

## SCIENCE WATCH; Brain Transplants

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Researchers have transplanted sections of embryonic quail brains into the brains of chick embryos; when they hatched, five of the chicks crowed like a quail.

The researchers, who reported their work in the current issue of Science, said they believed it was "the first demonstration of cross-species behavioral transfer brought about by neuronal transplantaion."

The scientists are at the Institute for Cellular and Molecular Embryology Research in Nogent-sur-Marne, near Paris, which is an agency of France's National Center for Scientific Research.

One of the authors of the report, Dr. Evan Balaban, is also associated with Rockefeller University's Field Research Center in Millbrook, N.Y. Reached in France by telephone, he explained that while the transfer of brain tissue from quail to chicken embryos was successful, quails who received transplants from chickens failed to hatch.

The researchers, who operated on 20 chicks, performed the transplants under the microscope after cutting small "windows" in the egg shells. After they hatched, 15 gave peeps typical of baby chicks. But the other five crowed in a manner typical of quail babies.

When the scientists dissected the brains of these birds, they found that the part of the brain that typically controls bird vocalization was entirely of quail origin.

Those who received transplants were able to walk about, peck at objects, eat food, react to sounds and "interact with other animals," the researchers said. But the material that was transplanted contained other tissue in addition to that destined to evolve into brain cells. As a result, the animals began to reject the grafts about two weeks after hatching. None reached maturity.

In other experiments, quail who received spinal cord transplants hatched normally, Dr. Balaban said, adding that he hoped this would be achieved with the brain transplants.

The other authors of the report were Marie-Aimee Teillet and Nicole le Douarin.