

SOLAR COMPASSES
Final as of March 19, 2006

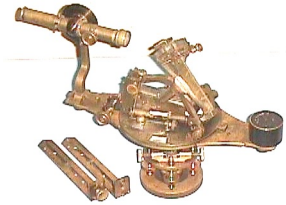
SC 1, **Burt's Improved Solar Compass, Wm. J. Young, maker, Philadelphia, PA, c. 1848.**



The solar compass is one of the most important instruments in American surveying history, and was specifically designed for surveying the U.S. public lands. It was invented by William A. Burt in 1836 and determines the true-north direction from the sun's position in the sky.

This instrument is 14.2" long and has 7.1" high sight vanes. It also has a telescopic sight to use instead of the vanes. The 7.3" telescope has a full vertical circle and vernier

with no set clamp. The compass is 12 1/4" tall with the telescopic sight and 13 1/3" tall with the vanes. There is a counterweight for attaching to the opposite arm when the telescopic sight is used. The latitude and declination arcs have slow-motion adjustment screws which, according to a Young Solar Compass authority, are later modifications. The eyepiece arm is inscribed "Wm. J. Young, Maker, Philadelphia." The opposite arm is inscribed "Burts Patent." The instrument would fit onto a tripod with male threads of approximately 3 7/8" x 14.



The compass has a case but no tripod. One of the screws for a sighting vane is missing, and the eyepiece end of the compass arm has a number of holes drilled through the brass plate. The 1848 dating corresponds to Robert Miller's article appearing in *Rittenhouse*, 5:1, Nov. 1990, pps. 21-24. For additional information on the solar compass see *They Left Their Mark* by John S. Burt, (Landmark Enterprises, Rancho Cordova, CA, 1986).

Dating of the instrument also corresponds with an example listed in the National Museum of American History at: <http://americanhistory2.si.edu/surveying/object.cfm?recordnumber=747075>

SC 3, **Burt's Improved Solar Compass, Wm. J. Young, maker, Philadelphia, PA, c. 1844.**



Wm. Young first started producing solar compasses in 1840 and began applying serial numbers in 1853. This example has no serial number and is therefore dated between 1840 and 1852. The latitude and declination arcs have no slow-motion adjustment screws (tangent screws) as was the design on the earlier solar instruments. According to an authority on Young Solar Compasses, there are now eight known solar compasses made by Young that are without serial numbers, i.e., made during the period 1840–1852. I have two and the Smithsonian has two. Of the eight, six have been retrofitted with tangent screws for slow-motion adjustment. Therefore this is one of only two known solar compasses made during the period 1840-1852 that still retain the original configuration of not having tangent screws. The other is owned by the Smithsonian and pictured on the museum's website. It is their Young solar compass, c. 1848. The address is:

<http://americanhistory.si.edu/collections/surveying/>

This instrument is 14" long and has 7" high sight vanes. One arm is inscribed "Wm. J. Young, Maker, Philadelphia." The same arm also has the stamped mark of "J Roach, SF." The opposite arm is inscribed "Burt's Patent." The instrument comes with a ball-joint type of mount that is 7" long and has four clamp screws in the base socket. The magnetic needle is 3½" long. The J. Roach stamping is a later addition to the instrument. Roach relocated from New York to San Francisco in 1855.

It has the original wood case in poor condition. Inside the lid were found three manufacturer's labels – those of Wm. Schmolz, John Roach and the A. Lietz Co. The labels had been removed prior to my purchase and exist now only in torn fragments.