

My Miami Beach in 100 Years

The brightly colored TF-X flying vehicle emblazoned with the company logo **Galaxy Paradise Resorts** hovers as it lands precisely in its rooftop spot alongside our community vegetable garden.

“Flash, so glad you made it back from Mars for my party!” I shout with excitement as my great-grandson jumps out of the pilot’s seat.

“Wouldn’t miss your birthday for the world,” he beams back. *“It was to the moon-and-back in record time! We successfully launched Galaxy Paradise Resorts in orbit. It’s going to be as popular as you said it would be, Gramps. There’s a waiting list of folks ready for an all-inclusive destination vacation in space with stops at all the planets.”*

That boy is amazing, I think to myself. Reminds me of myself at that age: always ready for the next adventure, the next technological invention and wanting to make our community better for all. He’s got my dashing good looks, too. I see those female astronaut physicists smile at him.

“Kids, help me blow out the candles,” I call to my twin great granddaughters, who just surprised me with their newest invention: a robotic dog that they built and programmed to simulate “Sparky,” my beloved Shetland Sheep dog that I had as a child. They must have duplicated sounds and images from my family’s flash drives from 100 years ago and transferred them to microchips.

“Here, I am, age 116. Wasn’t sure I’d last this long,” I joke. The twins Larissa and Ariel giggle. *“But then nobody thought our beautiful Miami Beach would last until 2120 either.”*

They all laugh.

Back in 2020, we weren’t laughing. Studies on climate change had Miami Beach submerged under water by the end of the century as sea levels were forecast to rise six feet and potential 30-foot storm surges from a Category 5 hurricane would wash our homes and city away. The sea level around Miami Beach had risen steadily in ensuing decades and flooding in the streets had become more frequent and severe. Most of the city sat just four to five feet

above sea level, and on a foundation of porous limestone—making it especially vulnerable to tidal flooding and surging oceans.

Miami Beach was never a continuous land mass, it was formed by a group of islands between the ocean and Biscayne Bay and connected via causeways. Some of the islands were natural, some man-made and some, just uninhabitable dots of land with overgrown mangroves that made for fun stops when our family when boating.

But as researchers forecast the sea level to rise significantly, City of Miami Beach leaders and its residents needed to get their heads out of the sand and plan on how to keep our city afloat and save ourselves from the sea.

“Treading Water: Miami Beach,” read a *National Geographic* magazine story from February 2015 that my Dad had saved.

My Dad had loved Miami Beach, where he was born and spent his whole life except for going away to college. His father, my Grand Pa Saul, had arrived in Miami Beach back in the 1930s – when it was little more than a fledgling beach town. The family ran a tiny hotel on Ocean Drive for vacationing Northerners. They also helped start the first synagogue in the new city.

Miami Beach was incorporated as a city on March 26, 1915.

“I remember the Centennial party that my family went to for Miami Beach’s 100th year,” I tell Ariel and Larissa. *“It was soon after that people took the threat of climate change and rising sea levels seriously. We lived through enough hurricanes to know the dangers of storm surges.”*

My brother Jonathan and I had gone to a Duke TIP summer program on meteorological science the next summer but even before that we were hooked on helping our hometown survive with better technology, better architecture and a respect for science and nature. Ideas began to take shape: create a sustainable community, make roads higher to prevent flooding, install giant pumps, build stronger and higher sea walls, elevate houses and create ways for the water to flow through and back out to sea.

They began exploring ways to make our coastal community sustainable with tidal generators below buildings that used the ocean to power electricity;

solar panels that were finally cost-effective and floating farms, or greenhouses on the water. We began looking at mag-lev transportation, elevated magnetic monorails. We looked at ways to construct safer homes by using older houses for the foundations of new construction.

Most importantly, we know it would take technology not yet imagined for a coastal community like Miami Beach to face challenges in the next century. I'd always been interested in science, engineering and architecture so challenges of climate change became important to me.

"You could say we saw the future, and we wanted to be a part of it."

My family had a comfortable one-story house that had been built in 1956 right on Biscayne Bay. *"My Dad's boat was on the dock in the backyard. It was beautiful to look out the sliding glass doors. The sunsets where you could see the City of Miami were breathtaking. I won a photo contest once for taking such a shot with my Mom's iPhone 5."*

The kids give me a funny look. Is it that they can't imagine anyone living in a ground-level house or that we considered an iPhone 5 amazing technology?

"But we knew that a house like ours could not survive a hit from a Category 5 Hurricane. It had sustained damages in less threatening storms," I tell them. *"We knew Miami Beach was on borrowed time and all would be lost if we didn't start building for the future."*

Advances in robotics and artificial intelligence would alter our lives just as steam power, electricity and computer technology transformed life in my grandfathers' lifetime.

Architecture of the 21st century demanded protection from rising sea levels and hurricane as well as making best use of space for growing populations. That meant building strong and up, with new designs as all-use retail/office/residential complex. The ground floor was raised, with open parking spaces, allowing water to flow through during floods. Windows and doors were hurricane impact. First levels could be stores and restaurants. Higher levels would be offices and residential floors. Rooftops would have gardens, rain collection systems, playgrounds and parking for flying vehicles.

"How we live today were dreams 100 years ago," I tell them. My 6th grade science teacher entered one of my Future City designs that I had created online in a video game called Sims City.

Again, the twins and Flash give me an incredulous look. I must have looked at my grandfather like that when he told me stories of horse-drawn carriages and men delivering blocks of ice before refrigeration and air-conditioning.

"Transportation needed to change as well as housing," I say, wanting to let them to know what we began studying in 2020.

New modes of transportation were needed to alleviate traffic and improve safety while reducing greenhouse gas emissions and air pollution. We needed to give up gas-powered cars often driven by one person to get to work and look at smarter alternatives: electric cars, car sharing, autonomous driving and light rail mass transit.

"You mean like JET-FAST Light Rail to Orlando?" asks Ariel. She's excited because later today we're going to Disney World to see the newest attractions and exhibit on Galaxy Life in the 22nd Century.

"Exactly," I tell her. "When I was your age, a trip to Orlando meant a five-hour car drive with your Uncle Jonathan and me fighting in the back seat. Today, on the JET FAST, we're there in 30 minutes.

"Amazing changes..." I sigh with my family around me. There's my son, an award-winning metrology expert who worked alongside me to save our community from falling into the ocean; his wife, an architectural engineer who designed buildings that withstood hurricane force winds and storm surges; their son Flash, whose company just launched the first resort in space, and the twins decked out in their party spacesuits programming our new robot dog.

"I'm so glad we worked hard to make a good future for the next generations on Miami Beach."