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ADVENTURES IN SCIENCE



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DOES E.T. EXIST?



A Heart That Doesn't Beat

Abigail is an eight-month-old calf. But something's strange about her: She has no heartbeat or pulse. An EKG machine would show a flat line, not healthy spikes.

"By every metric we have to analyze patients, she's not living," Dr. Billy Cohn of the Texas Heart Institute told NPR. "But here you can see she's a vigorous, happy, playful calf licking my hand." How is that possible?

Abigail has an artificial heart that's different from other hearts. Rather than pumping blood in pulses, it uses two propellers to continuously circulate blood. Cohn compares the breakthrough to the realization that a flying machine doesn't have to flap. "When man first tried to come up with machines that flew, he looked around and saw bats and birds and butterflies and mosquitoes. Everything had wings

that flapped." By similar reasoning, scientists trying to create artificial hearts have always made hearts with a beat because all living creatures have beating hearts.

Not anymore. Dr. Billy Cohn and his colleague Dr. Bud Frazier implanted their new beat-less heart in a human patient for the first time in March 2011. Craig Lewis, a 55-year-old man, was dying from a disease called

amyloidosis that attacked his organs. He had only 12 hours left to live if he didn't get a new heart.

The doctors made his new heart from two ventricular assist devices—a common medical implant, but one that has always been used alone, and never to replace the entire heart.

"I listened and it was a hum, which was amazing. He didn't have a

Amyloidosis — A disease in which the heart is infiltrated by an abnormal protein produced elsewhere in the body



pulse," said Lewis's wife Linda. Sadly, Craig Lewis passed away about a month later—the disease had taken too much of a toll

on his other organs. But his new heart worked flawlessly.

His family is glad that his bravery may help future heart patients. We'll also have to change our thinking: You don't need a pulse to be alive.



The Last Space Shuttle

3 ... 2 ... 1 ... zero ... liftoff! Engines roaring, the space shuttle *Atlantis* shot off the launch pad and rocketed toward space, leaving a cloudy tail behind to mark its path.

Only four crewmembers were on board, but on the ground, thousands of people watched and cheered, including sports stars, businessmen, entertainers, and former NASA astronauts. The excitement was bittersweet. This launch was the 135th and final one for the NASA space shuttle program.

President of the United States Barack Obama said that he does not see this as an end, but rather a beginning. "I have tasked the men and women of NASA with an ambitious new mission: to break new boundaries in space exploration, ultimately sending Americans to Mars."

First the Moon, and now Mars! I hope we're all around to see it.

Were you watching this historic launch on Friday, July 8, 2011? How did you feel when you saw *Atlantis* blast off, or when you heard it was the last space shuttle mission?

Tell us at odyssey@caruspub.com or: SPACE SHUTTLE, ODYSSEY, 30 Grove Street, Suite C, Peterborough, NH 03458.

