

STANDARDS FOR INDIAN TRUST LANDS BOUNDARY EVIDENCE – PART 2

everything else we are surveying, based on the angles we turned.

That is not what we are talking about; we are talking about reporting true bearing for every line of the survey. And I want to talk about this a little bit.

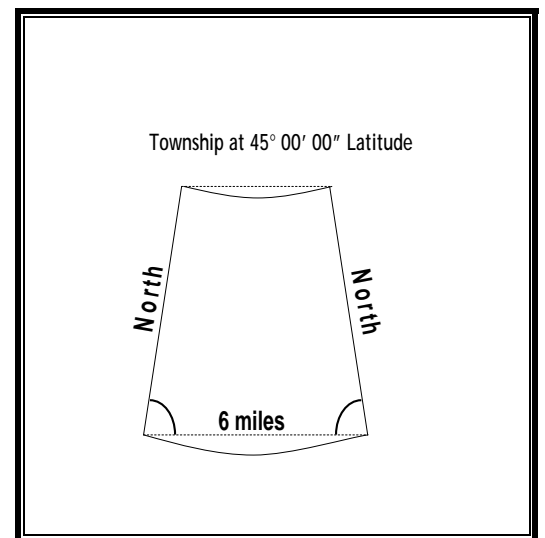
Convergence of Meridians

For some of you this is going to be review; for some it's going to be stuff that you knew about but haven't thought about because you haven't worked this way with lines and bearings before.

First of all, if I go to the equator and I run a line, a meridian, straight north, eventually I intersect the North Pole. If I move one mile east or west along the equator and run another meridian straight north, eventually I intersect the North Pole.

Those two lines eventually meet. They converge. Of course the farther north you go, the more pronounced the convergency is. That is what we want to talk about and how we want to deal with that.

So here we have a diagram, this is at 45 degrees latitude and we have two meridians both going exactly north, and I have exaggerated in the diagram just so we can see it a little better, two lines going north and they do converge slightly obviously not near this much, but they do converge. These two lines are 6 miles apart.



So let's look a little bit about what happens here. First of all, lines of latitude, parallels of latitude are ~~not~~ lines of constant bearing that's number one.

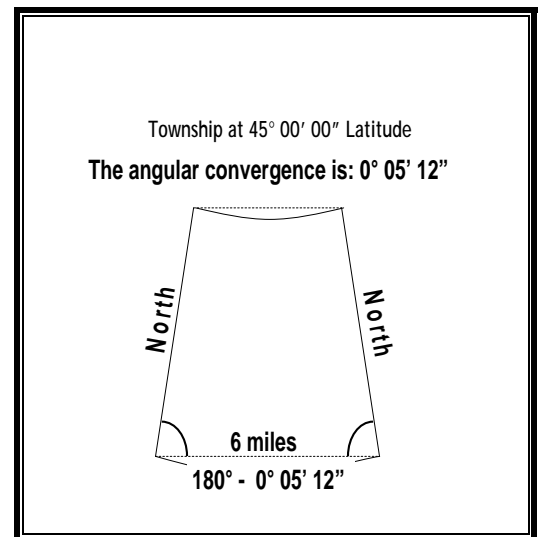
STANDARDS FOR INDIAN TRUST LANDS BOUNDARY EVIDENCE – PART 2

They are curved lines; the bearing ~~does not change~~ ~~changes~~ if we have a line that has the exactly same latitude all along that line, the bearing ~~does not change~~ ~~changes~~. It is a curved line; it is ~~not~~ a line of constant bearing.

So the angular convergency at 45 degrees for 2 lines, two meridians, directly north, true north, that is what a meridian is, a line that north south line that is true north. 2 meridians 6 miles apart is 5 minutes and 12 seconds. I will show you a table where we get that information.

What that means is that if I go down here and turn an angle to this corner over here and I have a direct line of site between those corners, and each of those corners is exactly on the 45th parallel, they are exactly 45 degrees latitude and they are exactly 6 miles apart and I turn that angle, it is not going to equal 180 degrees.

Both these lines are north, they are both meridians, both true north, and they are 6 miles apart and I can see directly between them, I have a straight line between them and I turn those 2 angles it will not be 180 degrees. What will it be? It will be 180 degrees minus 5 minutes 12 seconds, the convergency.



Linear Convergence

In a regular township, the meridians will converge by 0.726 chains that are at 45 degrees latitude.

Convergency does two things; there is an angular convergency that we just talked about, at this latitude 2 meridians that are 6 miles apart will converge at 5 minutes 12 seconds.