Raven Hill DISCOVERY CENTER
WHERE SCIENCE, HISTORY AND ART CONNECT

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Raven Hill Discovery Center, incorporated in 1991, is a 501(c)(3) tax-exempt corporation.
Mission: Raven Hill provides a place that enhances hands-on and lifelong learning for all ages by connecting science, history & the arts.

To: Friends and Family everywhere
From: Cheri and Raven Hill
Date: January 22, 2022
Re: Mirror mirror!

Greetings, Everyone!

In the fairytale, "*Snow White and the Seven Dwarfs*", the Wicked Queen asks her Magic Mirror this familiar question every day: "Mirror, Mirror on the wall, who's the fairest of them all?" Raven Hill visitors don't need to ask the Center's "magic" mirrors anything. They can look in the beautiful reflections and see all the smiles on their fair faces.

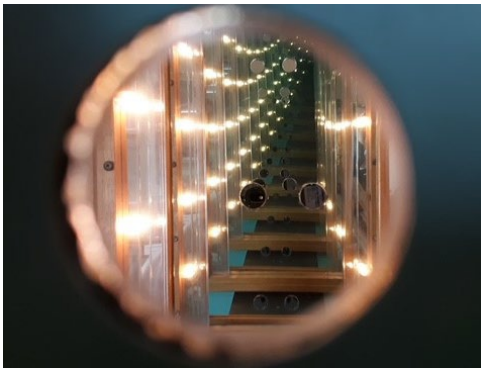
In 1817, Sir David Brewster was granted a patent for kaleidoscopes. A kaleidoscope uses two or more mirrors that are tilted toward each other. When viewed from the one end, objects at other end of the mirrors form a symmetrical pattern due to the repeated reflections. Raven Hill's **Kaleidoscope** is small, but fun. It's design element looks like fireworks!

*Position someone at each end of the **Horizontal Teleidoscope**. Look through it at each other. Or one person can take a picture of the other through the teleidoscope. It is guaranteed to make a great photo and capture some wonderful memories of Raven Hill!*

*Step into the center of the **Vertical Teleidoscope**. How many images of yourself do you see? Stand in a corner. Is the view different? What happens to the pattern you see, when you sit down and look up at the mirrors?*

A teleidoscope is a kind of kaleidoscope with mirrors and an open view that forms kaleidoscopic patterns from objects separate from the instrument, rather than from items installed as part of the scope. Raven Hill has a small **Horizontal Teleidoscope**, as well as a large **Vertical Teleidoscope**. Visitors can duck inside the vertical scope and they become the design. Raven Hill's big teleidoscope was donated by the Midland Center for the Arts. The more people inside it, the more fun it is! It's impossible to count the infinite reflections that can be seen! Teleidoscopes were invented by John Lyon Burnside III and Harry Hay. The patent was granted in 1972.

The **Infinity Display** is two parallel mirrors, creating reflections that appear to recede forever. You can select a pair of holes to look through and then compare what you see, when you look through a different pair of eyeholes! If you know how to twiddle your thumbs, you can even reach around the front mirror and see the infinite reflections of your thumbs twiddling!

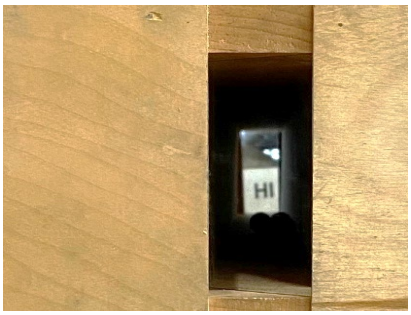


*Use your phone to take a picture through one of the eyeholes in the **Infinity Display** and you get this image! If you look closely, you can see the repetition of the eyeholes!*

*With the **Levitator**, you can stand on your right leg behind the mirrors and swing your left leg out to the side, forward or backward, in front of the mirror. You will look like you are suspended in midair! Assume a modified lotus pose and you are magically floating as you practice your yoga!*

The Center's **Levitator** was donated by the Jordan River Arts Center. The mirrors form an "L". If you stand at the end with your nose against the edge of the wooden frame and look at yourself in the mirror at the short end of the "L", you can see your whole self, even though only half of you is really showing. The other half of you is a reflection, so if you wave with your left hand, in the mirror it looks like you are waving with both hands!

A periscope is an instrument with two mirrors at 45-degree angles to one another set at each end of a tube or case. With Raven Hill's **Periscope**, you can look around a corner at an object that you can't see directly. Periscopes are typically used on submarines to see above the water's surface. In 1647, Johannes Hevelius invented a polemoscope, an early type of periscope. In 1854, Hippolyte Marié-Davy invented the first naval periscope.



*The **Periscope** is looking around a corner. It is focused on Raven Hill's display of Petrified Wood & out the window beyond. Next time you visit, see if you can find the piece of paper that says "HI" on it. I taped it to the glass of the Petrified Wood display case!*

There are two large mirrors at the Center that show different reflections. The **Concave Mirror** inverts the image, so everything appears upside down & close. In the **Convex Mirror**, the view looks right side up & further away!

We are open to the public noon to 4pm on Saturdays and 2pm to 4pm on Sundays, plus any other time by appointment. You can email info@miravenhill.org or call 231.536.3369 for reservations. The Smithsonian ***Labor Days: History of Work*** exhibit remains on display during regular hours or by appointment.

We continue to ask visitors to mask indoors for the sake of the vaccinated and the unvaccinated. Come soon and have fun exploring all our mirrors! Meanwhile, take care and stay safe.

Cheri

Look for my image in each mirror! You can try this at home with a shiny spoon. Hold the spoon up and look at it just like you would look at a hand mirror. Are you right side up or upside down? Turn the spoon over & look again! See what happens!

Raven Hill Discovery Center is supported in part by the Michigan Council for Arts and Cultural Affairs and the National Endowment for the Arts through a 2022 Operational Grant Award.