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The Message Of The Bombardier Beetle

by Warren Krug

A little bug known as the bombardier beetle has become famous in the debate over evolution because of a remarkable talent. This creature has been given the ability to hit its enemies with a noxious spray so hot it reaches the boiling point of water. Creationists wonder how anyone could believe such an insect could ever have evolved, while evolutionists think they have shown that it could indeed have evolved.

The Beetle and Its Habitat

These beetles can be found on every continent except Antarctic and Asia. They prefer woodlands or grasslands in temperature zones but can live in other environments if there are moist places to lay eggs. Most bombardier beetles are carnivorous, even the larva, and typically hunt at night for other insects.

The Beetle and Its Weapon

Bombardier beetles actually make up a group of more than 500 species of a ground beetle which has been divided into four tribes.**1** This beetle's most notable feature its defense mechanism. When disturbed, it will eject its noxious spray machine-gun style with rapid bursts from special glands in its abdomen. The process, which is accompanied by a popping sound, is called pulse combustion.

How does it do it? It must first produce and store two chemical compounds, hydroquinone and hydrogen peroxide, in separate reservoirs located in the rear tip of its abdomen. When threatened, a bombardier beetle contracts muscles which force the two chemicals into a mixing chamber containing water and a mixture of catalytic enzymes.**2** When combined, the chemicals undergo a violent chemical reaction which raises the temperature to the boiling point of water. As pressure builds, the entrance valves from the storage chambers close, thus protecting the beetle's internal organs. The extremely hot, foul-smelling liquid now partially becomes a gas and is expelled through an outlet valve into the atmosphere with an accompanying popping sound. The ejections can occur around 70 times at a rate of about 500 times a second.**3**

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1. A "tribe" is a taxonomic rank between family and genus.
2. Catalytic enzymes are proteins which can produce chemical changes.
3. "Bombardier Beetle," Wikipedia, the Free Encyclopedia (December 15, 2010), http://en.wikipedia.org/wiki/Bombardier_beetle. Accessed December 19, 2010.

Divine Design of the Bombardier Beetle

Creation scientists believe this insect had to be designed by an Intelligent Creator as it is and could not have evolved slowly step by step. Just consider all the intricate parts of its defense mechanism. For the apparatus to be useful, everything has to be present — the chemicals, the chambers, the right enzymes, the muscles, the outlet valve, the intelligence to know how and when to use it, etc. For any part not to be present, the mechanism would not work at all, and one wonders why the beetle would continue to "evolve" the system if it were not accomplishing anything.

Even more important is the extreme danger to the beetle itself if it were to develop its defense mechanism without the proper safeguards. If the outlet valves were not in place to protect its internal organs from the boiling liquid, the beetle would severely injure itself. Also, if the walls of the output passage were not built firmly enough, the beetle could not withstand the heat and pressure from the reaction. In addition, the beetle somehow has been given a way of not injuring itself as it sprays the irritating liquid at its enemies.

The bombardier beetle's defense mechanism is so cleverly designed that the aircraft industry is taking notice. Combustion engineers are studying the beetle's unique pulse combustion and nozzle ejection mechanism. They hope to obtain clues to help them develop a device that can relight aircraft engines at high altitude by squirting plasma into the engine's combustion chamber more accurately.**4**

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4. Brad Harrub and Bert Thompson, "Bombardier Beetles and Airplane Engines," Apologetics Press (2003), http://www.apologeticspress.org/articles/2102. Accessed December 20, 2010.

Evolution and the Bombardier Beetle

Some evolutionists have undertaken the task of explaining away this evidence of design. Mark Isaak, writing for the evolutionist Talk Origins website, proposes a method for a "possible" step by step evolution of the bombardier beetle's defense mechanism from that of a primitive arthropod. For some of the steps he proposes, Isaak points to similar features in other creatures. For other steps he just assumes that the feature just naturally developed in the beetle on its own.

"The scenario above is hypothetical; the actual evolution of bombardier beetles probably did not happen exactly like that," Isaak admits. He does think that some of the parts of the mechanism could have been used originally for other purposes but lists only one possible example. Isaak also confesses, "Many people will still have trouble imagining how complexity could arise gradually," but he then proceeds to provide examples of naturally occurring "complexity" such as clouds, cave formations, and frost crystals. These examples, however, don't even approach the complexity found in the bombardier beetle.**5**

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5. Mark Isaak, "Bombardier Beetles and the Argument of Design," The TalkOrigins Archive (May 30, 2003), http://www.talkorigins.org/faqs/bombardier.html. Accessed December 20, 2010.

The psalmist exclaims in Psalm 139:14: “I praise you because I am fearfully and wonderfully made; your works are wonderful, I know that full well.” Much the same could be said about many of the Creator’s other amazing creatures such as the bombardier beetle. Perhaps the most amazing design of all though is the plan of salvation which God designed for all mankind. His plan to send his only Son down to earth to take our place and die for our sins so that we believers could live forever in heaven is a plan no human being could have designed. LSI

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