

THE WALL STREET JOURNAL.

Dec. 4, 2016

<http://www.wsj.com/articles/our-noble-cousin-the-octopus-1480714083>

Our Noble Cousin: The Octopus

By Colin McGinn

The octopus is curious, adaptable, playful, mischievous, friendly and expressive—just like us. Peter Godfrey-Smith’s book, “Other Minds,” explores the brilliance of these creatures and the deep origins of consciousness.



A common octopus (*Octopus vulgaris*) off the Mediterranean coast of Croatia. Photo: Getty Images

Around 600 million years ago there lived in the sea a small unprepossessing worm, virtually eyeless and brainless. For some reason this species split into two, thus seeding the vast zoological groupings of the vertebrates and the invertebrates. On one branch sit the mammals; on the other sit the molluscs (and many others). Among these two groups, two notable creatures eye each other warily: the human and the octopus. They have no common ancestor apart from that lowly worm, yet there is a strange affinity, a bond almost. For they are both evolutionary experiments in intelligence—pockets of genius in a vast ocean (sorry!) of biological mediocrity.

In “Other Minds,” Peter Godfrey-Smith, a philosopher at CUNY and an avid scuba diver, has given us a smoothly written and captivating account of the octopus and its brethren, as observed by humans. He celebrates the cephalopods: the octopus, the squid and the cuttlefish. He stresses their dissimilarity to us and other mammals, but he also wants us to appreciate what we have in common. Just as eyes have evolved independently in many lineages, so have intelligent minds. From those mindless worms, via two separate evolutionary paths, to the glories of consciousness and curiosity—we are brothers in big brains.

“Other Minds” is both an account of the known facts of the cephalopods and a philosophical treatise of sorts. I found the facts more enlivening than the philosophy, but then philosophy is hard. The body of the octopus is easier to get a grip on than the inner self that inhabits it, and its consciousness is no less mysterious than ours: By all accounts, the octopus is curious, exploratory, adaptable, playful, mischievous, friendly and expressive. Mr. Godfrey-Smith is right to insist that consciousness has a

biological history and many forms, and he modestly disavows any attempt to solve the classic mind-body problem. But I failed to find even any inroads. We still don't understand how biological processes lead to conscious minds, even simple ones. If the octopus were a philosopher, it would be puzzled about its dual nature as a mental and physical being.

And what a body the body of an octopus is: It has no skeleton, no shell and no hard parts except the beak—just fluid, flexible compressible flesh. The animal hardly has a definite shape. It can squeeze through a gap scarcely wider than its eye (useful when escaping bony predators or aquariums). It has three hearts, a brain distributed into its arms (500 million neurons), and skin that can change its color and texture in an instant (the outer layer of cephalopods consists of millions of tiny sacs of colored chemicals controlled by the brain). The eight versatile arms extend from a mouth like protuberant lips, gripping and smelling. Yet the eyes are human-like—perhaps the octopus sees the world much as we do, while feeling it very differently.

This is a vulnerable unprotected body, which must rely on camouflage, jet-propelled flight, inky releases and extreme plasticity to survive. As Mr. Godfrey-Smith explains, the octopus evolved from big molluscs equipped with protective shells, like most molluscs we know. But shells are heavy and slow the animal down, as well as preventing it from passing through narrow crevices in rocks, so the octopuses that abandoned shells survived. Its current unsheathed body-plan is an evident success. They are effective predators themselves and do well against their own predators, despite the lack of armor.

The body may be alien, but the mind is oddly familiar, as is much of the behavior. There is no doubt in Mr. Godfrey-Smith's mind (nor in mine) that it is sentient and conscious, a center of subjectivity. There are reports of octopuses propelling jets of water at trainers to whom they have taken a dislike and can recognize on sight, as well as dousing electric lights whose glare bothers them. They are good navigators, capable of leaving their dens for long rambles and returning by a different route; it is not known how they achieve this. They can use simple tools, carrying coconut shells around to use as shelters.

This all sounds very familiar, very mammal-like; yet octopuses have no intelligent ancestor in common with mammals, so we must be looking at evolutionary convergence. There may be no anatomical isomorphism between the mammal brain and the octopus brain but Mr. Godfrey-Smith gives many examples of close encounters with octopuses in which they are quietly watchful or overtly friendly, occasionally extending an exploratory tentacle in his direction and momentarily touching him. They have traveled down a different evolutionary path from us, but they have reached a similar destination.

Surprisingly, octopuses are not very sociable with each other, being generally solitary. And their reproductive life seems cool and distant: The male hands the female a sperm packet from a safe distance, and then she wanders off to fertilize and hatch her eggs alone, doing no child rearing once this has happened. The baby octopuses just drift away from the den to fend for themselves. Octopuses are also often cannibalistic, which doesn't show much octopus fellow feeling. They also wrestle one another aggressively and appear to have dominance hierarchies.

Mr. Godfrey-Smith mixes the scientific with the personal, giving us lively descriptions of his dives to "Octopolis," a site off the east coast of Australia at which octopuses gather. There they make their dens in piles of scallop shells. He also reproduces some excellent photographs of the octopuses and other cephalopods he has observed in his submerged city. It is with a jolt, then, that he announces the average life span of the cephalopod: one to two years. That's it: That marvelous complex body, the large brain, lively mind and amazing Technicolor skin—all over so quickly. There are boring little fish that live for 200 years, and the closely related nautilus can live for 20 years, but the octopus has only a year or two to enjoy its uniqueness. Mr. Godfrey-Smith speculates that the brevity results from a lifestyle that forces the animal to reach reproductive age as soon as possible, given the problem of predators such as whales or large fish.

Whatever the biological reason for such a brief life, it is a melancholy fact. And the death of any cephalopod is accompanied by sudden physical deterioration. Here is our author on some dying cuttlefish: "They spontaneously began to fall apart. Soon some were missing arms and clumps of flesh. They began to lose their magical skin. At first I thought some of them were producing white patches as part of a display, but a closer look showed that the outer layer of skin, the living video screen, was instead falling off, leaving plain white flesh behind. Their eyes went cloudy."

What is it like to be an octopus? It's not easy to say, but I speculate soft, malleable, brimming with sensation, vivid, expressive, exciting, complicated, tragic and determined. They make good, if brief, use of their portion of consciousness. They must live by the evolutionary laws that have created them, but there is an inner being that makes the best of its lot. Though it's easy to think of octopuses as alien, a better view is that they are our cousins in biological destiny—spirits in a material world.