



Creature Feature: Summer 2017

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Interstices

In honor of Hans Reimann

Probably the most recognized natural feature of a stream ecosystem is the substrate that makes up the waterway's bottom. This material, from exposed bedrock slabs to the finest silts and clays, forms the structure over which the water flows and dictates whether the waterway is a babbling brook or a roaring torrent. It is also the structure that provides the habitat for all the aquatic life there. The life takes many forms; from microscopic plants and animals to insect larvae and fish. While the type of geology may to some extent dictate the water chemistry and the flow regime, it is the location, size and number of spaces between the rocks that largely dictates the life that we find. How much space and the violence or quietude of the water that flows through that space determines the characteristics best suited to survival.

Aquatic life has adapted in a myriad ways to the conditions found in the interstices (spaces). Most of the plant life in a stream is in the form of single celled plants or simple algae that, combined with tiny zooplankton, detritus, and silt particles, make a slimy layer known by the German word, *aufwuchs*. Many of the smaller insects either consume *aufwuchs* directly or use it in some form as shelter. Larger insects, like mayflies and stoneflies, are dorso-ventrally flattened to allow them to cling closely to the rocks and allow the water to pass over their bodies. Others, like caddisflies, use the rocks and *aufwuchs* to build portable cases that protect them from predators. Blackfly larvae cling to the rocks using rings of crocheted hooks and filter tiny particles from the water with fanlike appendages. Cranefly larvae blindly creep between the rocks and eat whatever they come across that fits in their mouths. Crayfish prowl the larger spaces, and perform feats of engineering to increase the size and connections between the rocks. Fish take advantage of eddies formed by the rocks to rest and set ambush for drifting prey.



Hans turning over rocks in the stream

Observing aquatic creatures is often a matter of carefully removing and turning over rocks to examine what is living in the spaces below or what is clinging to the undersides. Hans reveled in the delight of children when he showed them what was living on the rocks. They would point and grin as the mayflies and stoneflies scurried to get out of the light and squinted to see the caddisflies as they crawled back into their cases to hide. Hans would

point out water pennies and jellylike egg masses and then encourage the kids to find their own surprises on the rocks. Always, he reminded them to return the rocks carefully to the stream bottom so that the tiny denizens would be able to continue their secret lives.

If you wish to see just some of the great variety of life that relies on Cooks Creek, just visit any stream bank and gently turn over some rocks. Look both at the underside of the rock and the spaces uncovered. A magnifying glass is helpful, but not necessary. You need not worry about the creatures you find, there are none that sting or bite. If you want to see more, use a seine net (two sticks joined by a length of window screen) to capture the material washed downstream as you rigorously disturb an area of stream bottom upstream of your carefully positioned net. Put the collected material into a white wash basin with a few inches of stream water. You will be amazed at what you'll find.