

Double planets

The Whorl list — 3 messages, 3 voices, 09 Jul 1998

<https://urth.darkrealm.vip/thread/whorl/483>

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mary whalen — 09 Jul 1998, 22:09

This is Sean Whalen (prion).

As I looked over the Whorl archives, it seemed to me that not everyone agreed that the planets Blue and Green were part of a double planet system, but were instead both in separate orbits around the sun. I think there are many reasons to think that they're a double-planet system.

Hyacinth is described in the text as pointing towards Blue and Green and asking if Auk is going to one of those. She points just once, and it seems unlikely that two separate planets would happen to be close enough together for this at just that time.

Also, the inhumu fly between the two when they're in conjugation.

It's unlikely that they can fly in a vacuum, they probably have to breathe. They also would have no way to fly in a vacuum with nothing to beat their arms against. If they used technology to get their, they should be able to do this at other times as well. If they are together, at conjugation they could have an airbridge between them at a certain time and not others if they have an elliptical orbit about a common center.

The fact that they're close in an elliptical orbit also would show why they cause tidal waves and earthquakes in conjugation. If they are in separate orbits, they would not be anywhere near enough to cause significant or noticeable seismic activity (not even the very-close Moon does anything to Earth, so it would almost have to be a very close double system to have more of an effect than we experience with our large and near neighbor).

The fact that Green rises as seen on Blue and appears almost as bright as a second sun also shows how big and recognizable it must be, indicating nearness. Green would have to be impossibly close if it had a different orbit to look that bright, not to mention that it's unlikely to rise on the particular night that Horn finishes his book; but a double-planet would have a much greater chance of rising on any random night.

Also, it's probable that the Whorl is parked in one of the Lagrange points of Blue and Green, where their mutual gravitational attraction on it cancel each other out, and it remains at rest with no power being needed to maintain orbit. Otherwise, it's unlikely Horn would be able to pick it out among all the other stars unless it was always visible and near. It could be always visible because it's orbiting Blue, but it wouldn't be, because it took three days on the course toward Blue for it to become obvious that that was their destination. If the Whorl were in orbit, it would be apparent immediately. If it weren't in a Lagrange point, it would be very unlikely for an inhumu to pass in front of it while flying, as Horn seems to think occurs.

prion

Peter Westlake — 13 Jul 1998, 12:37 · follows mary whalen

At 22:09 1998-07-09 -0700, prion wrote:

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Unfortunately, I don't think Blue and Green *have* a Lagrange point. Hal Clement has a short story called "A Little Knowledge", in which a fleeing criminal parks his spaceship what he fondly imagines is a Lagrangian point of a double star. But the two stars are too closely matched in mass for it to work: one mass has to be considerably bigger than the other. (If anyone has the story, and the ratio is 25.8 : 1, then I shall appear very clever; if it isn't, well, how can I be expected to remember a detail like that?) The story ends with the fugitive finally getting round to looking out of the window, to find himself plunging into one of the stars as it orbits towards him.

Whatever the masses of Blue and Green may be, it isn't very likely that they could differ enough to have Lagrangian points while both being reasonable places to go and live.

SBear.

Alastair Reynolds — 13 Jul 1998, 13:00 · follows Peter Westlake

Peter:

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actually, any two orbiting point masses will always have five lagrangian points around them; the one between them (exactly in the middle for equal masses) is L1. L1 isn't stable - something placed at L1 only needs a tiny nudge in either direction and off it goes.

The point HC might have been making is that L4 or L5 (the "usual" Lagrange points, off to either side) might only be stable if the ratio is as above?

blimey - the first thing on the list I've responded to in ages!

al