



The Science of Sleeping On The Ground

By Steve Watts and David Wescott, 2014

First of all, the camp bed should be a good one. Professional outdoor men, such as engineers, surveyors, naturalists, and expert travelers in the wilderness always have as good a bed as possible. It is only the novice who boasts of sleeping rough. Nearly always you can have a good bed in camp, so that you can sleep dry and warm, and be thoroughly rested every night. Emerson Hough, *Out of Doors* 1915

The Golden Age of Camping fortunately coincided with the Golden Age of Trade Blankets (1880-1930). High quality blankets – 5 to 6 pounds each, measuring around 72"x90", and made from 100% wool - were readily available for practical home use as well as camp bedding. Learning to sleep well in a blanket truly is an art form, and once mastered is preferred over most modern camp bed systems. Of course you imme-

diately get into an argument with the ultra-light crowd about weight – Emerson Hough reported that a classic bedroll packed by backcountry outfitters typically weighed about 20-30 pounds, slightly less for a summer rig by replacing blankets with a down comforter. They forget that carrying your load is only one way to get to camp; horses, cars, canoes and sleds allow you to easily transport a comfortable bed in classic style.

Be sure to have enough wool blankets in cold weather.

Make beds about a foot longer than the occupant.



A waterproof ground cloth is a good thing to use at any time of the year.

Roll your clothes in a neat bundle and chuck it in the mouth of the bag for a pillow.

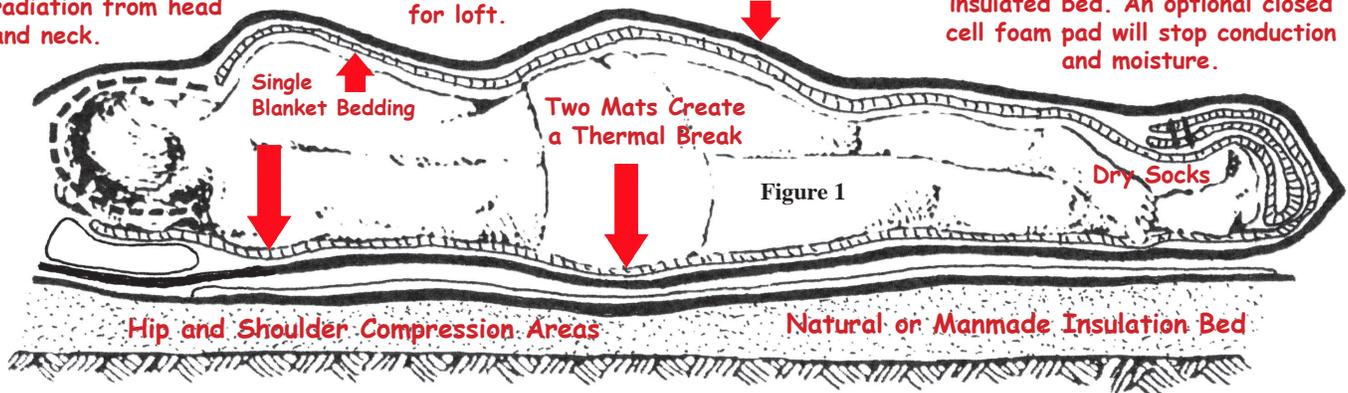
"THICKNESS = INSULATION"

A balaclava reduces radiation from head and neck.

Double another blanket or add a down comforter for loft.

Windproof/Breathable Bedroll Cover reduces convection.

A ground sheet is needed underneath to keep moisture from your insulated bed. An optional closed cell foam pad will stop conduction and moisture.



Comfort is a matter of moisture and temperature control.

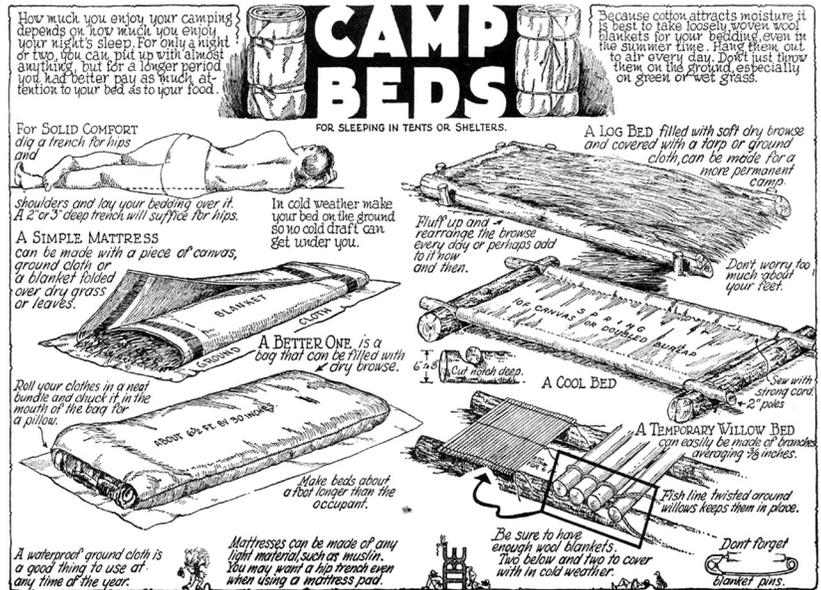
PART 1

This graph is adapted from the original Camp Bed panel by Ben Hunt, as well as a drawing by Mors Kochanski that could have been inspired by Hunt's illustrations from *Boy's Life*, February 1950.





The experienced camper of the day assembled a kit that was warm and dependable, while the tyro spent long nights fighting his covers and shivering until dawn. **Part 1** covers the art of the blanket bedroll. **Part 2** will address the importance of keeping warm with a quality bed.



Boy's Life, February 1950

Heat Loss -

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What generations of outdoorsmen knew intuitively, allowed them to survive in the wilds in a variety of environments under changing conditions. It wasn't until the early 1970s that what they knew came into outdoor literature as a new lexicon, giving definition and the ability to accurately describe what was needed to live comfortably in camp. Words like *conduction*, *convection*, *radiation*, *respiration* and *evaporation* define precisely how a body loses heat and in-turn allows us to sleep warm at night by mitigating losses through the proper application of skills and equipment.

CONDUCTION – Heat goes to cold. 3 times the amount of heat is lost through conduction into the ground as is radiated upward, requiring 3 times the insulation under your bed.

RADIATION – As heat is lost from the body, it subtly cools until alarms start to go off with resulting cold fingers and toes and uncontrolled shivering. Layers of insulation are needed to trap this heat, along with energy rich midnight snacks to keep the internal furnace going.

CONVECTION – Insulation rapidly loses heat when air movement carries it away, requiring the

body's furnace to work overtime. A windproof outer bedroll cover significantly reduces the amount of lost heat. A warm balaclava or watch cap keeps heat escaping from the bedroll via the head and neck – they can allow for 40-70% of heat lost. Elevated beds also allow convection to rob heat.

EVAPORATION – Massive heat is dumped by evaporation – STAY DRY. A waterproof ground cloth is essential for all beds. Sleep in dry clothing and keep a pair of dry socks for sleeping only.

RESPIRATION – Moisture can build up in insulation if it is not occasionally aired out. Frost can also collect inside the bedroll cover if it is over your face. Wear a head covering so the face can be exposed to the air.

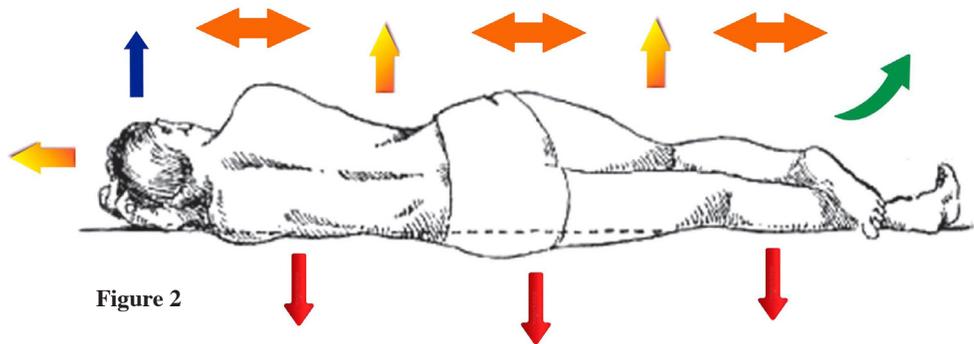


Figure 2

- ← RADIATION
- ← CONVECTION
- ← CONDUCTION
- ← RESPIRATION
- ← EVAPORATION

Chilling (hypothermia) of the extremities causes cold discomfort causing Sleep Deprivation which combined with Exhaustion / fatigue results in more stress. The passage of sufficient time (38 hours statistically) That leads to Death from 'EXPOSURE' mostly due to ignorance.

Mors Kochanski

How much you enjoy your camping depends on how much you enjoy your night's sleep. For only a night or two, you can put up with almost anything, but for a longer period you had better pay as much attention to your bed as to your food.

Ben Hunt, 1950

The Importance of Sleep

Many authors extoll the virtues of camping – mostly by saying that you should eat and sleep better than you do at home. The object is to come home from your “pilgrimage” refreshed and renewed.....re-created.

Let me not be misunderstood as counseling anybody to “rough it” by sleeping on the bare ground and eating nothing but hardtack and bacon. Only a tenderfoot will parade a scorn of comfort and a taste for useless hardships. As Nessmuk says: “We do not go to the woods to rough it; we go to smoothe it—we get it rough enough in town. But let us live the simple, natural life in the woods, and leave all frills behind.” **Horace Kephart**

Even today, sleep remains somewhat of a mystery to scientists who are just beginning to understand the effects it has on our bodies and minds. We do know, however, that sleep affects almost everything in our bodies – from maintaining, repairing, and removing toxins and waste from the brain (mental health), to long-term affects on our organs, like our heart and lungs, to our immune systems (physical wellbeing). (Hunt)

In camp, lack of sleep can affect everything else.

- Lack of sleep can slow your brain function to the same degree as alcohol bingeing.
- Sleeping just 1½ hours less than normal can reduce awake time alertness by 33%.
- Lack of sleep affects your moods resulting in impatience and irritability.

The 8-Hour Myth

Noted survival authority, Mors Kohanski reminds us that we spend 1/3 of our existence devoted to sleep – “If you can sleep well at night, you have it made.” What our bodies require are 4 hours of deep sleep that includes at least 2 hours of REM (Rapid Eye Movement) sleep for adequate rest. Of course few people can do that on their first night – camp sleep can require a bit of getting used to. What we are really experiencing is how humans used to sleep – multiple deep sleep sessions.

It's normal to wake in the night in the woods, usually to pee. Speaking of which, never fight off the urge in the night to get up and pee, as doing so makes you colder

as the blood in your body pumps around the bladder in an attempt to keep the water warm. This means your extremities get a lighter blood flow, which makes you cold. So get up and go. Stoke the fire. Eat a snack. Go back to bed. **Jason Hunt, PhD 2019**

In the classic camping literature, there is a subtle truth that our modern world no longer acknowledges. This is regarding how differently we sleep today... when the old timers talk about waking in the middle of the night to stoke the fire, eat a snack or rearrange their bed, the uninitiated look at it as how uncomfortable camping must be. Today, on the other hand, we expect 8 full hours of uninterrupted sleep (*Monophasic Sleep*) as the norm, and camp fixtures should provide us that luxury. Truth is, prior to the Industrial Revolution, no one slept for 8 straight hours. More typically, sleep patterns were divided into what Nessmuk called “two sleeps” - what we call today *Biphasic* or *Polyphasic Sleep*.

“Ten o'clock comes. The time has not passed tediously. You are warm, dry and well-fed. Your old friends, the owls, come near the fire-light and salute you with their strange wild notes; a distant fox sets up for himself with his odd, barking cry and you turn in. Not ready to sleep just yet. But you drop off; and it is two bells in the morning watch when you waken with a sense of chill and darkness. The fire has burned low and snow is falling. The owls have left and a deep silence broods over the cold, still forest. You rouse the fire and, as the bright light shines to the furthest recesses of your forest den, get out the little pipe and reduce a bit of navy plug to its lowest denomination. The smoke curls lazily upward; the fire makes you warm and drowsy and again you lie down—to again awaken with a sense of chilliness—to find the fire burned low and daylight breaking. You have slept better than you would in your own room at home. **Nessmuk, Woodcraft 1884**



David Wescott at Horse Springs, UT ca. 1974

The Bedroll System

I've known some tough hombres in my time. I've seen cowpunchers ride, rope and brand all day--day after day—living all the while on beans, biscuits and prunes. Then each night, throw down a thin bedroll on the thin cover of the hard, herd- trampled ground-- and there sleep the sleep of babes. I've seen loggers swing an axe, pull a saw and set chokers through the heat, the cold, the rain and the snow. Then crawl into their bedrolls so covered with pitch that they woke the next morning stuck to their blankets.

Gypsy Jack 1924

Sleeping in a blanket bedroll was a part of our camping lore well into the 1960s. Light-weight sleeping bags as we know them today were just coming on the market. In just the past few years, equipment manufacturers have finally figured out that they had been wasting 50% of their insulation by putting it under the camper. With a well-made bed - insulation & ground cloth - all that is needed was a blanket or quilt over the top with a cover to defend against excessive radiation and breezes.

Bedrolls - also called swags, soogans, hot rolls, or dream sacks - are a simple rig that can be assembled with resources you can find at home.

Bedroll Cover - A 7x8 foot piece of light canvas, or even a bed sheet is folded in half and sewn across the bottom and a short way up one side, ties (A) or pins (B) can be used to close it once you're inside.

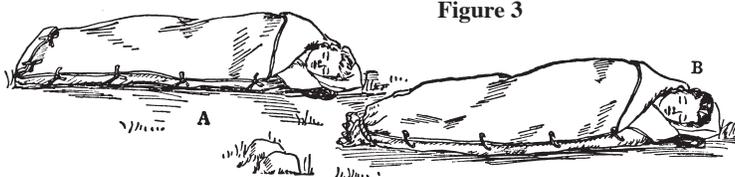


Figure 3

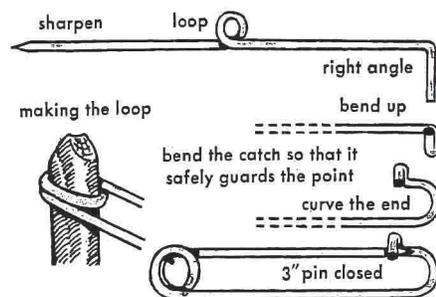
Warming With Wool

Wool can absorb 30% of its weight in moisture without feeling wet. As it dries, wool actually generates heat through an *exothermic reaction* - too long to explain here - look it up and your head will explode.

Blankets can be arranged in countless ways, but keep it simple - fold them over and blanket pin the side. Fold the foot up and pin it on top to keep extremities warm and covered. Avoid fancy tucks and folds - they're a pain to get into and a bigger pain when you have to get back into bed in the middle of the night. Trust someone who has spent hundreds of nights in a blanket.



MAKE YOUR OWN BLANKET PINS FROM 10" WIRES.



• Materials Required *

Bailing/Tie Wire or

Copper Wire - 10 gauge is best. 8 gauge works well but is harder to work with hand tools.

• Tools Required *

Smooth Jaw Pliers

Round Nose Pliers

Hammer & Anvil

Wire Snips

• Hunt Project Principles

A few simple tools

Materials easy to obtain

Inexpensive to make

Projects simple to complete



Hold Everything With Blanket Pins

As Featured at The Campfire Blanket Workshop, 2010



Start with 13" of 10 guage. Bend 4" back on itself.



Bend both legs into a nice curve and flair the tip.



Bend the short leg up at 90° and wrap around the long leg 2 times.



Hold the 2 sides parallel and finish wrapping tightly.



Tap the wrap to clench it in place. Do this on the loops at the base as well.



Use a dowel or pencil as a mandrel and wrap around twice.



Snip and sharpen the end. Bend the tip slightly outward so it locks.



4" pins. You can buy them, but handmade adds style.