

Paul Keim

Date: Tue, 04 Mar 1997 19:34:40 -0700
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To: msm@wjh.harvard.edu
Subject: rotifers

Matt-

Thanks for your hospitality and interesting conversation last week. There is a Russian woman next door who left Sverdlovsk just prior to the outbreak. I need to talk to her sometime about this, but haven't figured out how to bring up the subject. She was trained as a population geneticist in Russia.

I haven't read your NSF rotifer grant, yet. But, I have been thinking about it the problem quite abit. It seems to me that neutral models would predict that the asexual rotifers would be mostly haploid by now. It would seem that few genes are needed in two copies or in two allelic states (e.g. homozygotes) in genetic systems studied up to now. Random mutation would then inactivate one copy with no adaptive consequence. Once this has occurred, the silent copy would degrade in a fashion similar to pseudogene divergence. A few loci might contain "interactive" alleles that would be preserved, but most would degrade to haploidy over time.

Your data suggesting the preservation of dramatically different alleles argues for a unique genetic situation imposed by the lack of sexual reproduction. It is really a unique and alternate evolutionary strategy imposed by the lack of sexuality. I envision that any partial haploid lineages would go to extinction in favor of the lineages that maintain allelic differentials. Indeed, your data argues that heterozygosity is enhanced to an extreme level in these beast! It this along lines that you're thinking?

Is this whole system driven by some biological advantage to avoid sex? What would that be?

Pretty cool, as they say. I'd appreciate to see any manuscripts that you prepare.

Best regards,

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