

Four Awakenings to Compassion

Lessons from the Minds of Whales

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In 1965, a marine biologist named Roger Payne found himself relaxing on the stern deck of a sailboat on the expanse of the Pacific Ocean. Headphones snugly in place, he recorded the sounds of humpback whales via a hydrophone that hung more than 100 feet into the depths below. An accomplished cellist, Dr. Payne had been interested in music from earliest childhood. He had listened to these whale calls hundreds of times before, but that evening he heard something different.

Maybe it was because of the warm glow diffusing after sunset, or the balmy evening breeze kissing the sails. For whatever reason, Payne started sounding the notes aloud. And then he heard it: real music! These were not just vocalizations. No, he realized, he had been humming an elaborate sequence of notes, reiterating it again and again, in endless, clever variations. The cyclical quality of the repetition had escaped his attention because the length of each musical phrase was so extensive that it encompassed hundreds of individual sounds. These were not just random, jumbled assortments of pings, clicks, and whistles strung together. These were songs — maybe the longest songs Payne had ever heard, some comprising hundreds of verses!



The whales chanted the songs back and forth for hours at a time. Each song was a personal rhapsody, bearing the musical signature of its composer, who sent his songs sailing through the deep for distances up to 1,000 miles! As Payne began to understand the musical structure behind the long, recurrent melodic themes, he experienced a sudden, visceral awareness that, as his boat rose and fell on the swells and as the music ebbed and flowed in his ears, the whole rhythm of the universe appeared to become seamlessly knitted together by the song of these humpback whales circling around the planet's oceans. Dr. Payne went on to dedicate his entire professional life to studying and protecting whales.



Nearly 200 years earlier, another man on the deck of another ship had a radically different sort of awakening about the significance of whales. His name was Lt. James Cook, and on January 13, 1774, while in command of the Royal Navy sloop HMS *Resolution*, Cook became the first seaman ever documented to cross the Antarctic Circle. He navigated his 110-foot-long ship along the dense icepack for more than two months as he searched for a passage to the fabled continent, Terra Australis Incognita, that legend said would be found atop the South Pole. Although Cook never found the continent, he observed huge reserves of one of the most precious commodities of his eighteenth-century world: oil — specifically, whale oil. The southern waters off Antarctica were teeming with, as one naval officer wrote in his journal, “a very great number of the largest black whales, so tame that they allowed the ship to almost touch them before they would get out of the way; so that any number of ships might procure a cargo of oil in a short time.”

And so whaling off the coasts of Antarctica was launched on what would become (and still is) an industrial scale. It is estimated that in the ensuing century, more than two million whales were taken in these waters. By 1965, when Payne was listening to his audiophone headset, the combined world's whaling fleet could only find a single, solitary blue whale. It is believed that more than 99.8 percent of the blue whale population in the Antarctic had been destroyed.



The Third Awakening

Now step away from these two previous awakenings and consider a third. Currently, the United States spends more than a billion dollars a year on the exploration of Mars, and most scientists agree that the most important objective of these

missions is to ascertain if there are any signs of life. There is even a small chance of finding life thriving there *now*. Even a lowly, primitive microbe would be an epoch-making discovery. It would change our biologic relationship to our solar system. It would no longer belong to just us; we would have to share it.

So, in this same vein, imagine what might happen if we were to land astronauts on the surface of the Red Planet, and they were to encounter organisms that exhibited language and had complex social organization and self-awareness. What if these life forms possessed large craniums and massive brains that rivaled our own in complexity? What would we do? Would we hunt down and harvest these alien, sentient beings? Would the countries of Earth band together to establish an International Martian Commission to oversee the quotas of Martians killed and harvested?

Obviously not. We would (it is hoped) be moved to carefully study and interact peacefully with such creatures. But given that this would be our global impulse in the face of encountering intelligent life on *another* planet, how do we justify our disregard — and slaughter — of sentient, intelligent beings on *our own*? The mammals belonging to the order Cetacea (which includes whales, dolphins, and porpoises) exhibit all of the characteristics we just outlined above, so there are smart aliens out there — not 35 million miles away but right here, with us, sharing our world.



Intelligence: Land and Sea

As naturalist Stephen J. Gould has described so eloquently, more than 100 million years ago, dinosaurs were the undisputed rulers of the planet, and our mammalian progenitors were little more than rodent-like creatures scurrying to get out of their way. And so matters remained for eons. Mammals did not possess any inherent drive to express their biologic destiny of intellectual supremacy over the dinosaurs. Quite to the contrary, in all likelihood nothing would have changed had it not been for a chance event that came literally out of nowhere.

Sixty-five million years ago, a gigantic meteor, more than five miles in diameter and weighing a trillion tons, crashed into the earth near the area of the Yucatan Peninsula in present-day Mexico. It impacted with the explosive power of 10 million hydrogen bombs, quickly killing most of the teeming populations of dinosaurs. Debris and powder from the impact rose for miles into the air and blanketed the whole planet for years in thick, dust-laden clouds so that almost no sunlight could reach its surface. A long ice age — equivalent of the most spectacular atomic winter — set in and led rapidly to the extinction of all dinosaur species. But perhaps because of their smaller size or an ability to burrow underground for protection and warmth, our ancestral mammalian organisms survived. And, eventually, over the course of



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thousands of years, they propagated and proliferated into the vacated ecosystems of the new post-meteoric world.

Thirty-five to fifty million years ago, this mammalian ancestral line split apart. One branch, derived from a species that had prowled for food along the coastal tidal pools, eventually returned to the ocean, giving rise to a fully aquatic form of mammals, including the Cetacean order, to take advantage of the abundant biomass in the seas. Another branch of the mammalian line would evolve into the Primates, an order of mammals that also left the shorelines but, instead, moved inland, eventually taking up an arboreal lifestyle in the trees. Climatic change, however, would once again play a decisive hand. Dramatic changes in the planet's weather patterns drove some of the Primates to abandon the trees and move onto the open savannas to forage and hunt for food.

Ultimately, these Primates would evolve into bipeds and lead to *Homo sapiens* – a highly adaptable, effective primate with a large brain that was well suited for living off the land under a wide variety of circumstances.

So two orders of mammals emerged, cousin species, and shared supremacy over their plane – one superbly suited to the oceans that covered two-thirds of the planet, the other equally well adapted to reign over the remaining third occupied by land masses.



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Our Shared Intelligence

As humans, we identify certain behaviors as hallmarks of our species' high intelligence. These include:

- **LARGE BRAINS** with complex language and communication functions;
- **ORGANIZED SOCIAL GROUPS** that exhibit cooperative alliances for hunting and raiding;
- **SHARED PARENTING DUTIES** for offspring of other members of their family or clan;
- **PLAY**, which seems to be a rehearsal ground for advancing intelligence;
- **CULTURAL TRANSMISSION OF LEARNED BEHAVIORS**, such as tool making;
- **SELF-AWARENESS**, recognition of who we are as individuals, which is usually seen as the culmination of the highest intellect.



If these traits are so valued as indicators of our own species' intelligence, then we must also recognize that we share all of them with only one other group of animals; namely, the Cetaceans. They, too, possess large — sometimes massive — brains. In fact, the largest, heaviest brains on Earth belong to

the sperm whale. Some scientists have argued that the large size and mass of the Cetacean brain was merely a reflection of their larger body size (i.e., more brain to control more body). This led to a measure called the encephalization quotient (EQ) that permitted a comparison across species of actual, observed brain sizes versus those that would be predicted purely on the basis of body size. Mice, for example, exhibit an EQ of 0.50, meaning their brains are half as large as we would predict from body size. The cat species has an EQ of 1.00 (actual brain size matches predicted size, based on body mass). Dogs come in at 1.17, while Cetaceans exhibit much higher EQs: orcas (killer whales), 2.57; white-sided dolphins, 4.7; and bottlenose dolphins, 5.31. Only humans exhibit higher EQs, of 7.00. And our nearest primate cousins? Chimps have an EQ of 3.0 and gorillas, 2.5.

Similarly, the ability to decipher an artificially derived symbolic language is a trait shared only between Cetaceans and humans and not exhibited by other Primates. For example, research with bottlenose dolphins has demonstrated that these marine mammals exhibit a sophisticated appreciation of syntax — an ability to understand the significance of the order in which words are presented and to appreciate if a noun is the subject or object of a phrase. So a dolphin will push a surfboard toward a swimmer when it is given the command to "bring the surfboard to the swimmer," while it will nudge the human being with its snout toward the surfboard if the command is to "bring the swimmer to the surfboard." As Carl Sagan once wrote, "It is of interest to note that while some dolphins are reported to have learned English — up to 50 words used in the correct context — no human being has been reported to learn dolphinese."





In regard to language, it is also important to remind ourselves that Cetaceans have auditory capacities that are simply unimaginable in our human context. The areas of brain and sensory cortex devoted to hearing in whales and dolphins are 10 to 15 times larger and more complex than those in a human brain. In fact, for bottlenose dolphins to communicate with humans, they must restrain themselves to the relatively narrow band of sound that humans can detect. In essence, they have to “dumb down” their own language functions to communicate with us.

Cetaceans also exhibit “alloparenting,” which means that individuals other than the actual parents will take a parental role. Adult sperm whales will often stay at the surface with the calves while their mothers are engaged in feeding in deep dives hundreds of meters below. Human literature is also replete with stories of Cetaceans that have come to the aid of non-species members. Ulysses is said to have used the porpoise in his family’s coat of arms because one reportedly came to his aid when he was drowning at sea and carried him to safety, depositing him on the shore. In the first century AD, Plutarch wrote of dolphins: “It has no need of any man, yet it is the friend of all men and has often given them great aid.”

Play is another characteristic of animals with higher intelligence because they require long, sustained periods for juvenile development. Playful behavior is often described as carrying out an activity that seems to have no obvious purpose — no apparent goal that can be directly related to satiating physiologic appetites, such as hunger, thirst, or reproduction. Porpoises, for example, are famous for their playful behavior, and groups of them have been observed engaging in vigorous games of “keep away,” with the object of interest being a sea cucumber. On one particular cruise, passengers had been placing a wreath of seaweed on each other’s heads and then discarded the wreath into the ocean, only to see a spotted dolphin rise up out of water and place the wreath on its own head, as if to imitate the human play it had just witnessed topside.

Cultural transmission of clan-specific hunting knowledge is also witnessed among Cetaceans, including detailed beaching techniques and acquired methods for dislodging seals from slabs of ice.

But it is in that special domain of self-recognition that one sees a level of awareness that is both familiar and unsettling — and probably shared only between human and Cetaceans. Chimpanzees, for example, cannot decipher instructions delivered to them via video recording and displayed on a television screen. They simply cannot translate what is depicted on the monitor as being relevant or related to the instructions they would receive from a live person. But Cetaceans have no such difficulty. Dolphins can, for example, obey videotaped hand-signal instructions just as readily if they are displayed on a screen or carried out by a live handler. And a porpoise that receives an ink mark on the crown of its head will carefully examine the mark in a mirror. All of these results suggest an order of animals that possess a profound, sophisticated grasp of an internal versus an external presence.

Awakening to Compassion

In the 1960s a dolphin researcher named Dr. John Lily suggested that not only do dolphins communicate with each other using a complex set of syntactical rules, but they also appeared to attempt interspecies communication with humans. Returning to the earlier discussion of space exploration, there may be a disturbing irony that, if the human race is unable to reach another planet outside our solar system — and it has been confirmed by the Hubble telescope that the nearest such planet is more than 60 trillion miles from Earth — then the order Cetacea may constitute the only opportunity that our species may ever have to communicate with “alien” creatures in an intellectually profound and mindful fashion. Communicating with whales, porpoises, and dolphins may be the only chance our race will ever get to share the notions of consciousness with another life form.

This means that how Cetaceans fare on our planet, how we safeguard their welfare as fellow creatures of higher intelligence, may not only say a great deal about what we hold sacred as a species but may also hold the key to expanding our own experience of self-awareness by permitting us to evaluate it through the eyes of another intelligent species. We know that, over the course of civilization, the freedom and rights of other groups of human beings have gradually become important and hallowed, as we have understood the commonality of human ethnic groups, rather than their differences. Enslavement and genocide, for example, were once condoned by many civilizations but are now universally condemned. But one must ask oneself, as each of us strives to grow in consciousness, do we not also need to grapple with an elemental, moral question: when do we recognize the rights to “life, liberty, and the pursuit of happiness” for other species as part of our own expanding awareness?

Dr. Albert Schweitzer, who won the 1952 Nobel Peace Prize for his promulgation of a universal “reverence for life,” wrote: “Compassion, in which all ethics must take root, can only attain its full breadth and depth if it embraces all living creatures and does not limit itself to mankind.” Cetaceans offer us the first requisite litmus test of our individual abilities to empathize and nurture other forms of intelligence in the broader context of kindred mindfulness. It is only when we see the beauty reflected in the consciousness of others that we become consciously beautiful ourselves.

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