

Student lessons along the Overmountain Victory National Historic Trail



or the Overmountain Men, finding their way through the wilderness was a matter of experience and knowing how to read the trail. There were no road signs that said, "This way to catch Patrick Ferguson." However, the Patriot militia were following paths they knew well. The trails had been well used over time by Native Americans, who in turn had followed over the centuries herds of deer and eastern buffalo migrating back and forth across the mountains. Still, it was a worthwhile frontier

# Which way are we going?

skill at anytime of the year to be able to know which way was north and in which direction one was generally heading. Today, that skill is used in a sport called Orienteering. In that sport, people find their way across vast tracks of land using maps, a compass and their own knowledge of how to measure distance on the ground. After you learn these skills, you can put them to use in a "treasure hunt."

(See Looking for those Lousy Loyalists.)

## Can you find north without a compass?



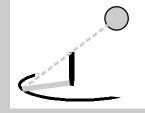
Leaving very day, the earth rotates on its axis. To us standing on the surface of the planet, it looks as if the sun is moving across the sky. Stories (called <u>myths</u>) from ancient cultures including the Greeks and the Roman claim to explain why and how the sun makes a daily journey across the sky.

The scientific name for the path the sun follows across the earth's sky is the <u>ecliptic</u>; and, with only a stick and lots of patience, you can trace the ecliptic on the ground. With that done, you can use that trace to find "true north."

#### Trace the ecliptic

Early on a sunny day, about three or four hours before noon, stand a stick securely on a flat, open piece of ground. A stick that is about 3-feet long will work well. Make sure the stick is solidly placed so that it does not lean or move during the day.

Note the shadow cast on the ground by the stick. Mark the end of the shadow on the ground with a nail pushed through colored paper or ribbon. For extra information, you can record the time at



which you marked the end of the shadow.

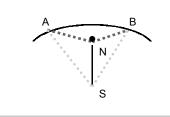
To trace the ecliptic, every 45-60 minutes or so, mark the end of the shadow on the ground with another nail pushed through a piece of colored ribbon or paper. (If you want to build a sundial, mark the end of the shadow on the hour all throughout the day. For that you will need a watch or clock which the average Overmountain Man surely would not have had.)

You will notice that as the sun approaches noon, the shadows get shorter and shorter; and the trace of the ecliptic (the imaginary line connecting the nails pushed through colored ribbon) makes an arc toward the stick. In the temperate zone of the northern hemisphere, the shadow will always pass by the stick on the north side. Throughout the afternoon, the shadow will get longer and longer and the trace of the ecliptic will begin to arc away from the stick.

The morning's arc and the afternoon's arc as traced on the ground are symmetrical. You can use this information to determine an accurate measure of north. Here's how; it's simple **geometry**.

Take a string or cord that is less than the distance from the pole to the very first nail you placed and also less than the distance from the pole to the very last nail you placed. Using that string with one end held at the base of the pole, swing an arc so that it intersects with the morning's trace of the ecliptic. Mark the point on the ground where the two intersect. Call it point A. Still holding the cord at the base of the pole, swing another arc with the string of the same length so that it intersects with the afternoon's trace of the ecliptic. Mark the point of intersection and call it point B.

Now holding the string at point A and using a length of cord about one-and-a-half times the length used to establish point A, swing an arc beyond



the pole and mark the ground. Repeat this from point B and mark the point on the ground where the two arcs (one made from A and one made from B) intersect. Mark that point on the ground S. Draw a line to the pole and mark that end N. You have now created on the ground a reliable, true measure of north (N) and south (S). If you stand at S and look toward N (the pole), east is to your right and west is to your left.

Congratulations, you now have your **bearings** on the ground.

From experience, a frontiersman could estimate north and south without having to make such measurements as you have just made. Moreover, these experienced hunters and trackers knew the **terrain** and were familiar with the major landmarks that told them where they were. Besides most had not been to school and they most likely did not know geometry. They used **common sense**.

### Can you measure distance with your feet?

Jse a tape measure to mark on the ground a known distance, say 100 feet. Now walk this distance using your normal pace and count your steps. Count every time you take a step. Count your steps going one way. Count your steps again coming back. Did you get the same number? Were they close? If so, average the two, that is, pick the number of steps that is half way between the two numbers you counted. You probably came up with something close to 40 steps. If so, that means your stride (the distance you cover in one step) is two-and-a-half feet and every time you take 40 steps you are walking 100 feet.

Now you can use that information to measure distances on the ground. If you want to walk 50 feet, you take 20 steps. If you want to go 25 feet, you take 10 steps.

#### Roman Around

In the Roman military, the soldiers counted a step only when the same foot hit the ground again, for example, every time the right foot touched down. For them, a step was about 5 feet. Because of that, they talked about a unit of distance called "a thousand steps" that was about 5,000 feet. The <u>Latin</u> word for thousand is "mille." From that, we get the English word "mile" which is a distance of 5,280 feet. What are some other words with Latin roots?