

THE ANCIENT HISTORY OF MOUNTAIN MEDICINE

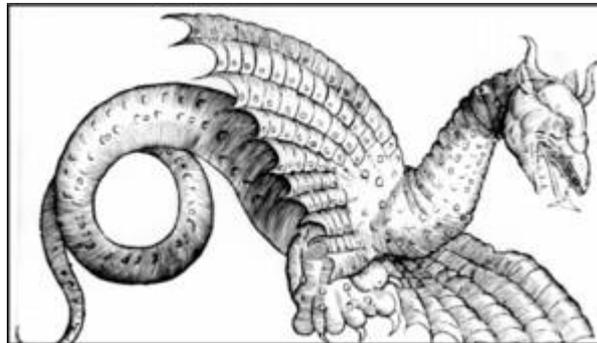
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For thousands of years humankind has looked at mountains with reverence, fear, and longing, but many dangers kept people away from them for most of recorded time. Cold, falls, storm, altitude, and dragons were too frightening. These problems are the subject of practice and research in mountain medicine.

As a recognized profession, mountain medicine is less than thirty years old, but the science is already changing what we know and do about many medical problems that cause hypoxia or cold injury in people at sea level or on mountains. Here are some historical stories about a few of the hazards encountered on high mountains. Hypothermia was recognized in Biblical times. In I Kings iv. 1-4 we read: .lm8

Now King David was old and stricken in years and they covered him with clothes but he got no heat. Wherefore his servants said "let there be brought for my lord a young virgin and let her stand before the king and cherish him and let him be in her bosom that my lord the king may get heat". They found the virgin and she stopped his shivering but he didn't warm.



Even before the Bible, Sushruta Samhita, one of the two founders of Ayurvedic medicine, prescribed similar treatment for a man with "chills and fever":

[A damsel] young and beautiful and skilled in the sport of love... should take the patient into a firm embrace like a forest creeper around a tree... and told to keep off as soon as the patient should feel himself heated"

The origins of Ayurvedic medicine are hidden in the mists of time; After most of the principles had been handed down orally for thousands of years, the great Mogul emperor Ashoka (269-232 BC) caused them to be described on hundreds of carved rocks throughout India; these are the earliest surviving texts of medicine and surgery.

The ancient precepts are more explicit and extensive than what remains of Greco-Roman medicine. Sushruta Samhita dealt mainly with surgery, Charaka Samhita with medicine, and their teaching survives today in Ayurvedic medicine. In the example I've quoted, the treatment is graphically illustrated by a couple carved in close embrace, but did this prescription cure hypothermia?

In the seventh century, Paul of Aegina was more practical:

"Those who are much congealed ought to be put in a warm place and rubbed with oil of the privet or of the iris.... Tepid seawater baths are also used."



The great Arabic physician Rhazes (aka Razi 865-932) agreed:

"An individual congealed by cold should be laid in a warm apartment and the whole of his body rubbed with hot hands, except the head which should be wrapped with hot cloths".

Cold has always been a major problem in military operations. Alexander the Great fought his way across many high and difficult ranges, the highest and most difficult being the 15,000 foot Khawak pass in Afghanistan. For forty miles the huge army struggled through deep snow where hundreds of his men froze to death; others became snowblind and wandered away. Little was or could be done for them during the desperate forced march. They were victims of the synergism between cold, altitude, hunger and dehydration.

Alexander's reporters do not mention treatment for cold injuries, but much earlier Assyrian healers used specific ointments and poultices. They also described the

torpor often ending in the fatal sleep of hypothermia; this was treated by warm baths, warm wine, warm food, and a warm young damsel.

Hippocrates pointed out:

*".....if people get their feet, hands, or head frozen by walking through snow or exposure to cold.... blisters come up like those formed by a burn. But these things do not happen before they become warm...
Congealed parts should be warmed except where there is hemorrhage or one is expected."*

He is not more specific about treatment of cold by warming. He did not amputate gangrenous members: either the patient died or the part fell off.

Three centuries later Galen noted that cold caused 'constriction' of the blood vessels, and when this was severe, sensation was lost and the congealed part became putrefied. He treated milder cases by soaking in a warm bath of seawater and by drinking a tea of various herbs and vegetables.

A Chinese Pharmacopoeia of the eighth century also recommends a decoction of certain plants for treating frostbite; today we know it to be a weak vasodilator.

In his 1697 textbook *Eight Chirurgical Treatises*, Richard Wiseman describes chilblains (also called pernio), as well as severe frostbite and gives a variety of medications, ointments and poultices to be used. For prevention he advised:

"...to clothe the parts warm so that the Pores may be open to give breathing to the Humour; to which purpose furred Gloves and woollen Mittens and Socks are to be commended..."

Warming by one means or another remained the treatment for hypo-thermia and frostbite until 1813 when Napoleon's surgeon, Dominique Larrey became famous for his description of the terrible sufferings endured by the French Army during the disastrous retreat from Moscow. But he took a big step backward, and treated frostbite by rubbing with snow. Later he changed his ideas slightly:

" The parts may remain for a longer or shorter period in this state of asphyxia without losing their life, and if the cold is removed by degrees or if the person affected by it pass gradually into a more elevated temperature ... the disposition of the parts to fall into gangrene is removed..."

In 1913 Robert Scott of the Antarctic was much criticized for suggesting that warming was better than rubbing with snow, and cold continued to be the preferred treatment.

Soldiers suffered terribly from cold in WWI. Enver Pasha lost 60,000 of his 90,000 Turks to cold in the Caucasus; both the Germans and the Allies lost even more in Europe. Treatment with snow remained official practice.

Finally in 1930 Russian doctors clearly proved that warming was the best treatment for frostbite and the German armies picked up this treatment. Ever since then careful, controlled warming for hypothermia and frostbite has been universal. We have gone full circle back to the ancients.

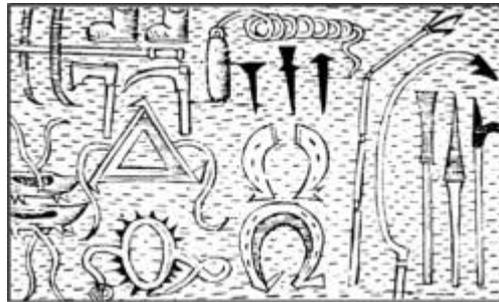
Xenophon described the deadly combination of cold, exhaustion, hunger and altitude that struck his soldiers while crossing the Taurus Mountains above 8,000 feet:

Next came a three days' march of 45 miles over level ground and through deep snow. The third day's march was a hard one, with a north wind blowing into their faces, cutting through absolutely everything like a knife and freezing people stiff. The snow was six feet deep and many of the animals and slaves perished in it as did about thirty of the soldiers. The whole of the next day's march from here was through the snow and a number of the soldiers suffered from bulimia.

Xenophon as he came upon men who had collapsed, did not know what the disease was.

Food, fuel and water were limited in this harsh, frozen terrain. When Xenophon was told that bulimia should be treated with food, he personally collected and distributed food to the victims. He wrote:

“As soon as they had something to eat, they stood up and went on marching.”



Altitude was a problem primarily for armies. Two thousand years ago Chinese Genral Du Quin advised his emperor not to send envoys to Kashmir because:

"... travelers have to climb over Mount Greater Headache, Mount Lesser Headache, and the Fever hills"

A clear description of high altitude pulmonary edema was written by Buddhist missionary Fa-Hsien (334-420 AD), while crossing a pass some 14,000 feet high:

Fa-Hsien and the two others proceeding southwards, crossed the Little Snowy Mountains. On them the snow lies accumu-lated both winter and summer. On the north side of the mountains, in the shade, they suddenly encountered a cold wind which made them shiver and unable to speak. Hwuy-Ring could not go any farther. A white froth came from his mouth

and he said to Fa-Hsien: "I cannot live any longer. Do you immediately go away, that we do not all die here"; and with these words he died.

The party had been travelling for many months and one would expect them to be well acclimatized. The emphasis placed on cold suggests that Hwuy-Ring probably died from a combination of hypothermia and what we now recognize as HAPE.

In the fourteenth and fifteenth centuries the Mongol Hordes rampaged across Central Asia, high Tibet, and into Europe, crossing deserts and high mountain passes. Mirza Muhammad Haider, one of the Mongol chieftains, described the hazards of altitude on the high Central Asian plateau in perceptive detail:

Another peculiarity of Tibet is the dam-giri the symptoms are a feeling of severe sickness (nakhushi) and in every case one's breath so seizes him that he becomes exhausted,... the patient becomes senseless, begins to talk nonsense... this malady only attacks strangers; the people of Tibet know nothing of it, nor do their doctors know why it attacks strangers. Nobody has ever been able to cure it. The colder the air, the more severe is the form of the malady.

In 1574 Josias Simler, who succeeded Conrad Gessner as Professor at the University of Zurich, wrote the first book about mountain-craft. He vividly described the dangers and precipitating causes of snow and rock avalanches, and how to protect against cold.

Simler described the dangers of hidden crevasses and how to avoid them, advocating the use of a rope between the climbers. He used illustrations from a book written in 1555 by Olaus Magnus (Arch-bishop of Upsala), describing skis, snowshoes, and various iron climbing aids. Magnus says that one ski should be the height of a man, the other one foot longer, and the bottoms covered with reindeer skin, for speed downhill, and ease of climbing up. The skis, snowshoes, pitons and axes are remarkably similar to those in our time. Along with reindeer skin clothing, such aids to travel decreased the dangers of cold injury.

Another danger was described twelve centuries ago:

"The lakes in the Snow Mountains are inhabited by poisonous dragons that breathe out poisonous clouds when enraged....Travelers are often attacked by fierce dragons so that they should neither wear red garments, nor carry gourds with them, nor shout loudly..."

As recently as 1750 a distinguished naturalist collected sworn statements from trustworthy persons describing dragons they had seen; he made drawings based on their descriptions.

Injury on mountains is common from falling or being fallen upon, but from whatever cause trauma is trauma. From wounded gladiators Galen gained his knowledge of anatomy. Trauma treatment has improved over the centuries, but is not unique to mountains or plains. Early Egyptians treated limb fractures with splints and bandages. Charaka Samhita described how Ayurvedic surgeons should treat injury

much as we would today. Evidence of trephining for head injuries as far back as 10,000 years is found all over the world. Wounds were sewn with fiber, or 'sutured' by the mandibles of giant ants which hold the skin in place long after the ant's body has been twisted off.

Mountains present most of the same dangers as they always have. But dragons have become extinct. They have been replaced by demons, among them greed, self-serving, and callous disregard of the mountain environment - and of our future.

We hope that practitioners of mountain medicine may exorcise these modern demons and teach us to approach mountains, not selfishly but with knowledge, humility, reverence and respect.

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