An 8-Legged Marvel - 3

One of the oddities among the common run of the 45,000-plus species of insect-eating spiders are the vegetarian kind. Even greater oddness is found in the *Argyroneta aquatica,* an inhabitant of marsh, lake and pond in north and central Europe through Siberia and central Asia, also China, Korea and Japan. It uses its silk glands to make a diving bell, an air-filled web in which the water spider lives its entire life underwater. To begin with, this spider rises to the surface and sticks its hairy abdomen out of the water, trapping an air bubble among the hairs, which are much more numerous than in other kinds of spiders, and finely serrated which increases the surface area in contact with the air bubble. Then, while completely submerged among water plants, the spider spins an appropriately sized horizontal silk blanket, with the edges attached to the surrounding weeds with a different kind of silk. With yet another kind of silk it runs trip wires for detecting nearby prey.

But the blanket doesn't stay flat for long. The spider returns to the surface, upends its hairy abdomen to collect a good bubble of air. It then covers its abdomen with its similarly hairy hind legs to hold the bubble in the hairs and pulls itself back down via previously laid silk lines to release the air under the diving bell. The bell is no longer flat but bulges upward, so the spider reinforces and extends it as more bubbles are added to the bell which becomes its underwater house. But this is much more than a simple storing of air. The silk, waterproofed by an unknown protein-based gelatinous material, permits the transfer of gases between the diving bell and the water, and so has been called an inorganic gill, which works on the same principle as the gills of fish and other creatures. More oxygen tends to diffuse into the bell and more carbon dioxide out into the water. This saves the spider from needing to frequently swim up to the surface to bring more air. But there is also more nitrogen diffusing into the water, shrinking the air bubble, so the air in the bell still needs to be replenished about once per day.

The male water spiders are the more powerful swimmers of the sexes, hunting both day and night. But the female tends to stay inside the diving bell with her front legs extended into the water below, awaiting prey to move a trip wire. Quickly locating the prey, she grabs hold of it and hauls it into her pincer-like jaws. In this way the water spider provides a good service by balancing out the population of various kinds of water wigglers, particularly mosquito larvae which otherwise would develop into whining and biting pests, but also feed for birds, bats and dragonflies.

After some underwater courtship and mating the female fills the upper half of the nest with eggs and builds, with a fourth kind of silk, a strong partition with her living quarters. She then draws together the edges of the entrance and for the next several weeks she seldom leaves, guarding the eggs until they hatch.

As winter approaches, the spider leaves its diving bell and builds a more robust one deeper down, containing enough air to see it through the next four months, then completely seals it up for hibernation. Those who have studied the water spider have referred to its "engineering genius" and being "incredibly unique" and "miraculous". Yet evolutionists say that it is the result of countless useful mutations which began with a land spider, and which accumulated over innumerable generations. But none have explained how all the generations of part-land, part-water versions of spiders managed to survive until all their physical features, together with the necessary instinct to operate them, were combined and coordinated. Far less credit is required to accept that the water spider is the result of special creation - *"How many are your works, O Lord! In wisdom* ***you made them*** *all..." -* ***Psalm 104:24****.*