvil.

During the summer of 2008 North American Long Rider Rocky Woolman completed a difficult ride from Mexico to Canada along the Continental Divide Trail.

Regardless of those hard won miles, Rocky's attempt to ride "ocean to ocean" across the United States in the summer of 2011 came to a halt when the heat stopped this seasoned equestrian traveller in less than a week.

Rocky's troubles began in the humid state of North Carolina. It was late July. There were no clouds, not a breath of breeze and the temperature was hovering in the high 90s. Having overcome previous challenges, he thought he could ride his way through this one.

The sun had other plans.

Because the road was lined with low-lying crops, there wasn't a speck of shade. And there was another problem too.



“Travelling along the main road was the pits as there was only a few feet between the road on one side and a ditch on the other. Not to mention that the traffic, which was going by at 65 miles per hour, was passing just four feet away from me and my horse.”

After three days of this nerve-racking ride, Rocky and his horse were emotional wrecks.

To make matters worse, as the heat continued to mount Rocky found he could no longer ride.

“I had to stop, tie my horse and lie in the shade for about 45 minutes.”

He pushed on, but the heat never let up.

“It got so bad I had to stop again at a church for about an hour.”

Having rested and obtained water for himself and his horse, Rocky pressed on again, only to be halted.

“The temperature was just too exhausting.”

By noon Rocky was on the edge of being stricken by heat stroke.

“Even though I had only ridden thirteen miles, I had to stop.”

With no end in sight to the deadly hot weather, Rocky made a painful decision.

“After record high temperatures, I decided to end my ride after five days. I almost got heat stroke twice. But the final decision was based on the fact that the safety of my horse came first.”

*Sometimes you have to know when to stop. Rocky Woolman had previously completed an extensive journey in the western part of the United States. But when he encountered a record heat wave in North Carolina, he was forced to cancel his ride after suffering five days of deadly heat.*



Finding yourself alongside a white-hot Carolina road with a sweaty, thirsty horse is bad enough. Due to Rocky's diligence it didn't become even worse.

## **Dehydration**

Horses and humans normally lose water on a continual basis in the form of sweat, urine and faeces. Ordinarily this liquid is replaced by consuming more water. Serious danger sets in when a horse loses so much fluid in the form of sweat that his body's fluid levels become out of balance.

The serious condition known as dehydration occurs when the horse has lost an excessive amount of water, usually brought on by a combination of factors including heat, humidity and exertion. Because the onset of equine dehydration can be very dangerous, it is essential that you identify the symptoms as quickly as possible.

Despite the urgency, an immediate problem arises due to the fact that dehydration is difficult to detect. A dehydrated horse will sweat less than normal. Because of his loss of liquids, he will also urinate less frequently or not at all. His flanks may look caved in. His eyes may appear to have sunk into his skull. His extremities will feel cool. His pulse will be fast and weak. More obvious still will be his loss of strength and an increasingly weakening condition. When these symptoms take affect, total exhaustion is soon to follow.

But there is much more to be worried about than simply the animal's deteriorating performance. His life is at stake.

Severe dehydration will cause the horse's heart rate to raise dramatically, as the reduced amount of fluid in the animal's blood vessels forces the heart to pump ever harder in order to send blood through the weakening body. As the condition worsens the horse may collapse and then die.

As worrisome as this sounds horsemen have traditionally relied on an ancient analysis to detect dehydration. Known as the skin pinch, this test relies on the fact that under normal conditions the horse's skin is elastic and pliable.

To perform a skin elasticity exam, you gently pinch the skin on the horse's neck and observe its reaction. If the skin quickly returns to normal you know the horse is safely hydrated. Should the skin collapse slowly, or even worse remain erect, you can assume the horse is dehydrated. The longer the skin remains erect before going flat, the more severe the dehydration.

Like other non-scientific tests of this kind, the results can be inaccurate and confusing, particularly as the elasticity of the skin varies from horse to horse. Yet even if you are unable to determine exactly how severely dehydrated the horse may be, skin tenting is a strong indication that the body fluids are dangerously low and the horse's safety has been seriously compromised.

## **Treatment**

When considering the severity of what may happen to a dehydrated horse, you will understand that prevention is by far the best option. On the other hand equestrian travel is filled with unforeseen hardships and hazards, so if you are forced to ride in hot weather you should take every precaution.

Remember, his body cannot dissipate heat as efficiently as yours can. This means you will have to ensure that you keep him as cool as possible.

Even if you do not think the day's travel has been too severe, dismount and loosen his girth. Because moving muscles dissipate heat, walk him slowly and stop him in the shade.

After you come to a halt, don't be tempted into thinking that giving him a big bucket of ice cold water will solve the problem. In fact you must not over water the horse.

Because his body is lacking essential electrolytes, the horse's body will not interpret an excessive amount of water as a life saver. Mistaking the water to be excess fluid, the kidneys flush it out via renal excretion. This not only removes more of the critically low electrolytes from the system, in a perverse act of nature it increases the animal's state of dehydration. To add to your worries, allowing an excessive amount of water may also induce colic.

The proper treatment is to offer a hot horse sips of cool, not cold, water at frequent intervals.

Do not neglect to consider the depletion of electrolytes in the horse's system, as animals that are sweating heavily can lose up to 50 grams of these vital minerals per hour.

Even though salt, potassium, calcium, magnesium, phosphates and sulphates all have a fundamental role to play, caution must be used when providing a dose of electrolytes to a horse. If too large a dose is administered, the animal's weakened body will mistakenly direct critically needed water to the upper intestinal tract so as to dilute the influx of electrolytes. This serves to enhance the effects of dehydration.

Providing electrolytes to a dehydrated horse is akin to obtaining veterinary help. The country where you ride will largely determine what medical options you have. Should you know in advance that you will be travelling beyond the call of medical assistance you may wish to prepare for a hot weather emergency by purchasing a tube of electrolyte paste. This two ounce dose is squeezed into the horse's mouth. The absorption begins immediately, lasts for two hours, and restores lost minerals.

In addition you can help cool him further by softly spraying or washing him with water. Use a sponge or rag to wash down the large blood vessels inside his legs, stomach and neck. Don't let water rush into his ears. Wash his face carefully, being sure to moisten inside his nostrils.

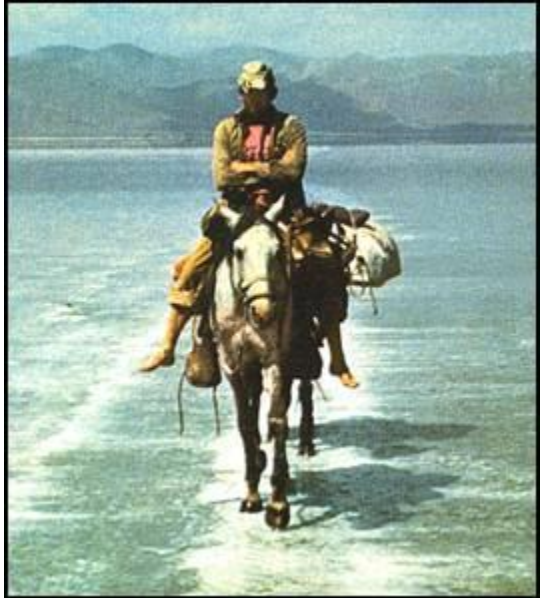
## **Riding in the Heat**

There have been occasions when an equestrian traveller has knowingly set off to ride across one of the world's hot spots. For example when Major Clarence Dalrymple Bruce found himself riding across "The Devil's Plain" in Tibet during the summer of 1905, the temperature in the sun was 130 degrees Fahrenheit. Yet it had been known to reach 158 degrees!

And in 1916 the English Historical Long Rider Joseph Smeaton Chase made an extensive mounted exploration of the Mojave Desert. His success was based upon the fact that he never underestimated how deadly the environment was.

"To me the sun has always seemed an enemy, the ally of tedium, the huge Evaporator sucking the spirit and leaving naught but the plodding clay," he warned.

*During his ride from Turkey to Afghanistan in 1977, French Long Rider Stephane Bigo was forced to endure many miles in the gruelling heat. His journey is reminiscent of the warning issued by Joseph Smeaton Chase.*



Like many an old Long Rider, Smeaton Chase knew that horses are more likely than humans to work themselves to death in hot weather. This danger is increased if a stupid or naïve human forces the horse to travel through a heat wave, in which case the chances of equine mortality dramatically escalate.

Even though J. Smeaton Chase proves that Long Riders can ride through hot climates, Rocky Woolman and I demonstrate that a problem arises when travellers are surprised by unexpected heat. As we both learned, when the heat hits you, it hammers your brain and threatens to kill your horse.

When you create a combination which includes a sweaty, tired, weakened horse, match him with a weary, sweaty, drooping rider, then place them both on a busy road which is populated by fast traffic - you're looking at a potentially lethal problem.

This isn't to say that you can't travel if the sun is blazing. But if you do decide to risk it, then you need to radically restructure your daily routine in order to enhance your safety.

The first thing to remember is to never ride during the hottest part of the day. This is the most dangerous thing you can do. When the weather's hot, always travel early and late.

You should be moving down the road at first light. This means getting up in the dark, feeding the horse breakfast, tacking up and swinging into the saddle a few minutes before the sun rises. You should allow two hours prior to sunrise to make this system work.

The French Long Riders Pascale Franconie and Jean Claude Cazade used this method to cross the Sahara in the early 1980s.

"Because it was very hot our riding hours changed accordingly. We woke at 3 a.m., set off at 5 and then rode until 9. Then we took a siesta until 5 p.m. and went on again until nightfall."

*When riding across the steppes of Kazakhstan, Australian Long Rider Tim Cope would rise at 3 a.m. and be in the saddle and on the move by 5. By 9 a.m. Tim recalled, "you are wondering if that morning's cool air was just a dream or not."*



Prior to your morning departure, prepare yourself and the horse for what lies ahead. If your horse has pink or sensitive skin, then apply zinc oxide cream to prevent sunburn. Don't neglect to protect your own face. Plus, don't make the mistake I did and forget to protect your hands. Otherwise they will burn and blister. Wear long sleeves, a large hat or a turban.

In temperatures up to 100 degrees Fahrenheit (37 degrees Celsius) you should always be out of the saddle and in the shade no later than eleven a.m. This will allow you and the horse to rest, decrease sweating, stay relatively cool and reduce mental stress during the worst heat of the day. Never mount again until the worst of the heat has passed, which usually occurs by late afternoon.

Do not ride if the temperature exceeds 100 degrees Fahrenheit (37 degrees Celsius).

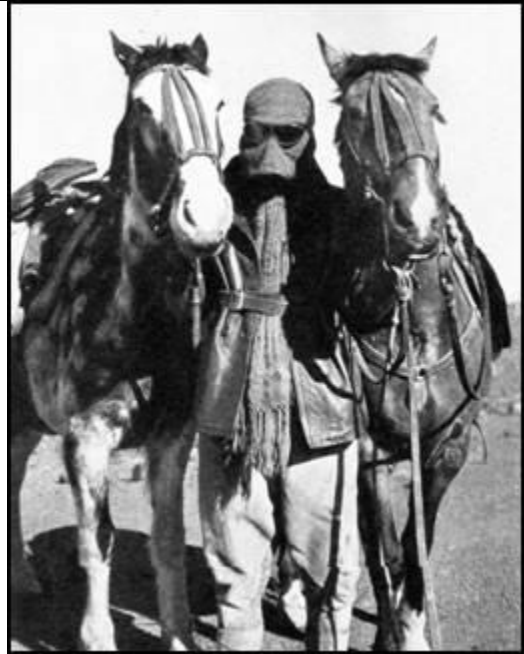
Regardless of the hour, when you ride through great heat do not move faster than a strong walk. Six hours in the saddle, at four miles per hour will still allow you to travel an average of 24 miles a day.

If possible, wash the horse with cool water as soon as you stop. If water isn't available, be extra careful about pulling the saddle off too quickly. The horse's back will be very hot, so you have to give it time to cool naturally. Loosen the girth but only take the saddle off once the back is no longer sweaty.

## **Riding at Night**

Well, you must be saying, if it's so bloody hot during the day then I'll outsmart the sun and ride at night.

*Even though the heat threatened to kill him, Swiss Long Rider Aime Tschiffely donned a wool mask and goggles as protection while riding across Peru's infamous Matacaballo (Horse Killer) Desert in 1926.*



Wiser Long Riders than you thought of that idea long, long ago. What they learned was that this is a dull and dangerous option.

To begin with the horse's natural hour to sleep is between 1 and 4 a.m., not to mention what such a move will do to your own biological clock.

Another consideration when riding at night is that one has the sensation of sitting very high above the ground.

Finally, because nothing can be seen, distances seem enormous and hours stretch into eternities.

If your life depends on it, then use this option with an exceeding amount of caution. Otherwise, ride in the daylight when you and the horse can see where you're going.

## **Summary**

If you've never experienced truly life-threatening heat it's hard to realize what it does to you. It's not until you feel the air burning as you breathe, your skin frying, or your mind reeling that you begin to comprehend what a deadly foe the sun can be.

Australian Long Rider Tim Cope made such a discovery in 2005. The temperature climbed to 124 degrees Fahrenheit (51 degrees Celsius) during his summer time crossing of Kazakhstan.



“In a state of near delusion I led the horses through the large corrugated-iron gate and tied them up. The air is so dry here that within a few seconds of stopping the sweat on the horses’ bodies dried and left white salt stains everywhere. The poor animals looked scorched and shrunken, much like myself I guess. Considering this I am forever haunted by the locals’ reaction when I ask them about heat: ‘Heat? This isn’t heat! Wait until summer. Then you will know what heat is!’”

As Tim learned, you cannot beat the heat. You can only outwit and outlast it.

Remember, your geographic goal isn’t going anywhere. You’re supposed to be enjoying yourself, not suffering in the saddle. If things don’t feel right, always put the safety of you and your horse before any kind of trick which your ego might try to play on you.

If you suspect that the health of either you, or your horse, is being compromised, then stop that day’s ride immediately. If you suspect, like Rocky did, that your safety is at stake, then reschedule the ride for a cooler part of the year.



*[CuChullaine O'Reilly](#) is the Founder of the [Long Riders' Guild](#), the Executor of the [Tschiffely Literary Estate](#) and the Director of the [Long Riders' Guild Press](#). An award winning journalist, O'Reilly has spent more than forty-years investigating equestrian exploration and history. He is the author of [The Encyclopaedia of Equestrian Exploration](#) and [The Horse Travel Handbook](#).*