

Cosmic murder source of rings

By Seth Borenstein

AP Science Writer

WASHINGTON (AP) — One of the solar system's most evocative mysteries — the origin of Saturn's rings — may be a case of cosmic murder, new research suggests.

The victim: an unnamed moon of Saturn that disappeared about 4.5 billion years ago.

The suspect: a disk of hydrogen gas that once surrounded Saturn when its dozens of moons were forming, but has now fled the crime scene.

The cause of death: A forced plunge into Saturn.

And those spectacular and colorful rings are the only evidence left. As the doomed moon made its death spiral, Saturn robbed its outer layer of ice, which then formed rings, according to a new theory published online Sunday in the journal Nature.

"Saturn was an accomplice and that produced the rings," said study author Robin Canup, an astronomer at the Southwest Research Institute in Boulder, Colo.

The mystery of Saturn's rings "has puzzled people for centuries," said Cornell astronomer Joe Burns, who wasn't involved in the study

and said Canup's new theory makes sense.

One of the leading theories has been that either some of Saturn's many moons crashed into each other, or an asteroid crashed into some of them — leaving debris that formed the rings. The trouble is Saturn's moons are half ice and half rock and the planet's seven rings are now as much as 95 percent ice and probably used to be all ice, Canup said. If the rings were formed by a moon-on-moon crash or an asteroid-on-moon, there would be more rocks in the rings.

Something had to have stripped away the outer ice of a moon, a big moon, Canup said.

So her theory starts billions of years ago when the planets' moons were forming. A large disk of hydrogen gas circled Saturn and that helped both create and destroy moons. Large inner moons probably made regular plunges into the planet, pulled by the disk of gas.

These death spirals took about 10,000 years and the key to understanding the rings' origins is what happened to them during that time. According to Canup's computer model, Saturn stripped the ice away from a huge moon while it was far enough from the planet that the ice would be trapped in a ring.

The original rings were 10 to 100 times

larger than they are now, but over time the ice in the outer rings has coalesced into some of Saturn's tiny inner moons, Canup said. So what began as moons has become rings and then new moons.

This helps explain Tethys, an odd inner moon that didn't quite fit other moon formation theories, she said. Saturn has 62 moons — 53 of them have names. New ones are discovered regularly by NASA's Cassini probe.

But this doesn't explain rings on other planets in our solar system, such as Jupiter, Neptune and Uranus, which probably formed in a different way, Canup said.

The rings and ice-rich inner moons are the last surviving remnants of this lost moon, "which is pretty neat," Canup said.

Burns said Canup's theory explains the heavy ice components of rings better than other possibilities. Larry Esposito, who discovered one of Saturn's rings, praised the new paper as "a very clever, original idea."

"I would call it more like cosmic recycling," Esposito said because the moon became rings which then became moons. "It's not so much a final demise, but a cosmic effort to reuse materials again and again."

On the Beat

COLBY POLICE Monday

12:04 a.m. — Subject came to the Law Enforcement Center wanting information about dog.

5:44 a.m. — Smoke in the kitchen area of restaurant. Officer assigned, turned over to Fire Department. Ambulance paged.

12:39 p.m. — Clerk reported possible drunk driver leaving. Sheriff's deputy located vehicle.

12:46 p.m. — Driving while suspended report filed on traffic stop in the 200 block of S. Country Club Dr.

1:10 p.m. — Caller reported theft of items. Spoke to reporting party; ongoing.

1:21 p.m. — Employee called about vehicle left at Orscheln's for at least three days. Vehicle towed.

3:45 p.m. — Dog at large caught at 865 S. Grant, turned over to Colby Animal Clinic.

5:46 p.m. — Barking dog comp in the 1100 block of E. 10th. Spoke to subjects.

6 p.m. — Assisted ambulance crew on call.

8:05 p.m. — Assisted driver with stalled vehicle in the 1900 block of S. Franklin.

Tuesday

8:12 a.m. — Theft of fuel from vehicle. Report filed.

8:18 a.m. — Theft of copper. Report filed.

9:45 a.m. — Assisted Social and Rehabilitation Services.

10:16 a.m. — Caller requested officer for break in. Report filed.

3:08 p.m. — Domestic call: report filed.

5:25 p.m. — Caller reported fire in oven. Fire out when officers arrived. Engine 1 also responded.

9:28 p.m. — Report at the Law Enforcement Center of a subject scratching reporting party's car when she opened her car door.

THOMAS COUNTY SHERIFF Tuesday

9:32 a.m. — DeAnn Dible reported accident with deer at 7:25 a.m.

10:19 a.m. — Served arrest warrant on Chad Allen Pettit.

2:21 p.m. — Served arrest and detain warrant on Kirt Dugger.

4:32 p.m. — Caller requested officer because of daughter trying to get in house. Report filed.

6:30 p.m. — Report filed for sale of narcotics.

Patrol encourages preparation for winter driving

Each year during winter storms, the Kansas Highway Patrol works many traffic crashes related to the weather. They encourage motorists to slow down and be prepared for adverse conditions.

Driving too fast for conditions ranked fourth in contributing circumstances of all traffic crashes last year, contributing to 10.6 percent of all crashes.

In 2009, a traffic crash involving snow and ice occurred every 0.56 hours. There were 4,927 crashes worked during ice and snow conditions, and 20 people died from these crashes in 2009. Injured were 1,207 people. In 2009, 8.1 percent of all crashes in the state occurred during snow and/or ice conditions.

As motorists venture out during winter storms, the following tips are offered:

- Prepare your vehicle for winter travel by replacing wiper blades; ensuring tires have good tread and air pressure; and by checking the vehicle's fluids, exhaust system, and other mechanical equipment.

- You also may want to consider adding a shovel to your trunk, weight such as sand bags in the bed of a pickup to help with traction and control, and carrying a sand/salt mixture in your trunk to help melt the snow and gain traction.

- The vehicle should also be stocked with items that would be beneficial if you were involved in a crash, or became stuck. These

would be bottled water, blankets, non-perishable food items, a first aid kit, and a flashlight with extra batteries.

- You should try to keep your gas tank full, as this adds additional weight for traction, and lessens the possibility of running out of fuel if you became stuck for a long period of time.

- Clean frost and snow off all windows, mirrors, and lights, and use your headlights to provide optimum visibility. Make sure the entire window is clear. Having only a small portion cleared could contribute to a crash. You could also be ticketed. Keep an old towel under the seat and periodically pull off to a safe location and wipe off your headlights and tail lights.

- Accelerate and brake gently, and increase following distance between you and other vehicles.

- Bad weather is an adverse driving condition and you should increase your following distance by at least one if not two additional seconds. (Standard following distance for good weather is three seconds.) Be particularly cautious on bridges, and in curves, as they are often the slicker parts of the road.

- Steer in the direction you want to go if your vehicle loses traction and begins to slide.

- Allow for more time when traveling to and from work, home, school, or other activities.

- Always wear your seat belt, and properly secure children in the proper safety seats.

- Have a plan for your children should they get sent home from school early.

- For tips on preparing your homes and vehicles for adverse winter weather go to www.emergency.cdc.gov/disasters/winter/.

- If you are involved in a traffic crash, or need assistance, call 911 or contact the Patrol at *47 from your cell phone. Call *KTA if you are on the Kansas Turnpike.

- To find out road conditions, call 511 from a landline or cellular phone, or view conditions at: www.ksdot.gov/offTransInfo/511Info/511traffictravel.asp.



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Hope you have a wonderful holiday season!

Our office will be closing Friday, Dec. 24 for Christmas Eve and Friday, Dec. 31 for New Years Eve.

THERE WILL BE NO PAPER DEC. 24 OR DEC. 31!

Deadlines: Country Advocate for Dec. 22 is Friday, Dec. 17, at noon and Dec. 29 is Thursday, Dec. 23, at noon.
Colby Free Press: Dec. 27 paper deadline is Thursday, Dec. 23, by noon. Jan. 5 paper deadline is Thursday, Dec. 23, by noon.

We will be back to serve you on Monday, Dec. 27!
THANKS FOR YOUR BUSINESS THIS PAST YEAR!



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