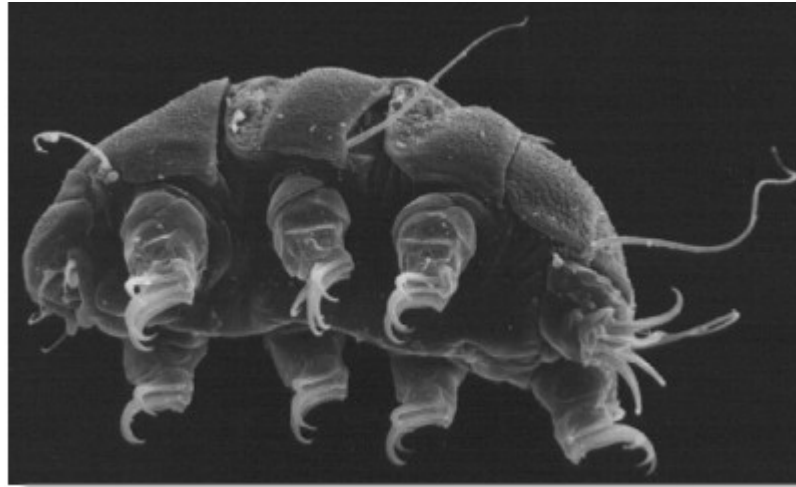


The Water Bear



Water bears are one of the most unknown and most fascinating creatures on earth. Scientists know little about these creatures and yet they can be found almost everywhere on earth. Scientists have reported their existence in hot springs, on top of the Himalayas, under 5 m layers of solid ice and in ocean sediments. Many species can be found in a milder environment like lakes, ponds and meadows; others prefer stone walls and roofs. But their most typical homes are moss cushions and they are most easily found in autumn.

We do not have many microscopic pictures of the water bear. Water bears have thick cylindrical bodies which are not easily flattened by the cover slip. If you do flattened one it will instantly die and you will not be able to view the intact specimen. While looking through their natural habitat of moss under the microscope it is extremely difficult to find one. This is because under the microscope moss appears just a jungle and it is hard to sift through to find the water bear.

Water bears come in an array of colors. While looking through a light microscope if you find a water bear you will see a little mouse or frog like face. Water bears have eight legs with claws on each. Their bodies are short stout and cylindrical. The mouth has stylets which are tiny sharp projections used to cut the moss or algae. They sometimes eat tiny animals called nematodes and rotifers which also live in moss. They belong to their own phylum Tardigrada. They range from 0.1mm - 1.2 mm in length. The water bear do not have a circulatory or a respiratory system. They have a very primitive digestion tract.

If the moss that the water bear is living in dries up, they have developed a special adaptation which allows them to survive. The water bear will become mostly dried up as well and enter into a hibernation state called "antibiotic state". They will place their legs inside their body. All the water in their body is replaced with sugar. When the moss is later hydrated the water bear will become revived. The water bear can stay in antibiotic state for several years. They are vibrant creatures. They have been stored at absolute zero, boiled at 125°C and bombarded with 250 times more radiation than needed to kill a mammalian cell. Each time water bears were revived!

