

The Conch Shell

When I was seven years old, my family went to Maui. My mother decided she wanted the authentic experience, so we forewent the hotel's guided excursions and bought a well-worn guidebook from a second-hand bookstore. The pages were creased and scribbled with annotations, and the previous owner had even left behind a map, carefully folded and tucked between the pages on Hawaiian cuisine. My seventh birthday was in a week, so my mother let me choose one location in the guidebook for us to go to. I thought about it for a full day, carrying the guidebook with me into restaurants and keeping it within reach at the poolside. I flipped through pages of colorful flowers and men twirling sticks of fire, until I reached a two-page spread offering a look into a deep blue world under the sea. It was an off-road snorkeling spot called "The Fish Bowl."

I spent hours in the water. I swam out far enough to make my mother nervous, and dove down until my ears felt like they would burst. The water was clear and full of sunlight caught on stones and fish scales. Colorful bits of coral decorated the sea floor, and the fish would swim close enough for me to reach out and touch them. Sound travelled differently under the water, and it was easy to pretend that this world was not my own. I periodically made my way back to shore, where my mother was sitting on a blanket with a book, to unload the treasures I found. My collection included sea-smoothened stones, a chunk of colorful glass, clumps of seaweed, polished pieces of driftwood, a few shell fragments, and other unidentifiable bits of the sea.

The prize of my collection was a large conch shell. Miraculously, it was uninhabited and mostly whole. I found it under a small rock overhang, almost completely buried under sand. It took two dives for me to retrieve it: one to locate it, and another to dig it out. The shell was large

and rough against my hands. It spiraled like a cone, with ivory protrusions at regular intervals. Upon closer inspection, I saw that the ivory was speckled with dark beige, concentrated in the carved grooves that wound down from the apex. The most magical part, however, was the inside. The opening of the shell looked like someone had pulled a thin slice of the cone back, so that it always looked partially uncurled. The interior surface was smooth in texture, almost soft. The edges were bleached white but gradually flushed a rosy pink as the shell coiled inward. It looked delicate, even as I held it in my young hands.

My mother told me its name: *Turbinella pyrum*, or the “divine conch”. I rolled the words around in my mouth, carefully testing out the syllables until I could recreate them.

I later found out that the shell was actually *Lobatus gigas*, but I understood the mistake. My mother grew up in India, where the most common species of conch shell was indeed *Turbinella pyrum*. The shell I found is often referred to as the queen conch. Interestingly enough, the queen conch is native to the tropical Atlantic Ocean, and most often found in the Caribbean. To this day, I do not know how a queen conch shell ended up almost 5000 miles away, quietly nestled in a little-known snorkeling spot in the Pacific Ocean. The next question I am inevitably asked is if I know for sure that it was a queen conch. I know because the aperture was flared and pink. Otherwise, I would not have remembered it so vividly.

In the Caribbean, the queen conch is mostly used for cuisine, rather than for aesthetic, as I would have thought. It is prepared in every way imaginable: stewed, fried, curried, sliced, tossed, and even raw. Every meal can (and should, in the locals’ opinion) be supplemented with conch meat. After the mollusk has been removed and consumed, the shells are often peddled off along the beaches. The wonderfully tropical-looking spiral is popular among tourists, but the locals have used the shells for generations. Currently, the queen conch shell can be seen

embedded into the tops of outdoor perimeter walls. The shells are either broken or turned upward, so that the sharp edges can serve as deterrents for potential break-ins. Even though the intricacy of the shell's architecture and the delicate swirls of color suggest fragility, I remember slicing my palm open at seven years old because I had yanked the shell out of the ground with too much force. My skin yielded before the conch did.

A recent study at MIT explored the resilience of the conch shell. The conch shell has a three-hierarchy structure, each with multiple layers. Within each layer, the molecular grain is organized in different directions, creating a sturdy matrix. In order for a shell to shatter, a crack would have to fill enough of the limited space in the maze of molecules to pry the laminae apart. However, this is not easily done. In fact, the conch shell is so resistant to fracture that its structure is used in the development of more durable protective gear. The conch has had 65 million years to develop its armor, so it only makes sense to learn from it.

However, these shells are not completely infallible to invasion. Sometimes, a small irritant will find its way into a conch, and is repeatedly surrounded by calcareous secretions. Given enough time, a conch pearl is formed. Conch pearls are irregularly shaped and often very valuable, since they cannot be cultivated. The most sought after pearls range from pale pink to red. The surface of the pearl consists of partly aligned bundles of microcrystalline fibers, which can produce a shimmering iridescent effect called the flame structure. I have always liked the idea of that: a fire right in the middle of the ocean.

After the shell has served its initial purpose to protect the soft mollusk that inhabits it, the conch is often used as a wind instrument. The unique design creates an internal chamber that is well-suited to holding and releasing sound waves, as can be evidenced by holding a conch up to your ear and listening to the sea trapped inside. The conch is prepared by cutting a small hole in

the spire of the shell, near the apex. This hole is then used as a mouthpiece, and the conch is played like a horn. An instrument designer by the name of Bart Hopkins describes the conch sound as “warm, full, and far-carrying.” However, I would disagree. If you must describe the sound with a temperature, I would call it cold. It’s eerie in the way that a deep ocean is, but also bright, like sunlight near the surface. In the 1800s, it is said that a seafaring vessel did not leave Key West, Florida without at least one conch horn on board, to signal passing ships. In 1940, Carlos Chávez substituted a conch for a trombone in his performance of *Xochipilli*. In 1979, composer Jerry Goldsmith used the conch throughout the score of the film *Alien*, because director Ridley Scott liked the otherworldly effect so much. *Charonia tritonis*, or the Triton’s trumpet, has been used as an instrument for generations in East Asian and Polynesian cultures.

The conch shell also features prominently in Hindu mythology, which I was unaware of until I caught a glimpse of a *shankha* in our family’s worship room. A *shankha* is carved from *Turbinella pyrum*, which is the species of conch native to the Indian Ocean. This shell is a striking pure white, with few blemishes. I was most surprised by the smoothness of the exterior. This shell did not seem to be made for defense. Instead, it seemed sleek and crafted, as if it never had a purpose other than to sit in a place of honor during a *puja*. The *shankha*’s origin was a story that I had heard intermittently before, but I asked my grandfather for the complete myth after I saw the shell.

He was delighted at being asked, and immediately invited me to join him on his evening walk. The house was much too loud and irreverent for this story, and he preferred the quiet backdrop of wind and distant highways. He first lectured on the mythological background of various gods and demons, as if I was a student in one of his university classes, before beginning the legend with great ceremony.

In his version, the gods once angered a revered sage and all their gifts were taken away. Without their powers, the gods lost all of their battles with the demons, until the demons controlled the entire universe. Desperate, the gods went to Lord Vishnu for help. He told them that they must churn the great ocean to find *amrit*, a magical nectar that would restore their power. The gods did not have the strength to churn the ocean themselves, so they sought the help of the demons. The gods and demons together, the *Devas* and the *Asuras*, used a mountain to stir the water until it yielded its treasures. The ocean first created enough poison to destroy all creation, which Lord Shiva drank to safeguard the universe. After the poison was removed, a great number of gifts were revealed to the world, including the *shankha*.

In the following year, my family and I attended a *puja* to the goddess Lakshmi, who was also born during the *samudra manthan*, or the great churning. I was young, and therefore forced to sit on the floor and chant in a language I barely understood. At the very beginning, I tried to keep my head raised and attentive, but I was inevitably distracted by the smoke pattern of incense or the sequins on my shawl. The *puja* was long and involved, and it would have faded into my memory along with countless other ceremonies, were it not for the conch shell. With great reverence, the priest eventually revealed the ornate *shankha* during the prayer. The shell was inlaid with gold, and the designs were so intricate that even a child appreciated the craftsmanship. The early morning light was weak, yet the shell seemed to shine from within.