Dave the Octopus

In this image we see “Dave,” an octopus who can change himself into “Dr. Octavius Brine.” Image, copyright, PDI/DreamWorks, all rights reserved. Provided here as fair use for educational purposes and to acquaint new viewers with the film, “Penguins of Madagascar.” Click on the image for a better view.

If we wanted to create a villain for a story, and we wanted that villain to be a very smart animal, we could pick a Common Octopus to fill the role.

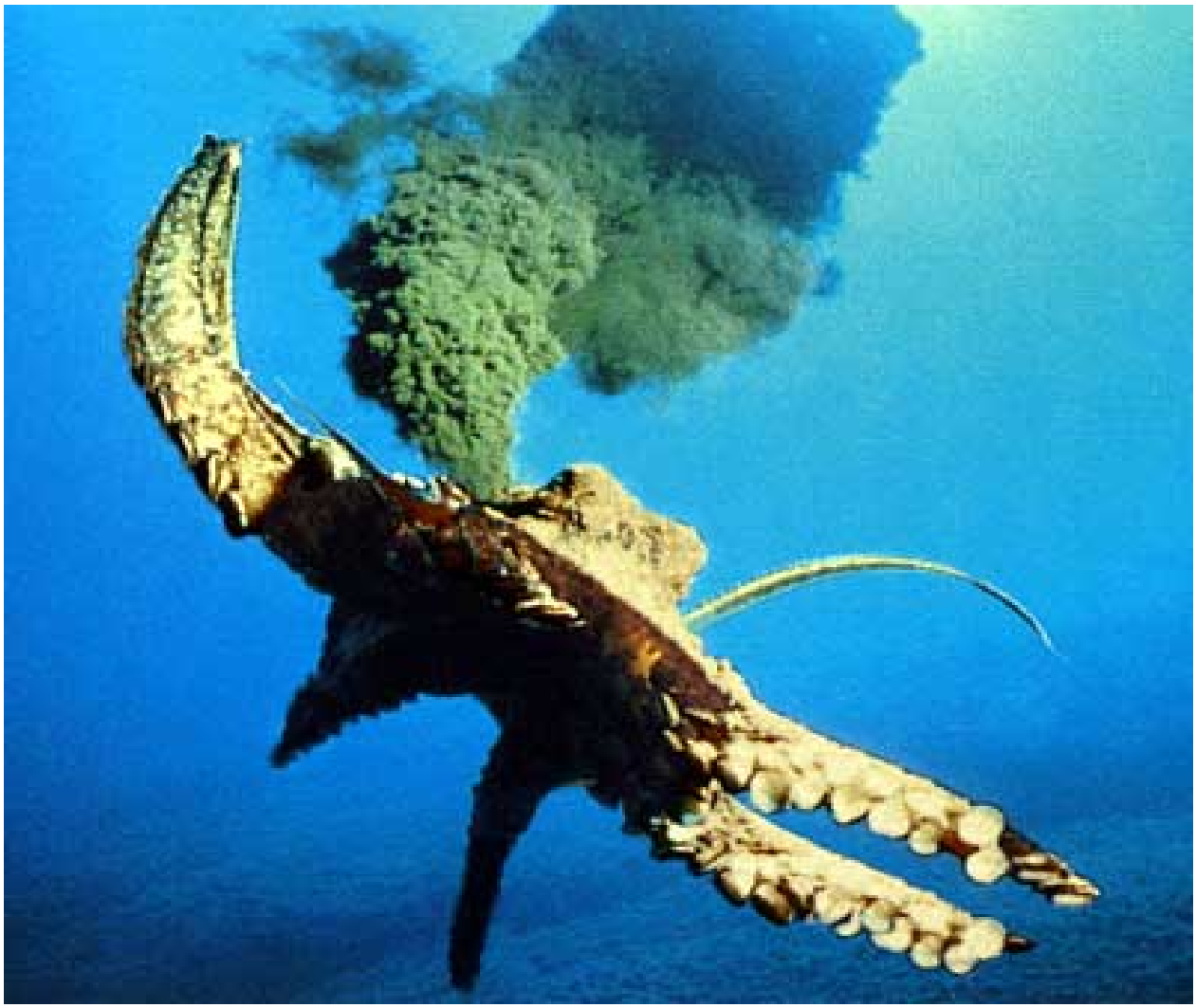
With a massive bulbous head, really huge eyes and eight distinctive tentacles, our marine-living villain (whose scientific name is *Octopus vulgaris*) would *look* very scary. What’s even better ... it could *be* really scary.

Here are some reasons why.

An octopus can hide in plain site. How? By using its network of pigment cells and highly specialized muscles—in its skin—the common octopus is able to not only match the colors of its surroundings ... it can also match patterns and textures.

What a great way to avoid detection!

If an octopus is discovered, it releases a cloud of black ink which obscures the vision of a would-be attacker and dulls the adversary's sense of smell. If that isn't enough to protect itself, an octopus can swim away from peril in a burst of speed ... up to 25 miles (40 kilometers) an hour!



And ... if that *still* isn't enough to escape ... an octopus can squeeze itself into impossibly small places where most predators cannot go. That's not a bad accomplishment for an animal who could grow as large as 4.3 feet (1.3 meters) and weigh as much as 22 pounds (11 kilograms).

But ... if none of those defense systems are enough to protect itself during a potentially fatal attack, an octopus has another amazing ability. If it loses one of its eight tentacles in a fight, it can grow it back.

Octopuses—that's the correct plural because "octopus" is based on a Greek (not a Latin) word—have beaks which serve as jaws. With jaw-like beaks, they can inflict really nasty bites. And their saliva? It's like poison to their prey.

What kind of animal is an octopus? It's a mollusk, which means that it has a soft body with a shell. It's a cephalopod ("head-footed"), which means (among other things) that it has a set of tentacles (also called arms). As an invertebrate, an octopus doesn't have a vertebral column (which means it's spineless), but it *does* have a skull which protects its brain.

And ... what a brain it is!

When you think about the brain of an octopus, don't think about it in the same way as you think about a human brain, or even the brain of a mammal. About two-thirds of an octopus' "brain" is distributed in its arms while the rest of its neurons are divided between a central brain (which wraps around the esophagus) and optic lobes (near its two eyes).

It sounds a bit alien, doesn't it? That's why an octopus makes for a great villain ... like in the film "Penguins from Madagascar" where the octopus has two names for two different forms: "Dave" and "Dr. Octavius Brine."

Scientists tell us that an octopus is the most intelligent of all invertebrates. Here's a story about Dr. Jean Boal, an animal behaviorist and Professor of Biology at Millersville University, who had an interesting encounter with an octopus:

> *On the way to feed her octopus subjects one day, she* [Dr. Boal] *suspected they might not like what was on offer: They preferred the very freshest of frozen squid, but the stuff she bore was a bit stale.*
>
> *She doled it out anyway, walking down the line of tanks, dropping a subpar serving into each one. When she finished, she walked back to the first octopus to see if it had gone for the meal. The food was nowhere to be seen, but the cephalopod was waiting for Boal—waiting and watching.*
>
> *This octopus locked eyes with her and moved slowly sideways to the drain in the front right corner of its tank. Pausing above the outflow, it shot the stale squid out of its arms and down the drain, continuing its stare (or was it a glare?) at Boal, who got the message. Two, actually: This octopus was not going to tolerate crummy food—and maybe it even wanted Boal to understand that.*
> (Reported by Katherine Harmon Courage in *Wired's* October 1, 2013 issue).

So it really *isn't* far-fetched for an octopus to be a purple-colored villain who can change its form (at will). On the other hand ... it's *way* far-fetched for that purple octopus (known as "Dave" and voiced by John Malkovich) to change into a man (known as "Dr. Octavius Brine").

But ... isn't that part of the fun of making-up a story? And *now* ... since August of 2015 ... we know a lot about the octopus genome! What scientists have mapped-out, in *that* project, is even more stunning than anyone could have imagined!

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Common Octopus

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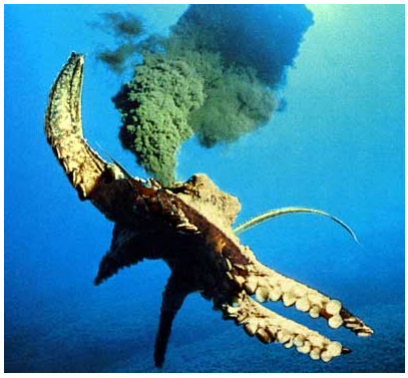

Common Octopus Emitting Ink

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Eye of Common Octopus

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Octavius Brine

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Dave the Octopus

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