

Offered Title: Mystery in the Milky Way's Center

Last week I used Ray Bradbury to kick off my article, this week Isaac Asimov.

In his Foundation series of books, Asimov took us near the center of our Milky Way galaxy, to the planet Trantor, seat of galactic power.

Written in 1951, Foundation had forward thinking concepts such as holograms, inertial damping, and hyper-space jumps at greater than light speed (sounds like Star Trek). It also had quaint concepts such as taxis with human drivers...in the 12th millennium! I fully expect to see driverless taxis within 10 years, in the early 3rd millennium.

Anyway, Trantor is near the Milky Way's center and is completely covered in concrete, steel, and plexi-glass. It's a world with buildings everywhere, as far as you can see, lit up all the time, where one only sees the sky by going to special viewing terraces.

What would it really be like on a planet near our galaxy's center?

The center of our galaxy is home to a supermassive black hole named Sagittarius A* (A-star), with its attendant swirling dervish of debris, stars, and radiation. Within four light years from Sagittarius A* (Sgr A*) there are millions of stars. If Earth were there many of these stars would reside between the Kuiper Belt and Oort Cloud of our solar system. Our sky would be ablaze with starlight even in the daytime, no need for outdoor lighting. Radiation and debris would make Earth a dangerous place.

Asimov didn't know about Sgr A*, and black holes were barely theoretical in 1951. A planet like Trantor is very unlikely. Let's look at the area around Sgr A*.

We know about Sgr A* and its attendant million-star swarm. They are packed close to each other and the stars themselves are interesting. For years the thinking was these stars had to be old red giant stars because this area was too churned up to allow new star formation. No star forming molecular cloud could exist there. Surprise! Along with old stars there are many young blue giant stars, like in the young Pleiades star cluster. They are only around 100 million years old. What gives?

This finding was a shock to astronomers and how these stars manage to be there is a mystery. Of course, any mystery leads to possible solutions and this is no exception. Astronomer's love a good mystery.

One hypothesis is over millions of years young binary star systems interacted with massive objects and were hurled toward Sgr A*. As each binary approached Sgr A* one of the stars was kicked away and the other became a partner with Sgr A*.

Another hypothesis is older binary star systems in elongated orbits around Sgr A* became perturbed by Sgr A*'s gravity. The binary's stars ended up merging with each other, forming a new, younger appearing star.

What's in the Sky?

September 8; pre-dawn; east: Mercury, Regulus, and a crescent Moon are a pretty sight.