THE SQUIDS, CUTTLEFISH AND OCTUPI

an excerpt from a new book from Andrew Caine:

Marine Biology for the Non-biologist

The Squids, Cuttlefish and Octopi

The largest known invertebrates are present here, often known only to exist because of their remains washing ashore or found in the guts of other animals, but never being observed alive. Some species have been observed but never caught for study, as they are just too fast. So we have the exciting situation that many species must exist that remain unknown and are most likely the source of many old tales of sea monsters. Given the size, if a person ever came face to face with a giant squid, believe you me; it would be a monster to anyone.

The giant squid was thought to exist by enormous beaks found in the stomachs of sperm whales in the whaling days of the 19th century. This was responsible for the re-emergence of tales of great monsters taking ships and eating all aboard, as the beaks found might have been from a 'baby' for all they knew. There may be animals of that size existing in the deep, but the giant squids that we know are not one of them. No live beast of this size has ever been observed, as they would have detected our presence and 'done a runner' long before we could detect them. However, a few dead ones have been washed ashore and studied; one such squid washed ashore on the coast of Norway in 1954 with a total length of 16 metres and a body circumference of nearly 4 metres.

This giant size is not restricted to squids, for following closely are the octopi, the most familiar and studied ones living in the Pacific, and the largest actual recorded one measured at 10 metres. Science recognises this as the largest species, as it's been caught and studied, but in the Japanese Sea lives a bigger beast which has eluded capture to this day. Observations have estimated a total length of up to 15 metres, just one metre behind the giant squid in Norway. Which is the largest, the squid or octopuses? Only time and good fortune will tell. I only hope I never come across one in the wild.

These animals have developed two specialized cell types: light-producing chromatophores and ink glands that are used in social behaviour, reproduction and escape from predators.

The chromatophore is filled with a species of bacteria that exists in a symbiotic relationship with the animal and is the source of this cold light. Unlike a light bulb, this light produces no heat, and the colour is always blue. The light emission is controlled by oxygen supply to the bacteria; thus, the blood capillaries, which are connected to the chromatophore, are switched 'on' and 'off' when required. When blood flows, light is produced. The light passes through a lens to increase the brightness and then through a filter, allowing different displays of colour to be seen. Research is currently being employed to understand these displays with the belief that it reflects the mood of an individual and thus assists reproduction and social behaviour. When approached by a predator, the animal in a split second turns from a dull to a bright colour thus distracting the predator and allowing a quick retreat to safety.

The ink gland also facilitates predator avoidance. This gland produces an alkaline black substance that performs a dual role. On discharge, it first impairs the vision of the hungry beast whilst the animal makes a quick retreat. Then, the alkaline substance acts on chemosensory glands, further blinding the attacker. A gob of ink is not what it expected.