Iapetus

Iapetus looks like a walnut, because it is squashed at the poles, and has a prominent equatorial bulge, both quite visible from space. Why is it squashed at the poles? At one point it was melted and became a big water drop rotating rapidly, its days only seventeen hours long; something passing by set it spinning like a top. It froze while still spinning. So, why the prominent equatorial bulge? No one knows. Some aspect of the freezing of water drop to ice ball, most agree, some kind of surge or excess. But it's something saturnologists still argue about.

Whatever caused it, the bulge immediately suggested itself as an obvious location for a city, as it could serve as something like a High Street peninsula running all the way around the moon. The city was concentrated at first on the hemisphere facing Saturn, which looms overhead four times larger than Luna from Earth. This was felt worth having in one's sky, especially since lapetus's orbit is at a seventeen-degree tilt from the plane of Saturn's rings, giving it a perpetually changing view of the gorgeous mobile. Almost all the other moons see the rings only edge-on. From the Iapetus bulge one also has a view down to the rest of the moon's surface, twelve or sixteen kilometers lower than the bulge, so there is always a broad icescape below to balance the sublime ringed pearl above.

What color the moon's surface is depends on where you are looking, because the leading hemisphere of Iapetus is quite black, while the trailing hemisphere is extremely white. This stark discrepancy, noted by Cassini in October of 1671 when he discovered Iapetus, is a result of the moon being tidally locked. The same hemisphere always leads the charge into the night, and black dust shed by the retrograde moon Phoebe (the other one out of the plane of the rings) therefore always falls on that side. In four billion years the dust has accumulated to a depth of only a few centimeters. Meanwhile the trailing hemisphere of the moon, gathering frost from the ice subliming off the darker leading side, is among the whitest ice in the whole system. The result is a two-toned moon, the only one in the solar system.

When people came to occupy Iapetus, the top of the equatorial band was smoothed and fitted with a rock-and-aluminum foundation. They then began to use seashell genes to shape the structures of the equatorial city. Some of the flat top of the bulge has been left open for spaceport runways and the like, but most of the bulge is now covered by a long clear gallery tent, placed over buildings that line the great boulevard of the High Street, alternating with farms, parks, gardens, and forests. As the air under the tent is always kept warm, the interior architecture can be very open, with Saturn often left visible, framed by gaps in ceilings and roofs. Seashell biomimicry allowed the builders to extract and deploy calcium under mantles, and these soft living tissues were genetically engineered to shapes that allowed the architects to layer bioceramic structure one on the next, building structure on structure, like corals, until the area under the tent by now is almost full. Like most bioceramics structures, the beveled and layered shapes have been induced to produce scalloping, fanning, notching, and other conchological features, so that the buildings look like great seashells stacked one on the next. Sydney is often referenced because of its iconic opera house, but in fact the bulge now looks more like a Great Barrier Reef made of scallops layered and everywhere holed, as if by tube worms, to let in the view of Saturn overhead.

On the black hemisphere, Cassini Regio, the bulge bisects an area where people once upon a time went out in hoppers or rovers and blew the black dust away to make patterns out of exposed white ice. Anytime you can easily make such a contrast in the landscape, people have written out their thoughts for the universe to read. Before the Saturn League was formed, when the first arrivals from Mars had come for Titan's nitrogen, and were exploring the other moons as well for whatever else might be plundered and taken back to the red planet, people had come here and etched white out of the black. An exhalation no stronger than a leaf blower's would do the job, and soon great fields of Cassini Regio were covered like Newspaper Rock with petroglyphs. There were white-on-black figures in abstract patterns, beasts, stick people, Kokopellis, writing in many different alphabets, portraits, landscape features, trees and other plants; on and on it went. Later some entire areas were cleared completely to white and then painted with collected black dust to a greater or lesser depth, achieving shadings that had a sometimes trompe l'oeil depth of field, proportioned for viewing such that they looked normal when viewed from the bulge, with others designed to be viewed from space.

Graffiti on Iapetus! Later it was declared a mistake and a scandal, a moral stupidity, even a crime, in any case disgusting; and there were calls for the entirety of Cassini Regio to be reblacked. Someday it may happen, but don't hold your breath, for the truth is we are here to inscribe ourselves on the universe, and it is not inappropriate to remind ourselves of this when blank slates are given us. All landscape art reminds us: we live in a tabula rasa, and must write on it. It is our world, and its beauty is entirely inside our heads. Even today people will sometimes go out over the horizon and scuff their initials in the dust.

“Iapetus” is a chapter in ‘2312’ by Kim Stanley Robinson’, 2012, Orbit, p248-250