

The Aster's Hoity-Toity Belt

Written by
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for
NASA's Dawn Mission

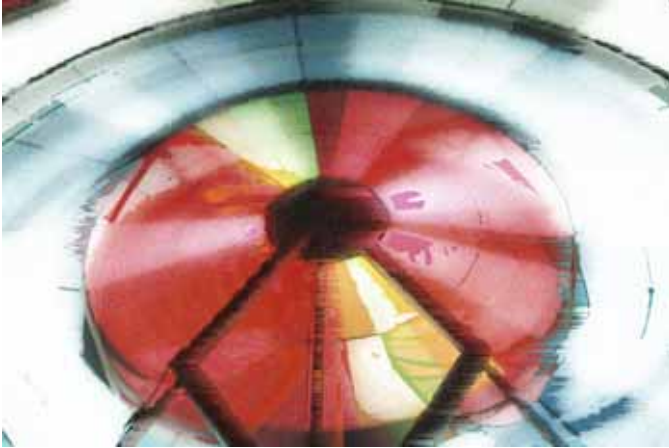


Once upon a time, in a magical place far, far away, there lived a great, noble family by the name of Aster. The Duke of Aster governed the realm, and as such, he looked over his family with great care and loving attention. The Duke especially loved the little ones, and was often heard to roar with laughter when one of them particularly tickled him. The Duchess of Aster was a very proper and genteel lady, who only wanted the very best for her family. As such, she was a bit more reserved, and sometimes scolded the Duke for being far too playful with the children. She thought that it wasn't a good idea for a nobleman to be seen frolicking with the children out in the sky space. Lady Aster said that it was important that the family receive the respect and admiration that they deserved in the larger Solar System family. After all, they were one of the oldest System families, and as giant families of rocks go, they were quite

Asteroids are rocky and metallic objects that orbit the Sun but are too small to be considered planets.

sizeable and imposing. And, to clearly certify their place in sky society, they were the inventors, the owners, and the proprietors of the **Great Carousel of the Skies.**

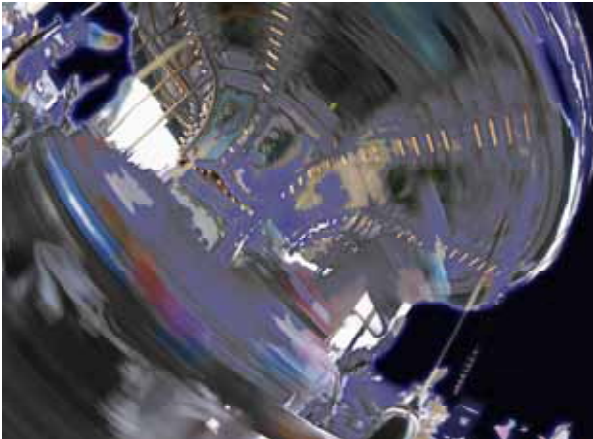
Metaphor for asteroid belt.



Not everyone who knew the Asters loved the Asters. Some folks thought they were a bit “hoity-toity” with their admitted nobility and their great Carousel, which some folks said “wasn’t so great.” It seems that the Asters were very, very picky about just who could ride on their Carousel, and not everyone in the Solar System family got to jump on and glide around and around, up and down. So it’s been said

that there were those who were stars, comets, and planets, who claimed that the circling, the up, the down, the dizzying around, the blinking lights, and the continued ringing melody, "just wasn't the greatest ride in the solar system."

Contrary to how asteroids are often portrayed in feature films, they neither bounce up and down, nor are they in very close proximity to one another.



Scientists believe that during the formation of the early Solar System over 4.5 billion years ago, this region was characterized by a lot of mobility. Asteroids were budding planets whose orbits were disrupted and development arrested due to Jupiter's massive gravitational pull.

They said that they "didn't care at all" that the Asters seldom—almost never—let them ride. The Carousel "made them dizzy and sick to the pit of their stomach, in a spot very near their belt." Soon, the Great Carousel of the Skies came to be known as "The Aster's Hoity-Toity Belt."

Most asteroids are contained within a *main belt* that exists between the orbits of Mars and Jupiter.

Well, when she heard this the Duchess was furious and wanted the Duke to call a meeting to defend their family's honor in the sky society. But the Duke was much too concerned with other things in their skyborhood, like keeping a watchful eye on his giant family—the young and the old alike. He was particularly concerned about two of the younger rocks who were forever competing with one another. They were only a few centuries apart in age, and as such, played a bit too rough with one another, teasing, scrapping, romping, and generally enjoying each other's company, ...well, ... MOST of the time.

Wilhelm Olbers discovered Vesta on March 29, 1807.



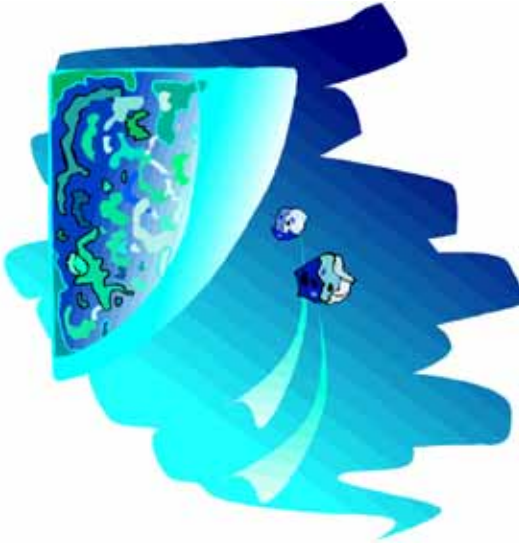
Ceres was the first asteroid to be discovered. It was found by accident on Jan. 1, 1801, by Giuseppe Piazzi.

Sometimes, the young Vesta and Ceres were the best of friends. And sometimes, you would insist they were mortal enemies. The Duke thought part of it had to do with how big they were. Or in this case, how one

of them was pretty **big**, and how one of them was pretty much **NOT big**.

Ceres is the largest known asteroid in the asteroid belt, with a diameter of about 1,000 km, or 600 miles.

Vesta is much smaller than Ceres, at 525 km, or 325 miles in diameter.



Now, you would think that Vesta, who was

the smaller of the two, would always give in to the much larger Ceres. But actually, little Vesta was often seen pushing, shoving, and generally being a nuisance. And it was Ceres who was far from scrappy. He was a gentle giant who loved his little friend Vesta, and often let her get the better of him. As the two friends grew older, Vesta would tease Ceres just for fun. She would egg him on, picking here, nudging there, ducking to the

left, rolling to the right. Ceres pretended not to notice, as he truly didn't want to embarrass Vesta with a public fight right there in front of everyone in their skyborhood. Why, little Vesta wouldn't have a chance against the brute strength of the giant Ceres. Well, that, and it turns out that the giant Ceres was a bit **dull**, and a bit afraid to join in with family games and family ways.

Ceres is not considered a bright asteroid (as compared to Vesta).



The centuries passed, and although Vesta didn't grow very big, she was **very bright** and quick. Ceres remained large, but he was far less bright.

Vesta is considered to be a very bright asteroid

In their young adulthood, Ceres was **fluid** with motion, while Vesta just kind of **dried** up. In spite of her feistiness, the bright little Vesta was a favorite of all of the Asters. Ceres remained somewhat dull, and grew even more sensitive, sometimes thinking that no one loved him. And so it went for many hundreds of years.

Ceres observations indicate that water has been present.

Observations of Vesta are that it is a dry asteroid.

Then one day, Ceres did the unthinkable. Just as Vesta had climbed on to the Great Carousel of the Skies, Ceres got a brilliant idea. Why not stop the Carousel? With any luck, Vesta would fall off! That would get everyone laughing, and Vesta's bright honor would surely be bruised. She might not be the brilliant Vesta any longer.

It was a fantastic notion, Ceres thought. "I'll do it! I'll stop the Great Carousel!"

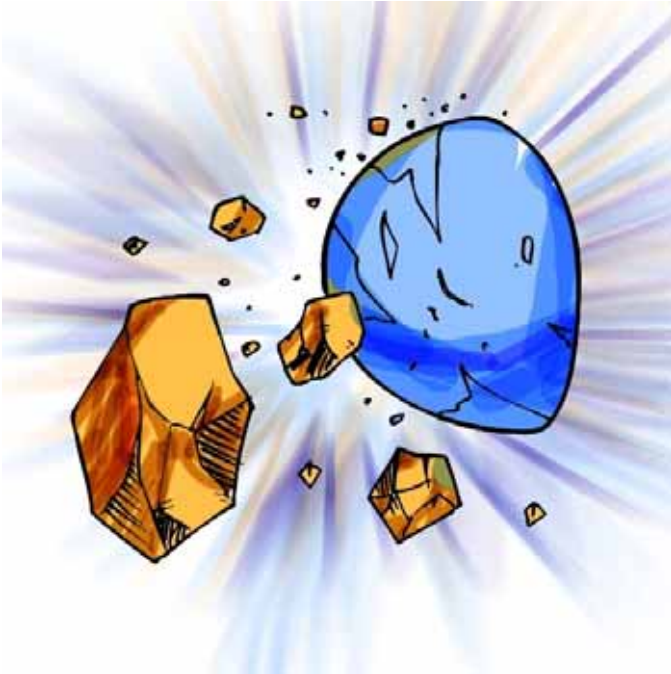
And so, while the Carousel was whirling and twirling, and Vesta and other Asters were enjoying their circular whirl, Ceres snuck around and underneath, where the great power source lie, and did the unthinkable. He pulled the great plug of power.



The Duke
came
running.
"What ever
in the sky
had
happened?"

M'Lady
stormed in.
"Of all that

is right in the heavens, would someone please tell me what is going on?" she boomed.



All of the Asters were silent. The great Carousel was silent. The sky was silent. Well, except for the exceptionally sized Ceres, who could be heard chuckling from behind the great source of power.

The crowd stopped. They all turned and looked his way. They recognized that Ceres-sized chuckle.

“Ceres! Come out here this very moment!” commanded the Duchess.

Ceres had succeeded in making lots of Asters mad at him from time to time, mostly because he was afraid to act, afraid to join in, and generally afraid to stand out—up in front of the others. But he had never incurred the wrath of Lady Aster.

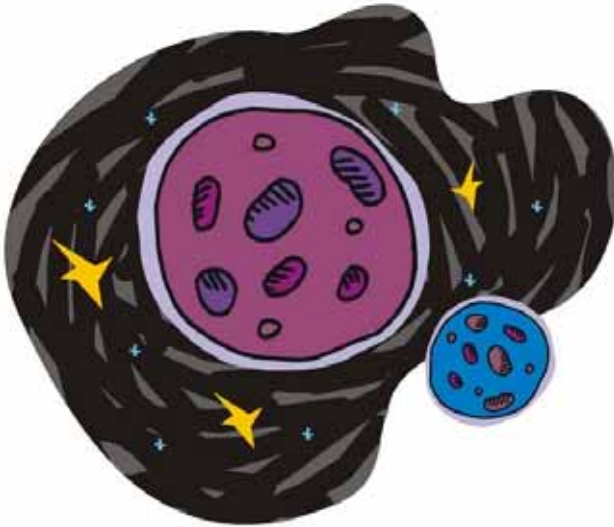
He peeked out from behind the great power source. All of the Asters were standing there in a circle, ...waiting, ...waiting, ...wondering. It was dark. There was no playful music. The Carousel was quiet, and Ceres was scared—very, very scared. He was much too scared to step out in front of everyone and face the fearsome Lady Aster.



So, Ceres did the only thing that he could think of. He turned and ran. Ceres ran as fast as he could and he ran far—farther than he had ever been before, and far, far away from his little skyborhood. Ceres ran until he could no more. He found a quiet spot, and there he settled in, trying to blend in with the **distant Asters**—those whom he had never met before, and those who didn't know of the big, scary, awful mistake that he made. Years went by, and Ceres tried not to think of his old skyborhood, of the close-knit family, and of

Ceres resides in the outer region of the mail belt.

what he did to his once-good-friend, little Vesta.



Of course, what Ceres didn't know was that long ago, Vesta had forgiven Ceres. Shucks, she didn't get hurt too badly when the great Carousel stopped. She had even decided that it was good for the family to stop and take a look at itself. For one thing, when the Carousel stopped and Vesta fell on her bottom, a giant crater formed. She decided that it was a good reminder not to be so scrappy, so pushy, and so generally feisty. Also, the Duke finally had a good, long talk with the Duchess, and she agreed that she

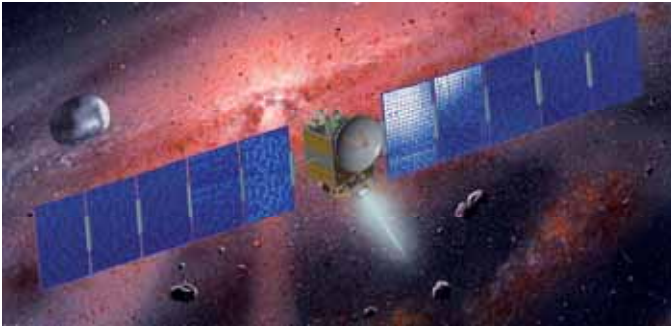
was maybe just a little too worried about propriety and sky society, and not loving enough with her family. Since that time, she had been seen taking long walks and Carousel glides with her children, grandchildren, nephews, nieces, and other family members in their skyborhood. Well, there were walks with everyone but Ceres, who by now, was missed by the entire family. "What had come of him? Where had he gone? Was he OK? Did he miss them too?"

One day the Duke of Aster called a family meeting. He and Vesta had news to share. He had summoned a great Discovery courier from a distant Solar System planet called Earth. This explorer was known the name of **NASA Dawn**, or Dawn for short. The Duke had offered her a challenge. Her mission was to find the lost Ceres and carry a message from Vesta to him. Vesta especially wanted Ceres to know that, "He is forgiven, and all is well. Would he please come home?"



NASA's Dawn mission will launch in June 2006, with Vesta arrival in October 2011.

Dawn returned the message. "Yes!" She "would come."



The appointed day arrived. In the distant skies, the Asters could see the great explorer, Dawn, approaching with ease and a steady pace. She was a lovely lady—a messenger with **outstretched arms**, ready to embrace those with whom she came in contact. Dawn met the Asters, and the Duke soon came to understand the reason for her importance in the Solar System. She was a great listener. Dawn listened long, and she listened hard. She made sure that she got the message right. She was clearly made of the right stuff to find the giant Ceres and carry Vesta's message to him.

Stretching nearly 65 feet (19.7 meters) from tip to tip, the size of Dawn's solar panels help to harness power from the distant Sun while providing redundancy for potential damage during its nine-year flight.

The Asters were hospitable and pleased to show their visitor around. They

asked her not to hurry off, but to stay and visit a little while.

The Dawn
Spacecraft will
rendevous with
Vesta for 7
months.

Then came the day when Dawn had learned everything that she needed to know, and she bade the Asters farewell. She traveled on, this time propelling from the Aster's skyborhood to the far regions of the Aster's space in the Solar System. She traveled way out to the far regions of the Aster's realm. Dawn had a hunch she would find Ceres there, and there she found him. They sat and had a chat.

The Dawn
spacecraft will
arrive at Ceres in
August 2015.

Mostly, Ceres talked and Dawn listened. She learned that in some ways, the large Ceres was very different from little Vesta, and in other ways, they were somewhat alike. Most importantly, Dawn found out that Ceres was very happy in his new home, and Ceres was much relieved to learn that all was forgiven. He appreciated the request to return home, but in his mind, he was home. He had made some wonderful friends. Ceres decided to stay put, and promised never to forget the old skyborhood.

Peace had come again to the great, noble family of Aster.

So, at the end of this journey, Dawn sent out a message far and wide that in that Great Carousel of the Sky, there once was "Aster's Hoity-Toity Belt," but that was a thing of the past. Today, the Asters are a close, loving family, and there is nothing hoity-toity about them. From that day on, no one ever called the Great Carousel or the Asters "hoity-toity."

To learn more about the Dawn mission, go to: <http://dawn.jpl.nasa.gov/>



And that's how we've come to know what today we call the

Asteroid Belt of our Solar System.
The End