

Field-Expedient Methods of Time and Direction

or,

“How to Find Your Way Out of the Woods”

Part 8 in a Series by *Douglas A. Smith*, Alabama Forestry Commission, Retired

If you have been following this series of articles on distance, direction, and maps, you have been exposed to skills that allow you to use a variety of applications to help you navigate and measure. The approach described here offers the same answers but in a different, more fun way. These methods may not always be practical for your situation, but they are fun to study and try. They seem to have an extra appeal for youngsters.

Suppose you are out on a sunny day, don't have your compass, and want to determine north. Try the “Shadow-Tip Method” and the “Watch Method.”

The shadow-tip method is a four-step process, and can also be used to approximate time. Step One requires sticking a stick or branch vertically into the ground. The area around the stick should be fairly level where a distinctive shadow can be cast. Mark the

shadow tip. (The first mark is always the west direction compared to any other marks.)

Step Two, wait 10-15 minutes until the shadow tip moves a few inches. Mark the new position of the shadow tip.

Step Three is to draw a straight line through the two marks to obtain an approximate east-west line.

In Step Four, stand with the first mark (west) to your left, then the other directions are simple. North is to your front, east is to the right, and south is to your rear.

The standing view is one way to orient yourself. Another way is to draw a line perpendicular to the E-W (east-west) line, and the new line will approximate N-S (north-south). See Figure 1.

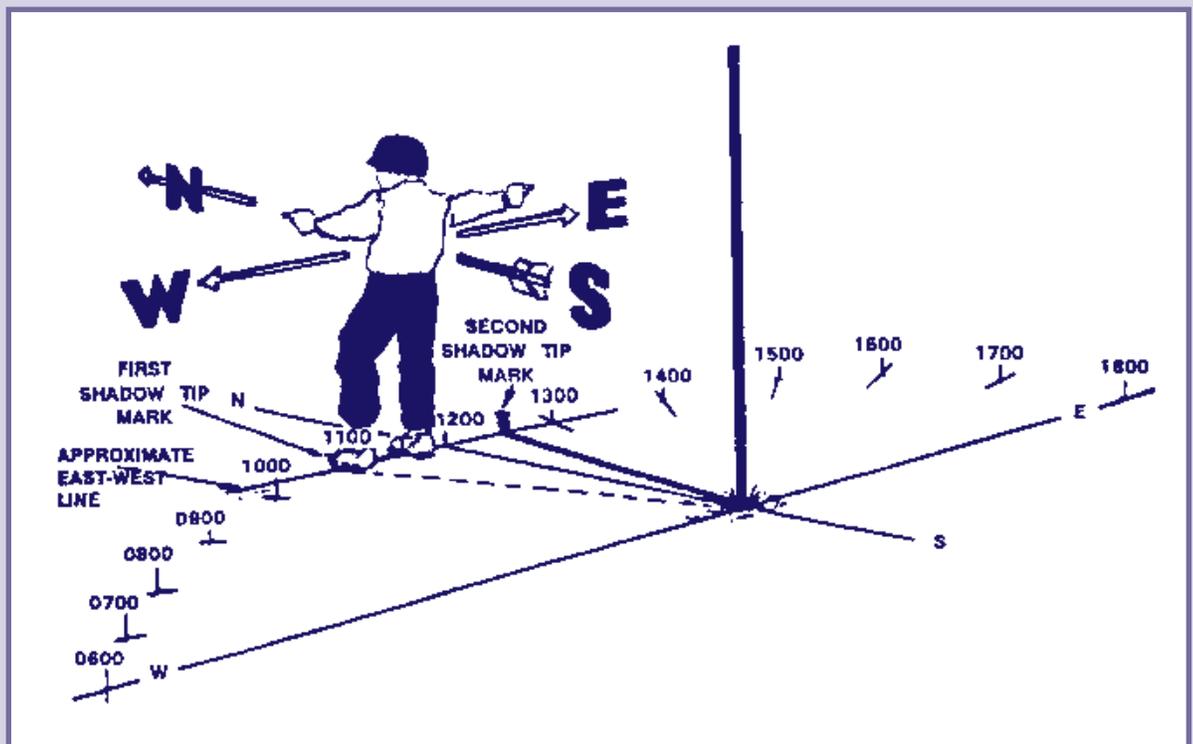


Figure 1. Determining direction and time by shadow.

Still uncertain which way is west? Remember that the first shadow-tip mark is always west, anywhere on earth.

The shadow-tip method can also be used to approximate time. (See Figure 1.) To find the time of day, move the stick to the intersection of the N-S (north-south) E-W (east-west) line. The west part of the E-W (east-west) line indicates 6:00 a.m. or 0600 hours and the east part is 6:00 p.m. or 1800 hours. (These examples use military time, or 24-hour days. Midnight starts a new day. The following twelve hours are 1 through 12. The next twelve hours are 13 through 24.)

The N-S (north-south) line becomes the noon line. A twelve-hour grid now exists with noon at the center. All you need to do is divide the remaining areas into six equal parts and mark the hour on the ground. Follow the shadow of the stick to an hour mark for an approximate time.

Note: The shadow clock is not a time-piece in the ordinary sense. The time is closest to conventional clock time at mid-day, but the spacing of the other hours varies compared to locality and date. It is not intended for use in polar regions (above 60° latitude in either hemisphere).

If a shadow forming a direction can become a watch, how can a watch determine direction? In the north temperate zone only, the hour hand is pointed towards the sun. (Those of you with digital watches are out of luck). A south line can be found midway between the hour hand and 1200 hours, standard time. If on daylight savings time, the N-S (north-south) line is found between the hour hand and 1300 hours. If there is any doubt about which end of the line is north, remember that the sun is in the east before noon and the west after noon.

The system for the south temperate zone is similar, but the 1200 hour dial is pointed at the sun, and north is halfway between 1200 and the hour hand. See Figure 2.

Lower latitudes present problems not covered in this article.

The shadow and watch methods obviously require daytime and sunlight. So what about *night*, when the stars are out? The stars offer another opportunity for

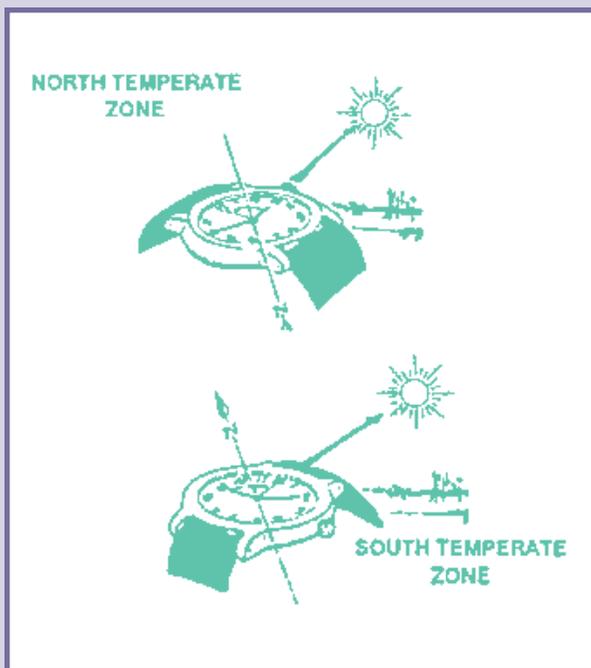


Figure 2. Determining direction by using a watch.

determining direction, but the process is too complicated to be covered in this article. However, one star does have particular significance.

Star clusters, or constellations, that we see depend partly on where we are located on the earth, the time of year, and the time of night. The night sky changes with the seasons and from hour to hour. But there is one star that is in almost exactly the same place in the sky, all night long, on every night. It is the North Star, also known as the Polar Star, or Polaris.

The North Star is less than 1° off true North. The north end of the axis of the earth points towards the star. The North Star is part of what is known as the Little Dipper, and is the last star in the handle. If you have trouble locating the Little

Dipper, maybe you can find the Big Dipper which, in turn, will help you find the North Star. (If you cannot find either dipper, you may need to do additional research.) Upon locating the two big stars at the end of the Big Dipper bucket, draw an imaginary line to connect them. In your mind, extend the line away from the bucket opening, five times the length of the original line. You have located the North Star. See Figure 3. There are many stars brighter than the North Star, but none are more important because of its location. (The Southern hemisphere uses the Southern Cross constellation for a directional guide.) After some practice, you will be able to find the star without going through a procedure.

Often it is cloudy and you can't see the sun or stars. Become part of the technical generation and use GPS, Global Positioning System. It is a system of navigational satellites that work in conjunction with your portable unit to precisely determine location. Most of the articles in this series have suggested sharing what you have learned with a youngster. When learning to operate a GPS, maybe you should ask a youngster to explain it to you. 🗺️

Editor's Note: Doug Smith's earlier articles in this series on direction and map reading may be found in the following previous issues of Alabama's TREASURED Forests: Summer 2002, Winter 2003, Spring 2003, Summer 2003, Fall 2003, and Spring 2004.

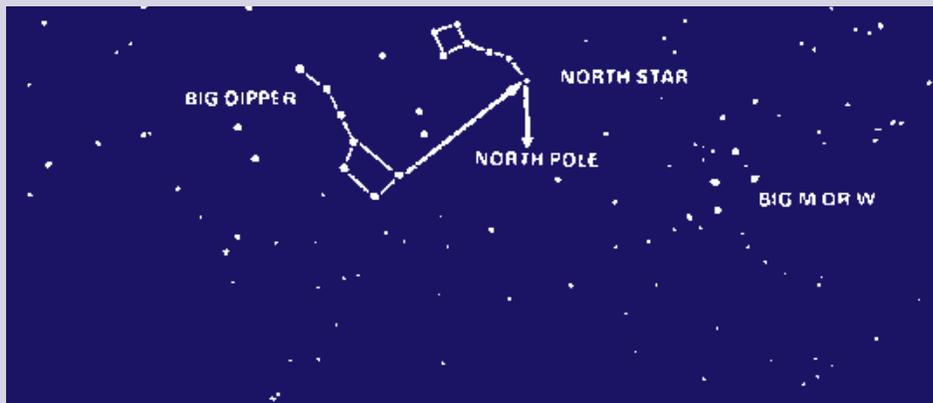


Figure 3. Determining direction by the North Star.