

## Cat virus indicates cancer is contagious

As if cancer is not a dread enough disease, the prospect that it might be contagious is almost overwhelming. Yet scientific evidence for such a possibility is building.

Ohio investigators have accumulated evidence that Hodgkin's disease, one kind of human cancer, may be an infectious disease with a long incubation period (SN: 2/10/73, p. 85). Chickens have contracted leukemia from other chickens. Some laboratory cats have apparently passed cat leukemia virus to other laboratory cats.

Now, New York City and Boston researchers have found that transmission of cat leukemia virus among household cats is common, and cats infected in this fashion have a good chance of getting leukemia. The research team is headed by W. D. Hardy Jr. of Memorial Sloan-Kettering Cancer Center in New York City. Their work is reported in *NATURE*.

A leukemia virus was identified in cats in 1964. Methods for easily detect-

ing the virus in cats were developed during the past few years. The virus was then found in 90 percent of cats with leukemia. The virus was also linked with several other cat diseases, including some anemias. So Hardy and his colleagues set about testing more than 2,000 household cats to see whether the cat leukemia virus might be transmitted from one cat to another, and whether the virus would lead to cancer or to other diseases suspected of being caused by the virus.

They have found that of 543 cats living in households with at least one leukemic cat, one-third became infected with the leukemia virus. They followed 148 of the infected cats and found that 23.7 percent of them developed leukemia or a virus-linked anemia. The time elapsing between virus detection and leukemia was 5.3 months. The observed incidence of leukemia in the cats with virus was almost 900 times greater than that expected for the normal cat population during a comparable period.

The researchers suspect that the cats can pass the virus by sharing common kitty litter or by grooming compan-

cats. They found the virus in the salivary glands of 32 of the cats with leukemia. They also found antigen to the virus in the kidneys of 70 percent of the cats with leukemia.

Might cat leukemia virus infect people? "We really don't know and are looking into the possibility with great earnest," Hardy told *SCIENCE NEWS*. He and his team were not able to find the cat leukemia virus in 130 persons who had come into close contact with the virus-infected cats. Nor has the virus ever been found in a human, with cancer or otherwise. But the virus has grown in human tissue under laboratory conditions. □

## Where ancient ocean floor meets young crust

One of the most complex parts of the ocean floor is the area in the western Pacific that includes the Sea of Japan and the Philippine Sea, a twisted morass of fractures, trenches and volcanic upheavals. Scientists aboard the *Glomar Challenger* deep-drilling research vessel devoted Leg 31 of its journey to unscrambling that geologic tangle, in an effort to better understand its convoluted patterns of creation.

Their major finding: its relative youth.

Immediately to the east of the Philippine Sea, just on the other side of the Mariana Trench, the ocean bottom is more than 100 million years old. Yet core samples drilled from the floor of the Philippine Sea during Leg 31 revealed an age there of no more than 60 million years. This sharp age difference is evidence that the trench is thus the junction of two major ocean crustal plates.

Tiny fossils in the core samples also revealed that the Philippine basin itself formed over a geologically short span of time, between 60 million and perhaps 40 million years ago. Whether the basin was pulled open by the eastward movement of the crustal plate that is now the floor of much of the Pacific Ocean or was simply the "scar tissue" left when the junction between two plates widened is uncertain.

The Sea of Japan also turns out to be younger than some geologists believed. One theory was that it might have been formed by a section of the continental crust that collapsed or failed to rise with the Asian mainland about 100 million years ago. But core samples indicate that the Japan sea basin probably did not open until the mid-Tertiary period, some 30 million to 50 million years ago.

In two of the drilling sites in the Sea of Japan, the scientists found more than just rock, silt and fossils. As has happened before on the *Challenger's*

## Scientists dive to site of sea-floor spreading

Along the crest of the Mid-Atlantic Ridge, a chain of undersea mountains marking the churning edges of two of the earth's major crustal plates, lies a mighty canyon. In this great rift is exposed the never-ending resculpturing that continually reshapes the face of the earth, nearly two miles below the surface of the ocean. This month, for the first time, man has gone there in person to look.

In the French bathyscaphe *Archimède*, three-man teams have made three dives, all of which successfully reached the floor of the rift about 9,000 feet down. They made notes, took about 300 photographs and even collected a sample of the rocky bottom.

As one of the loci of the earth's constant evolution, the rift is a geologically active area, and the submariners found ready evidence. Numerous fresh lava flows marked recent volcanic activity—so recent that sediment had not even had a chance to settle on the newly exposed bottom.

On two of the dives, the French pilot and copilot were accompanied by French scientists, one of them Xavier LePichon, a key figure in developing the theory of sea-floor spreading that accounts for such geologic features as the Mid-Atlantic Ridge. LePichon represents the French National Oceanographic Research Center in Brittany which is running the diving project known as *FAMOUS*, for French-American Mid-Ocean Undersea Study. The third scientist was an American, Robert Ballard from the Woods Hole Oceanographic Institution in Massachusetts.

Sea-floor spreading, though it is supported by earthquake reports, photos and other data, is far from being completely understood. The *Archimède* divers reported, for example, that parts of the walls of the rift are vertical, a puzzlement since either the colliding or separating of the crustal plates that form the rift seemingly ought to cause some sloping.

The dives, on Aug. 2, 5 and 8, lasted from four to eight hours, and a second series was being planned this week with a third hoped for before next autumn and its accompanying rough weather. Two more research submersibles are scheduled to join *Archimède*: the *Alvin* from Woods Hole and the French *SP 3000*. A good omen for the yet remaining dives is that the first series proved *Archimède* able to refit at sea between dives, adding ballast, refilling her enclosing buoyancy envelope and recharging her batteries. With 220 miles between the diving site and port in the Azores, such independence is vital for extended operations.