

Dolphin Poets Aren't a Thing

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The Past and Present Cults of Cetacean Superintelligence

By Max Du

On the [Project CETI website](#), giant sperm whales swim in front of a vaporwave gradient background. A looping animation sprinkles black and blue dots over a whale song

spectrogram. It looks like the mixed-breed offspring of marine biology and Silicon Valley. Project CETI is an international initiative dedicated to recording and understanding sperm whale communication. Sperm whale vocals often contain clicks known as *codas*, which are complicated patterns that they use to transmit information. The CETI researchers want to use microphone arrays and underwater robots to collect a large dataset of codas, which can be fed into machine-learning models to help us understand what these clicks are saying. They bring up Roger Payne and his *Songs of the Humpback Whales* album that inspired a 1970s conservation movement through nothing but whale songs. The Project CETI website writes: *Imagine what would happen if we could understand them.*

I'm an AI researcher and I have great respect for data-collecting initiatives, especially an initiative with so many university and AI industry collaborators. The data and analysis by Project CETI will have important research impacts beyond making a potential whale-ese translator. Nevertheless, to the general public, the primary appeal of Project CETI is indeed a portal that would allow humans and whales to come together and talk about life. In 2023, the New Yorker published an article titled *Can we Talk to Whales?*, quoting Project CETI president David Gruber: "If we could understand what they're saying, instead of 'save the whales' it will be 'saved by the whales.'"

After that article was published, I scrolled through many Facebook posts that envisioned a future when the philosophy of whales would blow our human ideas out of the water. People expected that humans would be able to have intellectual conversations with a sperm whale, perhaps talking about moral philosophy and poetry and science. Last year, when I attended an activist convention in Friday Harbor, a retired teacher came up to me and said he wanted to know how whales did algebra.

These beliefs of cetacean superintelligence are certainly not new. Far before Project CETI and even before Roger Payne's whale songs, an eccentric scientist named John C. Lilly shaped our perception of cetacean intelligence. His work in the 1960s-80s coincided with the rise of marine parks, and these two forces elevated the dolphin from another sea animal to something human-like, magical, and mysterious.

A Counterculture Scientist



Dr. John Lilly. Source: Lilly Estate

Lilly had a broad education, with degrees in biology and physics from Caltech and a medical degree from the University of Pennsylvania. At the National Institute of Health (NIH), Lilly developed new techniques for measuring brain function, including a probe that could record brain activity from unanesthetized animals. Lilly wanted to investigate brains that were stripped of all external stimuli, so he invented the Isolation Tank, a sensory deprivation chamber where a person could float weightlessly in a bath of saltwater. Lilly often felt a calling towards parts of psychology that were on the fringes of measurability. In his isolation tanks, he wanted to understand the human consciousness. He even became part of the experiments himself and took LSD while floating in a dark pool of water and documenting his experiences in great detail. He believed that psychedelic drugs could be used to regain control of one's own mind.

In the 1960s, Lilly left the NIH and started a lab in the Virgin Islands to study dolphin cognition, but he continued his foray into the fringes of science. When Lilly observed dolphins trying to mimic the sounds of their researchers, he concluded that dolphins had the capacity for human language but lacked the frequency overlap with humans to communicate properly. He spent years trying to shift human language into the frequency of dolphin vocalizations. It had mixed results. The dolphins could learn to associate the frequency-shifted human words with objects, but any evidence of true language learning—which requires a complicated understanding of syntax—was far from conclusive.

Lilly also ran isolation tank experiments from a tank mounted above a dolphin pool. One day in that isolation tank, Lilly heard the chattering of dolphins through his LSD haze and came out of the tank claiming that he had just talked to dolphins. From that experience, Lilly concluded that dolphins communicated with a distinct language that was too fast for a human observer. He conducted more experiments focused on slowing down dolphin

communications and even teaching dolphins to speak human language directly. One of these experiments exploded into popular culture after a researcher had a sexual relationship with a dolphin subject.

Cult-Science and the Lure of Scientific Half-Truths

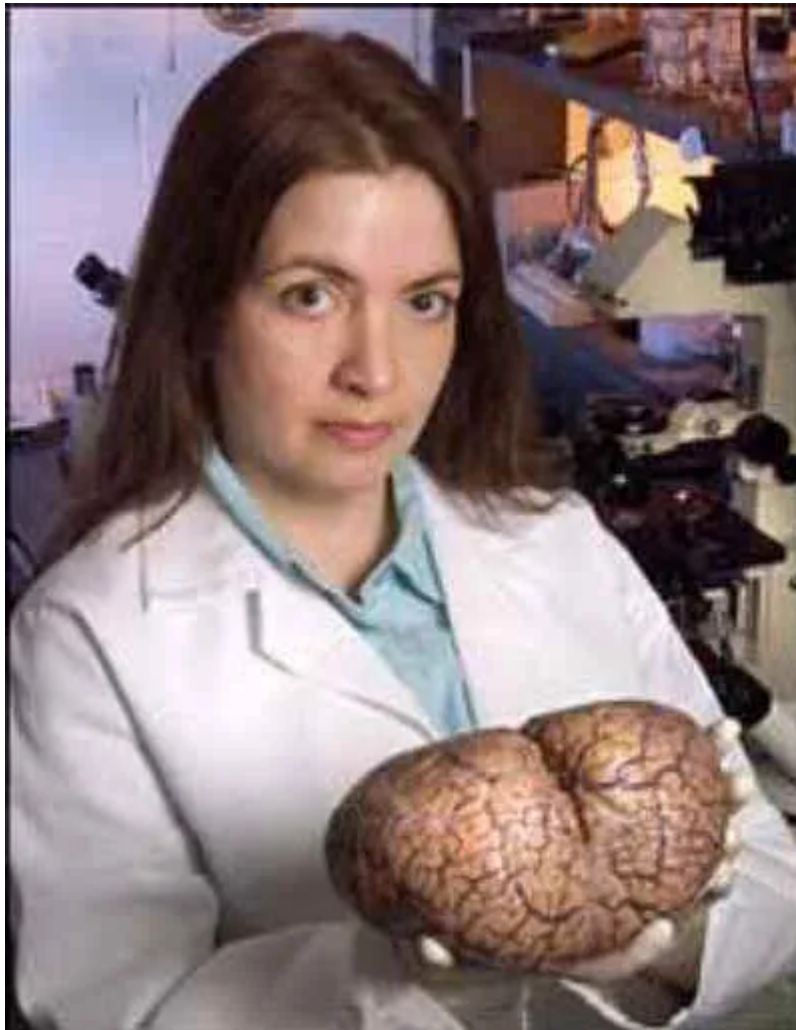
Decades later, Lilly would be praised by some scientists and criticized by others. His isolation tank, cortical probes, and other innovations would carve his legacy in psychology. However, some of Lilly's ideas were far more suitable for the 1960s counterculture than the scientific community. Lilly's research with dolphin vocalizations often came with a woo-woo twist and a side of recreational drugs.

What bothers me about Lilly's dolphin work is partially his spotty ethics of animal experimentation. Animal experiments are vital for cognitive science, but it's hard to justify injecting dolphins with LSD. But I'm mostly bothered by how Lilly approached these questions of dolphin intelligence. Lilly believed that dolphins were a smarter and more humane version of the human species, and he believed that dolphins had a sophisticated language. He designed experiments based on this premise, and therefore he grew frustrated when the cogs of science didn't support these ideas.

Despite the lukewarm scientific results, Lilly continued to promote dolphin superintelligence in radio interviews and public appearances. He wrote about their intelligence in his many books. Lilly was charismatic and many of his ideas jived with the counterculture movement. It was also the height of Vietnam war opposition, and the dolphin became a symbol of unity and peace.

Lilly was a well-educated scientist, but his beliefs and his public personality gave him a foot in something else: a sort of cult-science. He used his clout as a scientist to bolster his ideas. Many people have the erroneous belief that science creates unconditional truths. After seeing Lilly's alluring theories and sophisticated machines, people naturally accepted Lilly's claims as fact. In effect, Lilly had accidentally created a cult of dolphin intelligence.

Still Searching for Whale Geniuses



Dr. Lori Marino. Source: Springer Nature

The effects of the superintelligence cult have persisted to the present day. Wild dolphins are frequently harassed by people who misinterpret begging behaviors for human-like camaraderie. I recently attended a conference presentation that outlined a fundamental mismatch between true dolphin behavior and perceived dolphin intent. These mismatches happen because we project human-like thought processes onto dolphins. In addition to Project CETI, there are other groups—some made up of amateur enthusiasts—who are continuing Lilly’s efforts in creating interspecies communication.

The superintelligence cult has also become intertwined with activist movements in opposing the captive cetacean industry. Many activists cite the unprecedented emotional experiences and intellect of killer whales and dolphins. While activists often have a deeper philosophical motivation for opposing captivity, their arguments for intelligence usually involve the works of Lori Marino and similar scientists who use structural analyses of cetacean brains. Structural analyses focus on comparing parts of a whale’s brain to human brains. It’s argued that mammal brain areas have high degrees of similarity, and therefore similar brain components in whales must do the same thing as humans.

Like Lilly's language works, these arguments ride on the fringes of acceptable science. I once proposed Marino's human-whale similarity argument to an acclaimed Stanford neuroscientist, and he laughed. "Who is this neuroscientist again?" he asked. Indeed these brain structure comparisons have been taken to the extreme. When the killer whale Tokitae died, many news articles speculated about telepathic powers between Tokitae and her alleged pod in the Pacific Northwest. One news article even claimed that a special part of Tokitae's brain could have enabled killer whale telepathy. In the past decade, the use of brain structure comparisons has perpetuated the cult of cetacean superintelligence. Structural comparisons are easy to understand and readily adopted by the public. As we did with Lilly's claims, we believed these structural comparisons because they had the tag of "science says." In reality, science says many different things, and science can be contradictory.

The Stanford neuroscientist was laughing at Marino's argument because it's commonly known in neuroscience that structure is not the sole determiner of brain function. Consider two human brains: one belonging to a master watchmaker, another belonging to a theoretical physicist. Under a structural scan, these brains would look nearly identical, and yet the intellectual specialties offered by these two brains vastly differ. As another of many examples, consider human language. There is a special part of the human brain that can recognize written text as language. It's nestled into the other visual processing areas, undetectable in a structural scan. Even though other animals have an analogous area, only humans show this capacity consistently. Emotions, too, are complicated cognitive processes that require more than just the structural limbic system (a common claim is that killer whales have larger limbic systems than humans). It may be possible that human emotions, like our text-processing areas, yield a different conscious experience than those of whales.

Even within the same species, there are dimensions upon dimensions of intellectual variability that are not captured by structural analysis. Therefore, structural similarities between species should only be a starting point for further investigation. It should never be a conclusion for intellectual or emotional capacity.

A Better Approach to Intelligence



A dolphin participates in a cognitive test at the Dolphin Research Center. Source: DRC

The questions of intelligence become richer once we start to consider behaviors—what the brains do—rather than what the brain looks like. Behavioral tests at the Dolphin Research Center revealed that dolphins have impaired object permanence and fail to track hidden objects (a trait that develops as early as four months in human infants), even though mammalian visual processing structures are similar between species. It is precisely behavior and active scanning methods (like fMRI) that reputable cognition scientists are using in humans and other animals. Furthermore, cross-species comparisons are usually met with healthy skepticism. Even when there are strong cognition results on primates, researchers always ask questions of generalizability to humans. In science, it's always good to be skeptical.

Followers of the superintelligence cult fail to realize why intelligence and cognition exist in the first place. They fill the needs of an animal's environment. Dolphins are highly social, and therefore they have long social memories. They live in the ocean, where objects don't stick around too long, perhaps explaining their poor object permanence. In this manner, analogous brain structures can have very different processing powers depending on what an animal needs.

Likewise, having true language should not be seen as a marker of intelligence. Dolphins have no use for calculus or philosophy or poetry. Their vocalizations are likely related to survival behaviors and social activity—and perhaps they represent things that we can't express concisely in our language. To them, our language may seem unnecessarily bloated and ambiguous.

When we think of intelligence, it is critical that we don't envision measuring cups filled with different levels of intelligence. We should think of intelligence as an immensely complicated collection of attributes, like a candy shop with rows and rows of sweets. Each animal mixes and matches capacities based on what it needs.

These beliefs in cetacean superintelligence—and the cult-science surrounding it—tell us more about ourselves than the animals. We desire to have companionship, and intellectual companionship for that matter. We are lonely. So we like to imagine that there are comparable intellects out there. In Lilly's work, he wanted to chat with aliens too.

So let humans be the runaway species, but let's not look down upon the creatures we've left behind. We will never write sonnets with a killer whale or talk quantum physics with belugas, but when we approach nature with an expectation that it knows all the little gimmicks of human intellect, we will be sorely disappointed. When we break free of this cult-science, we find that the questions about intelligence become a lot more interesting. We find that the animals have always been talking to us. An endless stream of wisdom pours from their physiology, their behavior, and their reasoning processes. And to understand this wisdom, we need real scientists, not cult-scientists.
