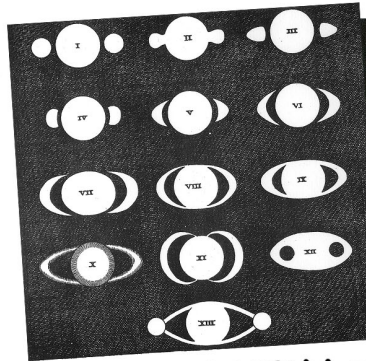


PLANETARY RINGS

THE FOUR OUTER PLANETS ARE SURROUNDED BY RINGS. THE LARGEST ARE THOSE OF SATURN

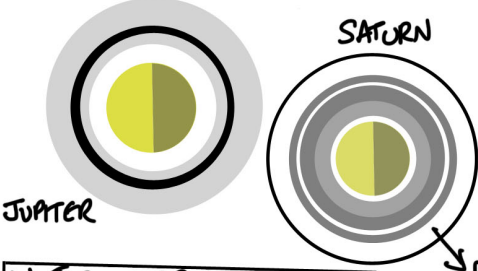


CALLIED GALILEI JUST COULDN'T FIGURE OUT SATURN'S RINGS THROUGH HIS TELESCOPE..

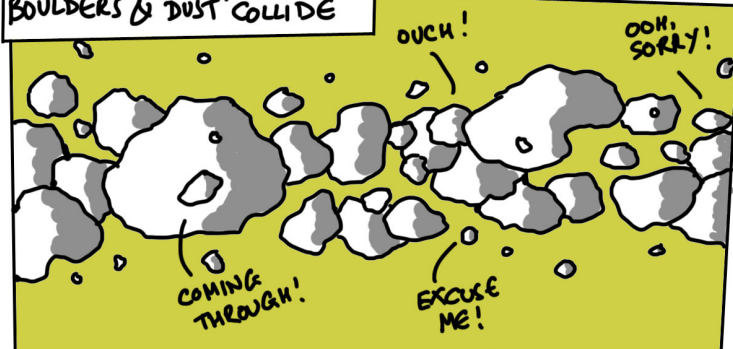


THESE WERE FOUND WHEN THEY MADE A STAR DISAPPEAR WHEN IT PASSED BEHIND THEM

BUT CHRISTIAAN HUYGENS WORKED IT OUT IN 1665.

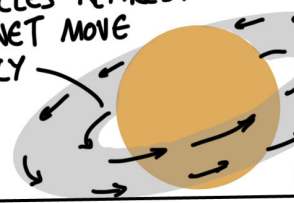


IN THE DENSEST PARTS OF SATURN'S RINGS, THE RING BOULDERS & DUST COLLIDE



PLANETARY RINGS ARE MADE OF MILLIONS OF DUST GRAINS AND ROCKS, ALL IN ORBIT AROUND A PLANET

RING PARTICLES NEAREST TO THE PLANET MOVE MOST QUICKLY



RINGS CLOSE TO A PLANET ARE ALWAYS FLAT. SATURN'S MAIN RINGS ARE ONLY AROUND 10 METRES THICK

I'M GETTING DIZZY!

RINGS WERE ALMOST CERTAINLY FORMED WHEN MOONS GOT TOO CLOSE TO THE PLANET, AND BROKE UP.

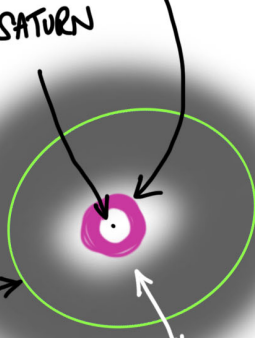
IF A BODY HELD TOGETHER BY GRAVITY GETS TOO CLOSE TO A PLANET, IT GETS RIPPED APART.



THIS IS THE SAFE DISTANCE

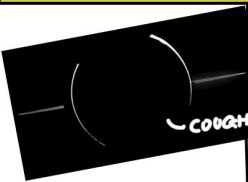
THE LARGEST RING

AS WELL AS THE FAMOUS MAIN RINGS, SATURN IS SURROUNDED BY A VAST RING CALLED THE PHOEBE RING. IT HAS ONLY BEEN DETECTED FROM EARTH IN INFRARED LIGHT.

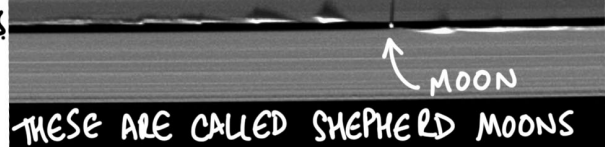


IN HERE IS ALSO THE SECOND-LARGEST RING, FED BY THE MOON ENCELADUS.

JUPITER'S RINGS WERE FOUND BY THE VOYAGER 1 SPACECRAFT IN 1979. THEY'RE VERY DUSTY!



SMALL MOONS CAN ORBIT INSIDE THE ROCHE LIMIT. THEIR GRAVITY AFFECTS THE PATHS OF RING PARTICLES NEARBY.



THE PHOEBE RING IS BETWEEN 100 & 270 TIMES LARGER THAN SATURN'S RADIUS THAT'S OVER 16 MILLION KM, OR 10% OF THE DISTANCE BETWEEN EARTH & THE SUN!

ORBIT OF SATURN'S MOON PHOEBE



RINGS AROUND MOONS?

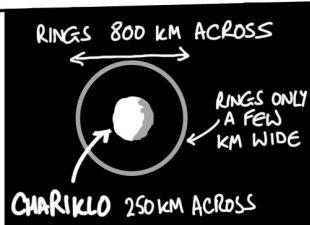
SATURN'S MOON IAPETUS HAS A HUGE RIDGE AROUND ITS EQUATOR, WHICH MIGHT BE A RING THAT FELL ONTO THE MOON'S SURFACE.



THERE ARE PATCHES OF FRESHER ICE ALONG RHEA'S EQUATOR, WHICH MAY BE SIGNS OF OLD RINGS.

IN 2005 THE CASSINI SPACECRAFT RECORDED DROPS IN ELECTRONS NEAR ANOTHER MOON OF SATURN, RHEA, THAT SUGGESTED THAT A RING SYSTEM WAS THERE. IMAGES HAVEN'T CONFIRMED THAT THEY EXIST.

ASTEROIDS CAN HAVE RINGS TOO. CHARIKLO, WHICH ORBITS BETWEEN SATURN & URANUS, HAS AT LEAST TWO RINGS.



LIKE URANUS'S RINGS, THESE WERE FOUND WHEN THEY BLOCKED LIGHT FROM A STAR - AN OCCULTATION

CHARIKLO 250 KM ACROSS