

Published by the Astronomical League  
Vol. 72, No. 2 March 2020

# Reflector

**REMOTE  
OBSERVING  
IN PRACTICE**

**THE BOSS GREAT WALL**

**THE TRANSIT OF MERCURY  
AND THE ASTRONOMICAL UNIT**



Titan for prebiotic chemical processes. NASA is also proposing an autonomous submarine to sail under the Great Lakes-sized lake Kraken Mare. What we will find in this lake will open a new vista in our understanding of this amazing moon.

—Berton Stevens

## Deep-Sky Objects

### HICKSON 68

High overhead during spring evenings lies the modest and indistinct constellation Canes Venatici. Devoid of bright stars, star clusters, and nebulae, the constellation more than makes up for this by being home to hundreds of galaxies, some bright and some not so bright. Several of Canes Venatici's galaxies are quite spectacular showpieces. These include M51, M63, and M106. But in this article, I want to highlight a group of five galaxies, collectively called Hickson 68, that can all be captured in the same eyepiece field.

Hickson 68 is the 68th entry in Paul Hickson's catalogue of a hundred small compact galaxy groups. The five main galaxies comprising Hickson 68 are NGC 5350, 5353, 5354, 5355, and 5358. All but NGC 5358 were discovered in 1788 by William Herschel using his 18.7-inch reflector. Édouard Stephan (for whom Stephan's Quintet in Pegasus is named) discovered the faintest member, NGC 5358, in 1880.

Hickson 68 is not the easiest galaxy group to

find as it does not lie near any bright stars. The group resides near the central-east edge of Canes Venatici, approximately nine degrees south of the star Alkaid (the end star of the Big Dipper's handle). The group also lies 13 degrees west of the bright star Nekkar in Boötes. With a polar-aligned equatorial mount, Hickson 68 can be found by centering Nekkar and slewing one hour and six minutes of right ascension to the west. On the west side of the galaxy group is a magnitude 6.5 orange star, HD121197, easily visible in a finder scope.

Three of the galaxies in Hickson 68 are bright enough to spy in 6- to 8-inch telescopes. The brightest is NGC 5353 shining at magnitude 11.0. NGC 5353 is a lenticular galaxy measuring 2.4 by 1.2 arcminutes. The galaxy's major axis runs northwest to southeast. Just north of it is NGC 5354, also a lenticular galaxy, shining at magnitude 11.4. It measures 3.0 by 1.1 arcminutes, with the major axis running north-south. Finally, four arcminutes north of NGC 5354 is the face-on barred spiral galaxy NGC 5350. It shines at magnitude 11.5 and is approximately the same size as NGC 5353. The spiral arms may be difficult to see with an 8-inch telescope, but bigger light buckets should reveal the spiral nature of this galaxy.

A 12-inch telescope should reveal the fourth member of Hickson 68, NGC 5355, four arcminutes northeast of NGC 5354. NGC 5355 is the third lenticular galaxy in the group. It shines at magnitude 13.2 and spans a mere 1.1 by 0.7 arcminutes. Finally, those with 14-inch and larger

telescopes should be able to see a fifth galaxy in the eyepiece, the magnitude 14.6 edge-on spiral galaxy NGC 5258. It is a tiny 1.1 by 0.4 arcminutes and is 6 arcminutes east of NGC 5353. All five of these galaxies are 100 million light-years away.

The accompanying image of Hickson 68 was taken with a 102 mm f/7.9 refractor with a ST-2000XCM CCD camera. The exposure was 90 minutes. The bright star near the center of the image is HD121197. The five galaxies are to its left. On the very left edge of the image is NGC 5371, a face-on barred spiral galaxy shining at magnitude 10.6. NGC 5371 is at the same distance as Hickson 68 and may be a distant member of the group. The group may contain more than 20 galaxies, several of which appear as faint smudges on this image.

Spring is the best time of year to hunt distant galaxies at the eyepiece. Capturing multiple galaxies, like Hickson 68, in the same field of view is always exciting.

— Dr. James R. Dire

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## All Things Astronomical

### HUBBLE SPACE TELESCOPE HIGHLIGHTS THE CALDWELL CATALOG

In December 2019, NASA published the Hubble Space Telescope's version of the Caldwell catalog. The online gallery features Hubble images of 56 of the 109 deep-sky objects identified by British amateur astronomer and astronomy communicator Sir Patrick (Caldwell) Moore as interesting targets for amateur astronomers that were not included in the more famous Messier catalog. The Caldwell catalog was published by *Sky & Telescope* in December 1995. While many of the Hubble pictures will already be familiar to astronomy enthusiasts (including popular images of the Cat's Eye Nebula, Antennae Galaxies, Carina Nebula, and Centaurus A), the catalog also includes 12 images not previously released by NASA that were newly processed for this project.

This new Hubble Caldwell collection includes an introduction providing background information about Sir Patrick Moore, his catalog, and Hubble's observations. Each Hubble image is accompanied by a caption that describes the

