Building the Traverse Board

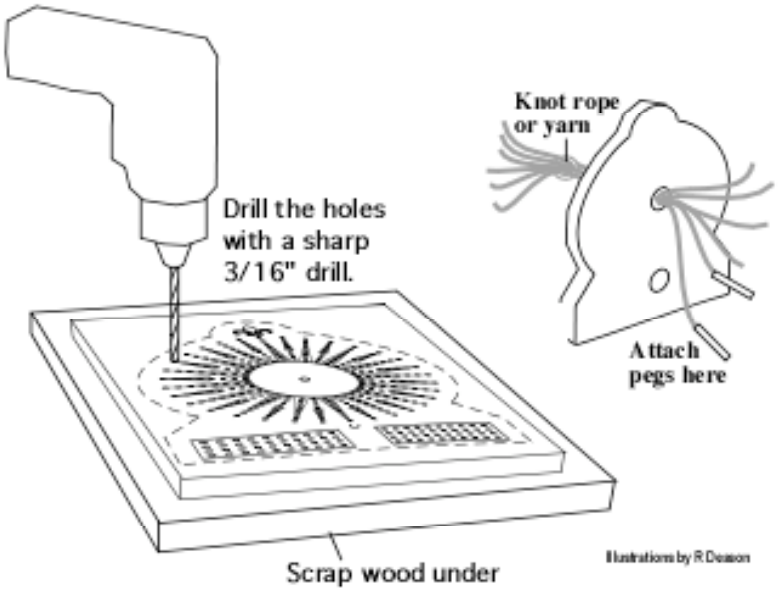
The traverse board can be made out of 1/4" to 1/2" foam board, using small flat head nails for the pegs. It is best made of high grade 1/2" to 3/4" plywood, and it will be usable for years. Don't use cheap ply because it will be fraught with hollow spots and it will and tear out when you drill it. Your local lumber dealer, or larger craft store should have some 1/2" high grade Baltic Birch ply -- they usually have it in small sheets. You can also use a high density pressed board, but it won't make a very pretty project. If you prefer a more-authentic board, edge glue some fine-grain 3/4" solid mahogany boards together. Do not use pine, fir, or any domestic softwood -- the grain will not allow you to drill the holes accurately.

TOOLS YOU CAN USE: If you use foam, an Exacto knife will work. Either the foam or wood can be cut with a hand coping saw with a fine-tooth blade. If you have access to other tools, an electric saber saw will work well (use a fine tooth blade to give a smooth cut). The best and shop machine is a band saw.

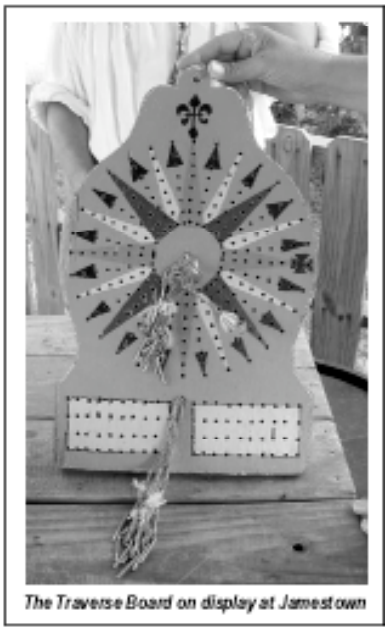
HOW TO: Begin by gluing this pattern to your base foam or plywood board. If you are using foam board, glue the whole surface of your pattern -- it will be the permanent face for your traverse board, and you can use small nails as pegs -- just punch them in and they'll stay. On plywood, attach the paper well so it won't move during all the drilling.

TIPS: It will be easiest to do all the drilling before you cut out the shape of the board, you'll have more to hang on to. Use a 3/16" drill for all the holes. It will help to center punch the holes first to keep the drill from meandering. Use a sharp drill, and place a flat-board scrap underneath as you drill, it will keep the wood from tearing out as the drill breaks through.

WEAR eye protection - This task looks innocent, but drills are super-hard steel, brittle, and the small drills often break and throw out tiny steel pieces at bullet-speed. Don't allow children to get up close to look unless they're wearing glasses. Long, hanging hair can easily become wrapped around the rotating parts of these hand drills.



The pegs can be made of bent electrical wire or 3/16" dowel sanded lightly if they fit too tightly.



The Traverse Board on display at Jamestown

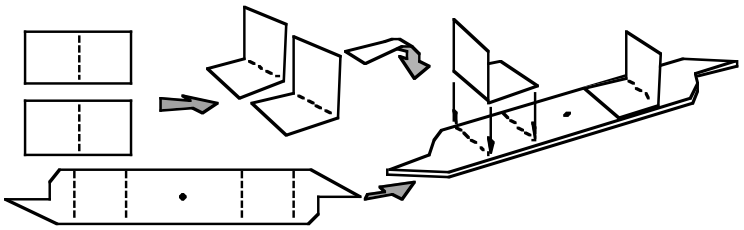
Building an Working Astrolabe

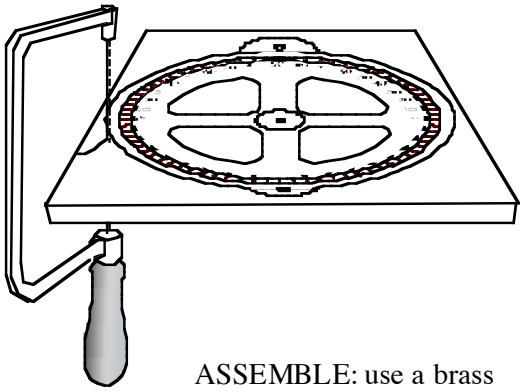
The Astrolabe can be made out of chip board, 1/4" to 1/2" foam board, or wood. It is best made of high grade 1/2" to 3/4" plywood, and it will be usable for years. Don't use cheap ply because it will be fraught with hollow spots and it will and tear out when you cut or drill it. Your local lumber dealer, or larger craft store should have some 1/2" high grade Baltic birch ply -- usually in small sheets. If you prefer a more-authentic board, edge-glue some fine-grain 3/4" solid mahogany or oak. Solid woods should have a finished coat of varnish or they will warp with the change in weather.

TOOLS YOU CAN USE: If you use foam, an Exacto knife will work. Either the foam or wood can be cut with a hand coping saw with a fine-tooth blade. If you have access to other tools, an electric saber saw will work well (use a fine tooth blade to give a smooth cut). The best and shop machine is a band saw.

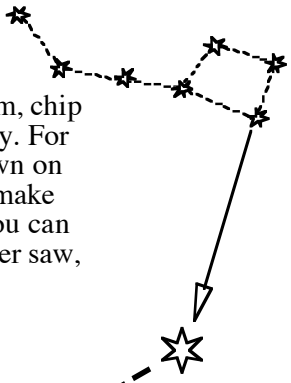
HOW TO: Begin by gluing this pattern to your base foam or plywood board. If you are using foam board, glue the whole surface of your pattern -- it will be the permanent face for your astrolabe. On plywood, attach the paper well so it won't move during all the drilling.

The ALIDADE is the moving part of the astro labe. If you make its body of foam, make the two sighting bars of chip board then fold and glue them on. For wood, make the body of thin ply, and the sighting bars of tin-plate (cut from a coffee can lid), or sheet brass for a fancy touch. Round the sharp corners--they can poke.

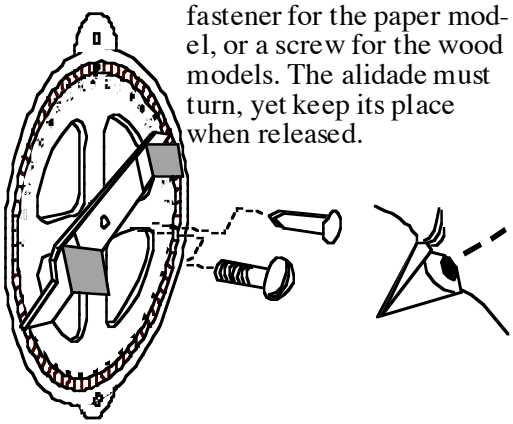


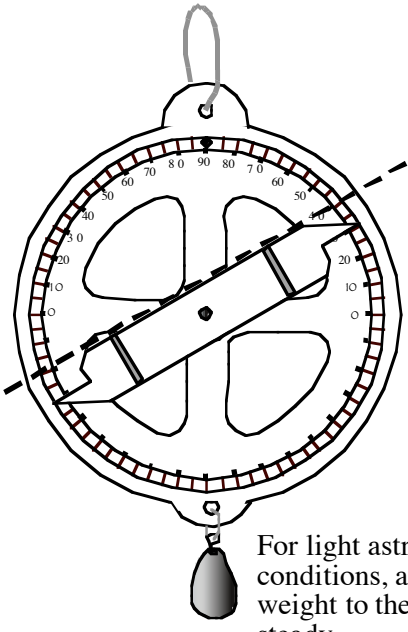


BODY: Glue the pattern to the foam, chip board or wood then cut out the body. For wood, drill the four 1/4" holes shown on the pattern before you saw; it will make turning the sharp corners easier, You can use a hand coping saw, electric saber saw, or machine band saw.



ASSEMBLE: use a brass fastener for the paper model, or a screw for the wood models. The alidade must turn, yet keep its place when released.





Hold the astrolabe with one hand, Letting it hang freely, vertical. Turn the alidade so the tops of the two sighting bars line up with the north star (the bar tops both touch the star at the same time. Read your latitude from the scale. The person (left) is standing at the 30 degree latitude.

For light astrolabes, or in windy conditions, attach a fishing weight to the bottom to keep it steady.

Illustrated by RDeason