

THE PRAIRIE ASTRONOMER

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LITTLE BY LITTLE, THE "MISSING MASS" IS BEING FOUND

Hundreds of previously unseen stars lie in a halo around a galaxy 80 million light years from earth, says a University of Michigan physicist.

The discovery by Dennis Hegyi, assistant professor of physics, challenges the theory that the universe will expand indefinitely.

Hegyi's discovery also indicates that the number of stars detectable with telescopes is only a fraction of those that exist.

"Right now, the universe is expanding and gravity is the only force that could stop it from expanding", Hegyi said.

He said that until now, the galaxies that can be seen have not been thought to contain enough matter to stop the universe from expanding. But Hegyi said if there are more stars, the pull of gravity on the larger mass of matter may be enough to stop the galaxies. In that case, the galaxies might be pulled back-- like a ball thrown in the air which falls back to the ground.

He said his theory fits in with the "big bang" theory of the creation of the universe, in that it is consistent with a massive explosion about 15 billion years ago from which the universe has been expanding ever since.

But the additional mass of his newly-found stars, Hegyi postulated, might be enough to pull all matter back together again in a "big crunch." Hegyi says the crunch will not come for awhile.

"Nothing's going to happen for at least another 50 billion years or so", he said. The physicist detected the previously unseen stars with an extremely sensitive light-measuring instrument called an annular scanning photometer.

Hegyi said he plans to study other galaxies to see if they have similar halos of stars.

THE PROGRAM IS THE PLACE!

This month's meeting of the Prairie Astronomy Club will be held at the new Hyde Memorial Observatory in Holmes Park, Tuesday night, November 29, at 7:30 p.m.

In a very real sense, the program will be the observatory itself. Earl Moser will have a slide presentation on the joys of amateur astronomy, and Larry Stepp will describe the construction of the 8-inch Newtonian telescope which the club has donated to the observatory. If it is a clear night, we'll roll off the roof and have a look at the sky through the tele-

(Continued on Page 3)

PRESIDENT'S REPORT...

The past month has been rather hectic with many club members putting in long hours in seeing to the observatory's first month of operation. All three telescopes (four, counting the Edmund Astroscan) are installed and in operation. As with anything new, there were a few bugs to be worked out. Most should be taken care of by meeting time.

At present, public interest in the observatory and participation by club members is high. The park department has been pleasantly surprised at the public interest in the observatory. Even on a public night with bad weather more than 40 people showed up. Many returned several times during the evening only to be met with clouds each time they arrived and clear skies each time they returned home! What a rude introduction to the frustrations of an amateur astronomer!

This month's meeting will be held at the Hyde Memorial Observatory. In case you do not trust solar heat, the observatory now has a gas furnace that works perfectly. See you there!

-- Rick Johnson

FOR THOSE WITH VERY GOOD EYESIGHT ON A VERY CLEAR NIGHT WITH VERY SHARP OPTICS (AND VERY WARM UNDERWEAR!)...

Theoretically, at least, it's not impossible that you could see Comet Kohler, one of the brighter new discoveries of 1977, but it is rapidly sagging into the southern sky. The comet is predicted to have a magnitude of about 6.8, well within grasp of amateur instruments, on December 3. Perihelion occurred on Novemb-

er 10.5571 ET at a distance of .990579 AU from the sun. Observations into November showed the comet continuing to brighten as predicted. In case you want to take a stab at it, look in the predawn sky low in the southeast. Precise position for December 3 is RA 21h17.98m, Dec. -26°54.6' in the constellation Capricornus.

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Observing Chairman's Report**A REPORT ON HOW IT LOOKS THROUGH THE HYDE REFLECTORS**

This month, I think I'll do what a lot of other people are doing and sing the praises of our latest astronomical addition to this area, namely Hyde Memorial Observatory. I have used telescopes ranging in size from a 2.4 inch refractor to a 30 inch reflector, and I can honestly say that this new observatory has one of the finest setups I have ever seen.

Three telescopes, including perhaps the second or third largest telescope in Nebraska, give this observatory a complete range of observing equipment. First, for narrow field and high magnification viewing of the planets and other small objects, the eight inch Cassegrain gives clear and sharp views while being easy to operate.

For wide field work, the club's eight-inch Newtonian gives fantastic views of the Pleiades, M31, and other large extended objects. And, for real deep sky work, the 14-inch Celestron is a gem. The view it gave of the ring nebula was one of the clearest I have ever seen.

There still exist some minor problems with the facility, but these haven't seriously marred its performance. I am also quite pleased at the club's response to properly manning the observatory during public nights, even when the weather isn't cooperative. I hope this continues and I also hope to see more members volunteer to help with this operation. Those who have been out in the past few weeks have seen the public's re-

sponse and I think this alone attests to the value of having such a fine facility in Lincoln.

I've already been contacted by several people expressing an interest in our club because of this observatory and I feel that in addition to gaining a few new members, this observatory could help bring the entire membership into active cooperation and really show people what amateur astronomy means. The word "amateur" means something like "someone who participates in an activity for the joy and excitement it gives him," and we can really contribute something to this community if we introduce more people to the wonders of the universe.

--David Knisely

THIS MONTH'S PROGRAM...

(Continued from Page 1)

scopes (although it will be just a few days after full moon.)

So, to those members who haven't shown up at a meeting for a while here's a program that ought to entice you--your astronomy club meeting where amateur astronomers should be--in a fine new observatory! See you there!

LASER PROGRAM AT DES MOINES

"Laser Journeys", a rock and light show using a \$15,000 krypton laser, premiered November 4 at Sergeant Planetarium in Des Moines. Call (515) 274-4133 for information.

ANOTHER OBJECT FOR KOWAL--AND MAYBE A CHANCE TO NAME THE TENTH PLANET

In its usual dry style, the IAU circulars made the announcement November 4:

"C. T. Kowal, Hale Observatories, reports the discovery of a slow-moving object of stellar appearance on exposures with the 122-cm Schmidt telescope at Palomar. A prediscovery image was identified by T. Gehrels on an exposure with the same instrument. The motion, scarcely greater than that of Uranus, is extraordinarily slow for an object so close to opposition."

Subsequent rough computations of the object's orbital elements were:
 Perihelion Time: June 25.5, 1946
 Longitude of perihelion: 14.4°
 Longitude of ascending node 207.3

Inclination: 5.2

Perihelion distance: 15.836 AU

Eccentricity: 0.031

Semi-major Axis: 16.340 AU

Mean Angular Motion per solar day: 0.0149°

Orbital period: 66.1 years

Thus, it appears that Slow-Moving Object Kowal probably lies in a near-circular orbit between Saturn and Uranus, and is approximately 100-400 miles in diameter. The astronomical community is wrestling with the problem of whether it qualifies as the 10th planet. If they decide that it does, Kowal, who has discovered innumerable small objects, will be the only living astronomer privileged to name a planet.

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