Brookhaven National Laboratory in Upton, N.Y. (which has been following the Marshall Islanders who were exposed to exceptionally high fallout doses in 1954), are studies showing that radioactivity of the amounts recorded in the United States could indeed have the supposed effect. "As far as I know," he said, "there is nothing in the published literature that would support [that hypothesis]. ... You would have to show a definitive study." In addition, he noted, damage to the thyroid and pituitary of the amount that would slow brain development would most likely cause other physical symptoms, such as dwarfism.

However, noted one sympathetic colleague, such fetal studies simply have not been done. In addition, the SAT scores represent an unbiased set of data, he said, and such a correlational study may "spark research in this particular area." □

## Human spine partially replaced

Although many body parts can be artificially constructed and successfully replaced in the human body today, this has not held true for the spinal column — one of the body's more intricate structures and the encasement for the delicate, vital spinal cord. Faced with a life-and-death situation last week, however, a reconstructive surgery pioneer at the University of Maryland, Charles C. Edwards, attempted to replace part of a patient's spine. And to date, it looks as if his heroic effort just might work.

Jessie Thomas, a 33-year-old Baltimore woman, was paralyzed from the waist down by a cantaloupe-sized tumor, which extended from the T-12 to the L-4 vertebrae. Edwards removed the tumor on July 17; had he not done so, it would have been fatal within a year. Along with the tumor, he removed five vertebrae and the paraspinus muscles. This left Thomas with no spinal column between her rib cage and pelvis, a situation that condemned her to total immobility for the rest of her life, with little to look forward to except being turned every three hours.

In an effort to provide Thomas with a better quality of life, Edwards decided to attempt the unique reconstructive spinal surgery. The artificial spine that he designed is made of a chrome, cobalt and molybdenum alloy, stainless steel and plastic, It cost about $1,625 to manufacture. The main section of the device is a six-inch cylinder with a groove running down the middle to cradle the spinal cord. During the operation, this cylinder was slipped behind the spinal cord and aligned with the remaining vertebrae at both ends. Then, two screw-like rods were slid from each end of the cylinder into surgically made holes in the vertebrae. Two other threaded stainless steel rods were attached with hooks to the top and bottom vertebrae, then tightened, to prevent the spine from rotating. The cylinder contains grafted bone all the way through, which Edwards hopes will fuse with the spine and provide more permanent stability than is possible with only the man-made device.

If all goes well, Thomas may eventually be able to sit up and get around in a wheelchair. The tumor had already damaged the spinal cord, and Edwards expects little neurological refunction. But without the surgery, the tumor would have killed Thomas, probably within a year.

Will this technique benefit other patients with more common kinds of spinal problems like paralysis or low back pain? Edwards thinks not: The replacement was a heroic solution to a unique medical problem. But he remains hopeful that it will give him innovative surgical replacement ideas for patients with other kinds of medical problems. □

## Following David: Tempest bottoms out

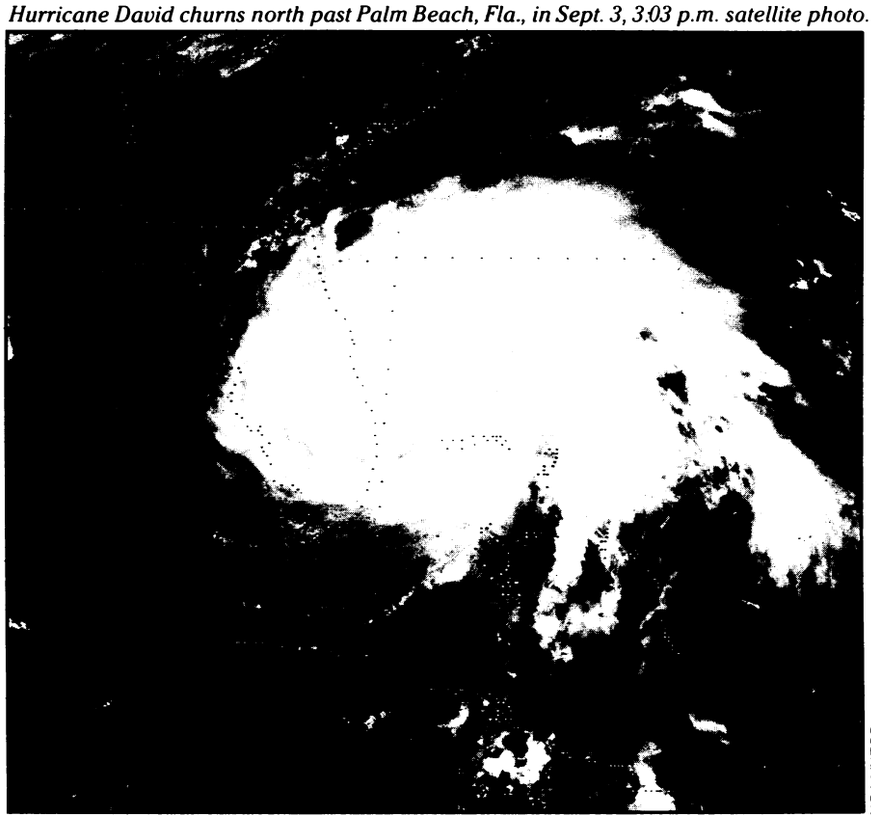
As this article went to press Wednesday morning, Hurricane David, called one of the most powerful hurricanes of the century, was beginning to lose its punch. Downgraded to a tropical storm, its highest winds 60 to 70 miles per hour (75 mph winds would classify it as a hurricane), it had moved inland and was centered 25 miles east-northeast of Columbia, S.C.

According to a spokesman for the National Hurricane Center in Miami, Fla., the most serious danger from the storm is now heavy rainfall and flooding inland and squalls along the coast. Quite a different picture from the howling fury of a few days previous. During its week-old lifetime, David visited destruction along a path from the Lesser Antilles, including the island of Dominica, to Puerto Rico, Hispaniola and the eastern edge of Cuba and to Florida, where it skipped suddenly northward, sparing the populous condominium-packed Miami, but churning up Florida's Atlantic coast, lashing Savannah, Ga., and the South Carolina-Georgia barrier islands and heading inland 50 to 75 miles west of Charleston, S.C.

At its height last Friday, David's winds whipped up to 150 mph and it measured 300 miles wide. Only two other hurricanes this century — Camille in 1969 and Labor Day 1935 — have been as powerful. Dominica, where an estimated 95 percent of the homes were destroyed, and the Dominican Republic, where an estimated 800 people were killed and 90 percent of the nation's crops were destroyed, were considered the hardest hit. David's death toll ranged from 850 to 1,000 — making it one of the six deadliest hurricanes of the century and the deadliest since Hurricane Fifi took 2,000 lives in 1972. Estimated property damage in the Dominican Republic ranged between $600 million and $1 billion; in Florida, estimates ran as high as $40 million.

If anything can be fortunate about David, it is its timing. The hurricane kicked

*Hurricane David churns north past Palm Beach, Fla., in Sept. 3, 3:03 p.m. satellite photo.*



NOAA/NESS