

## THE ART OF ORIENTEERING

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When you mention the topic of orienteering, the eyes of some people just glaze over. You know who I mean -- the people who buy compasses but never learn how to use them, or the folks who did poorly in math in school.

But orienteering is actually something we do every day. In the most general sense, it refers to the act of getting somewhere by utilizing all possible signposts -- whether natural or man-made. In the more specific sense, orienteering refers only to the art of using a map and compass.

Let's begin with some of the more general concepts of orienteering. We'll work our way up to the map and compass.

### NATURAL NAVIGATION

There are many observations that we can make in nature which help us to determine north, south, east and west. However, one generally can't rely on just one of these natural signs because there are always local exceptions to the general rules.

For example, we've all heard that moss grows on the north side of trees, right? But is that a fact? One of my teachers, Abby Keith, who involved with Search and Rescue teams in the Southern California area, would say: "Yes, moss grows on the north sides of trees ... and the east side, and the west side, and the south side." We'd all laugh, and he would point out

that in a dense forest, moss can grow entirely around a tree, and that the value of moss as a direction finder is very limited. Keith would say, however, that if you are looking at a pine tree with moss on one side, in a clearing, in California, then the moss is probably on the north half of the tree. Still, the value of such information is somewhat limited.

Sometimes the tips of trees can be observed in order to gain a clue about your orientation. Typically, tips of pines and hemlocks will point to the east. This is due to a prevailing eastward wind which occurs at higher elevations. But this is not a hard and fast rule, and you must take all local conditions into account.

In canyons, the stronger wind will usually be the downdraft at night, which generally causes the tips of the canyon trees to point south. This is most readily observed with willows and alders which grow right along streams. But once again, canyons aren't all in neat north to south lines, so you must make several such observations. The entire sunflower family is so called because the flowers typically follow the sun. They will face the east in the morning, south at noon, and the west at sunset. This is certainly worth noting. Also, the compass plant, actually a wild lettuce within the sunflower family, has leaves which point north and south at mid-day. It actually faces the edges of its leaves to the sun in order to conserve moisture.

American Indians have developed volumes of weather lore and direction lore based upon the observation of plants and animals. For example, spider webs face generally to the south so that the spider can take advantage of the warmth and dryness afforded by the sun. Though woodpeckers will peck holes all around

a tree, native Americans long ago observed that the pileated woodpecker pecks its holes predominantly on the eastern sides of trees.

In California where there are many hills running east and west, Chumash and other Indians observed that you could tell direction by the "sound" of a hillside. That is, the north side of such a hill would be very quiet to walk on. This was because that was the side of the hill mostly in the shade and where water and snow were retained. The north face of the hill generally had more ferns, moss, and trees and was easily identified. The southern face of a hill, on the other hand, was always exposed. There would be less vegetation on the south face of a hill, and it would be characterized by dry grass and crackling dry twigs.

American Indians of the past, or people who spend a lot of time outdoors, are often able to fairly accurately determine directions based on their observation of several of these signs.

#### NAVIGATION BY THE SUN

There is a simple way to determine the approximate time by the sun. When I was first told about this method, it was referred to as a "Navajo" method of reckoning time. I have since heard it attributed to at least a half-dozen other Indian tribes, probably due to the fact that this was somewhat universally practiced.

In fact, this method doesn't actually tell time. Rather, it tells you how many hours you have left until sunset. Face the western horizon and stretch out your hand to the sun. Keep your arm straight but bend your hand so that your palm faces the sun and your fingers are horizontal. Tuck in your thumb. Align this one hand

with the sun, and then bring each hand below the other in this fashion until you reach the horizon. Interestingly, four fingers equals just about the space that the sun travels in an hour. Thus, you can ascertain how many more hours until sunset, or -- in ancient terms -- how many hands til sunset. This method is useful when you need to stop work so many hours before dark, or when you need to stop hiking and make camp while you still have light. Be sure to reckon into this method the fact that you still have usable light for approximately 45 minutes after the sun touches the horizon.

For directions, pioneers and Indians have long resorted to driving a stake into the ground. This would be done on flat ground on a sunny day. They would mark the end of the stick's shadow with a pebble. After a short while, they would place a second pebble at the tip of the new shadow. A line drawn between these two pebbles produces a fairly accurate east-to-west line.

In fact, many people who work outdoors develop a natural sense of direction and time simply by regularly observing the position of the sun throughout the day. The only reason we have lost this ability today is that too many of us have simply forgotten to use our powers of observation when we use clocks and wear a watch.

We have traded our skills for the toys of technology. Indian scouts in the old days would travel in a straight line by locating specific landmarks, generally any two or three objects in a straight line along the intended path of travel. As each landmark is reached, you need to look back to make certain you're still going straight, and then pick out a new landmark. As simple as this sounds, people get lost all the time in the woods because they have the mistaken notion that they are able to "naturally" walk in a straight line. Usually,

they can't or don't.

#### STAR NAVIGATION

Night navigation brings with it a whole new set of problems and challenges. For one thing, you usually can't see very well. However, it takes between 30 minutes to an hour for most eyes to adjust to the dark, enabling you to see in the dark as well as owls.

On the other hand, pray for a full moon.

In the northern hemisphere, the north star is probably the single most important star that you should learn to identify. Though not the brightest star in the sky, all other stars have an apparent rotation around the north star.

The north star is located by first finding the Big Dipper, a group of seven stars formed like a bowl and handle. The bowl of the Big Dipper has two bright stars which are often referred to as the pointer stars because they lie in a straight line with the north star. The distance to the north star from the two pointer stars is approximately five times the distance between the two pointer stars.

There are many other easily-recognized groups of stars that are worth learning to identify. The best book on this subject that I've found is The Stars by H.A. Rey.

#### THE MAP

OK, let's proceed to your map. For any serious work, you want a topographical map produced by the U.S. Geological Survey. Topographical maps indicate the rise and fall of the land by means of parallel lines.

To get started, I recommend that you purchase a topographical map of your own neighborhood. Take it home and lay it out on a big table. Now study it. The map is akin to an aerial photograph wherein every picture has been

"coded" for simplicity. For example, a single dotted line is a hiking trail, and a double dotted line is a dirt road. Buildings are black squares. Water sources, such as lakes, streams, springs, etc., are always in blue.

By simply observing a topographical map, and consulting a key for any symbols you can't figure out, you'll learn a lot.

You don't yet have a compass. What can you do with just your map?

If you know your location on the map, you can find the easiest route to another site simply by planning your journey so that you stay more-or-less within the parallel elevation lines. This means that you will stay on fairly level ground. Once you align your map to the terrain -- a simple task of simply turning your map until it visually lines up with two or three prominent local features -- you'll be able to "see" what's beyond the distant hills.

Not sure exactly where you are? Find two or three obvious tall markers, whether they are peaks, radio towers, water towers, etc. When you have accurately adjusted your map to the local terrain, take a pencil and draw a line on the map from each of the distant markers and extend it toward your presumed location. Where the lines cross is your location.

#### THE COMPASS

OK, let's assume you purchased a compass but forgot about the map. Bad choice! Generally, a map is much more useful than a compass, and a map with a compass is extremely useful. But a compass by itself is a bit limited in its usefulness.

Of course, you can determine north with the compass, but so what? The compass needle is pointing to magnetic

north, not true north. This difference -- which can be over 15 degrees -- is referred to as declination. How can you determine declination in the field with just a compass? You can't! That's why you need a map.

However, there are some useful functions of only a compass.

You can walk in a straight line using just the compass, and you can do this in the dark or in thick fog. And by simply turning your compass around, you can walk back in a straight line the same way you came.

#### THE MAP AND COMPASS

I won't kid you here. To truly master the use of a map and compass, you owe it to yourself to enroll in a college course, or purchase a good book on the subject. The best, in my opinion, is Be Expert With Map and Compass, by Kjellstrom.

When you purchase a compass, you usually get a few pages of fine print describing how to use that particular compass, and how to use compasses in general. READ ALL THAT LITERATURE UNTIL YOU UNDERSTAND IT WELL ENOUGH TO BE ABLE TO DESCRIBE IT TO SOMEONE. This is very important.

The type of compass I recommend is the orienteering compass by Silva or Suunto. This has a rectangular clear plastic base, and a round movable compass housing. Usually, it is designed so you wear it around your neck on a cord.

The compass allows you to quickly and easily align your map so that the top of the map is at true north, rather than the magnetic north at the top of your needle.

Once you have mastered the basics of using a map and compass, here are some of the things you can do:

1. Find the shortest route to a particular point.
2. Find the easiest route around a mountain.
3. Chart a course to an unseen destination.
4. Chart a course that passes through various environments.
5. Choose a hiking path that allows you to stay on the highest ground possible.
6. Choose a hiking route that avoids as much contact with civilization as possible.
7. Go directly to the nearest water sources.
8. Go directly to the nearest structure.
9. Chart a safe cross-country, off-trail hike.
10. Go directly to the nearest road.

This is by no means a complete list. Once you learn the basic task of aligning your map with the actual terrain by adjusting for local declination, you'll be able to gain great enjoyment from your new skill.

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