Elliston Park Analemmatic Sundial: Calgary Alberta

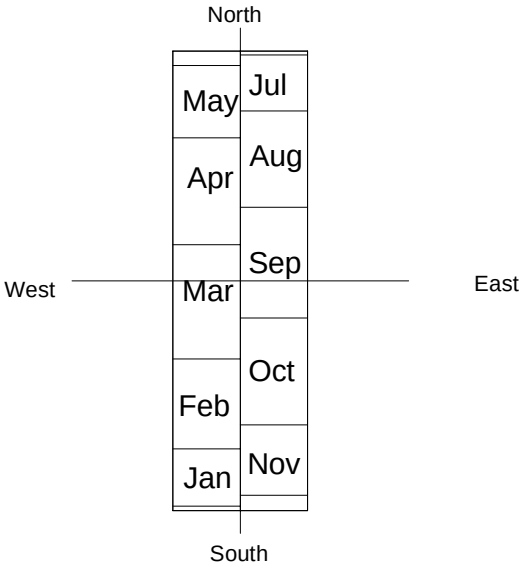
Roger Bailey and Ken Miklos

The sundial at Elliston Park in Calgary is now complete and pictured above. This type of sundial, an analemmatic dial, tells the time from the shadow of a person standing on the date table (Zodiac). Elliston Park is a public park being developed on the eastern edge of the city of Calgary, just south of 17th Ave SE at 60th Street. At the heart of Elliston Park is a 20 hectare storm water lake that is home to more than 50 species of birds**.** Migrating geese and swans can often be seen on the lake in the background. The earth moved to dig the storm water lake was used to created the rolling hills that are now landscaped with grass, trees and walking trails. Some elements of the overall park project are being spearheaded by the "*Friends of Elliston Park Society*" a committee of volunteers and fundraisers, led by Mrs. Audrey Miklos and co-ordinated her son Ken**,** a Professional Agrologist. They are descendants of the Ellis family, who were early settlers of the Elliston area.

According to Mr. Miklos the sundial is a major focal point in Elliston Park. "Our goal was to build a sundial that would be interesting and fun for a wide variety of park users. In addition, we wanted to provide linkages to some of our other themes that include history, nature, and environmental conservation. This was a very successful project for us and was due in large measure to the volunteer contributions of some key individuals. Among them is Roger Bailey, whose talented design and ongoing support was

instrumental in the successful completion of the project. Bill Erickson designed and crafted the bronzes within the analemma. Bill is a collector of Indian arrowheads and he cast copies that are used as directional markers radiating from the sun. Randy Gibson provided the landscape design service and Sky Wier developed the playful theme used in the Zodiac Table. We were also fortunate to have a concrete contractor, Len, who was meticulous as well as extremely patient with our desire to achieve excellence. Funding was provided by the Nat Christie Foundation and The Calgary Foundation."

Roger Bailey of Walking Shadow Designs provided the gnomonic design and layout of the sundial. The design is specific for the site located at latitude 51˚ north and longitude 114˚ west. The latitude determines the shape of the hour ellipse, the position of the hour markers and the layout of the date table. A longitude correction is applied so the dial reads average time for the Mountain Time Zone.



The date or Zodiac Table that marks where to stand is shown above. The position is determined by the solar declination, the height of the sun through the seasons. The drawing shows the layout. The photo of the "as built" design shows where to stand with horseshoes cast into the coloured concrete base. To use the dial, find the appropriate date block, put one foot in line with the horseshoes, straddle the central line placing your other foot in line with the other row of horseshoes. Follow your shadow to the time markers and read the time.

The brass numbers on the hour posts indicate Mountain Daylight Savings Time. The dial is set for daylight savings time, as the dial is obviously harder to use in the winter.

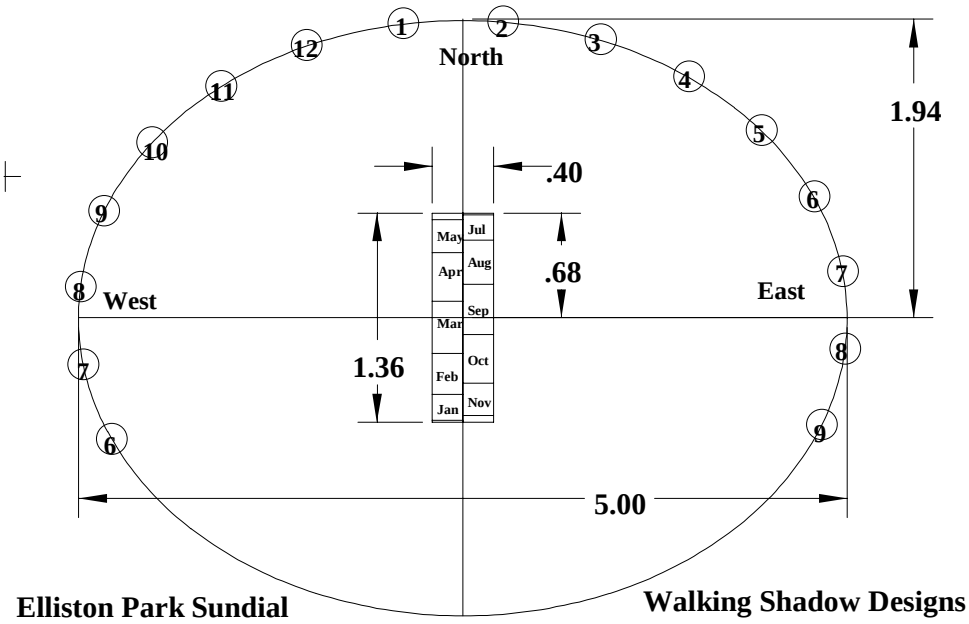
The idea for the sundial originated with local community members serving on the Elliston Park Board and landscape architect Kyle Ripley. In June 1999, Ken Miklos sent an email to Fred Sawyer of the North American Sundial Society (NASS) requesting help in the design of an interactive sundial for Elliston Park. Fred Sawyer passed the email to Roger Bailey with a recommendation to Ken that Roger was an active member of NASS and had recently completed a similar project at the Calgary Science Centre. Roger accepted the challenge and volunteered to provide the sundial design and whatever assistance required to lay out and construct the dial.
A key design tool for the project is the analemmatic sundial design program developed by Roger. This spreadsheet was originally developed for a similar sundial built at the Calgary Science Centre. Roger described this earlier project in the presentation "*How Long is my Shadow? The Use of Declination Lines in the Design of Analemmatic Sundials*" at the NASS conference in Hartford in October 1999.

The five-meter hour ellipse is at the centre of a circle landscaped into the hillside beside one of the major pathways. At the sundial entrance is a hitching post complete with bronze horseshoes cast in place. A trail of horseshoes leads visitors into the date table. The colourful date table, horseshoe foot markers, raised hour markers and the winking "Beausoleil" combine to create a playful setting. The motif displayed on cast brass plaques is "Nothing Without Sun". This original poem by Bill Erickson is located in the donor recognition plaza and reads:

No Wind, No Cloud, No Rain, No Grain
No Sea, No Wave, No Light, No Sight,
No Beauty to Behold, No Tales to Betold,
Nothing Without the Sun

The first step following the clearing and levelling of the site was the setting of the axes of the dial exactly north south for the minor axis and east west for the major axis. This was accomplished initially by marking the shadow at solar noon and later confirmed by marking the east west shadow at the appropriate instant when Cos t = Tan δ / Tan φ.

Roger Bailey is shown above establishing the position of the hour markers according to the data from the design spreadsheet and the drawing shown below.



Elliston Park Sundial **Walking Shadow Designs**

The holes for the hour posts were then dug with a power auger. The hour post positions then had to be re-established to accurately set the forms.

The forms shown below are now in place ready for the initial concrete pore.

The bronze plaques, horseshoes and sun were set into the Zodiac Table that was precast in separate pours for each colour. Three separate concrete pours were required for the posts, the hour ellipse and the final base. The bronze numbers, plaques and horseshoes were cast in as the concrete was poured.

Ken Miklos is shown testing the final result. It works better on sunny days, as shown by Roger checking his watch below. The dial is accurate and will serve as a significant centre of interest at Elliston Park for many generations. Landscaping around the sundial consists of transplanted native prairie. “Native prairie grasses and flowers are as timeless as time itself,” says Mr. Miklos. “Combined with the panoramic view of the lake and surrounding landscape the sundial will serve as an area of quiet peaceful tranquility. We anticipate that the sundial will also used as a learning tool by schools.”