

Cancer vaccine: Work, in primates

Monkeys have been successfully vaccinated against malignant lymphomas caused by herpes virus. R. Laufs of the Hygiene-Institute of the University of Göttingen, West Germany, reports in the June 7 *NATURE*. This is the first time, it appears, that primates have been successfully vaccinated against cancer.

The achievement opens the possibility of making a human-cancer vaccine, at least against a human cancer that has been well established to be caused by a herpes virus. The candidate is Burkitt's lymphoma. Burkitt's lymphoma, which mostly strikes African children, is almost indisputedly caused by a herpes virus, specifically by the Epstein-Barr virus.

Keyvan Nazerian of the Regional Poultry Research Laboratory in East

Lansing, Mich., is enthusiastic over Laufs' achievement. It was Nazerian's group that successfully vaccinated chickens against Marek's disease several years ago. Marek's disease, which is malignant lymphoma in chickens, is caused by a herpes virus. Nazerian is especially excited about Laufs using a killed herpes virus instead of a live herpes virus as a vaccine. "We have not been able to do the killed vaccine," Nazerian admits. The advantage of using a killed vaccine is that the virus doesn't have to be kept alive to be effective as an antiserum.

The cancer-causing herpes virus saimiri (HVS) regularly induces malignant lymphoma in marmoset monkeys. Laufs developed a vaccine from killed HVS. He tested the killed vaccine in nine marmoset monkeys. Four or five intramuscular inoculations were given to each animal within four to six weeks. The killed vaccine in all the monkeys induced high levels of antibodies against HVS. The vaccines proved to be

neither infectious nor cancer-causing. All of the immunized monkeys remained well. Two have now been under observation for nine months.

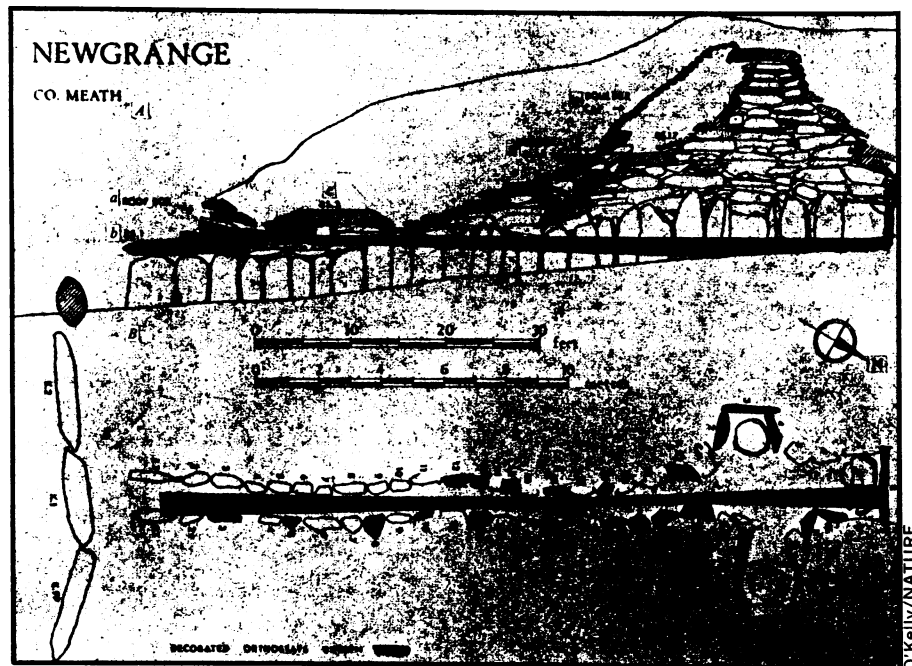
Laufs then challenged three of the monkeys with a large dose of infectious HVS. The vaccine delayed tumor development in them compared to three control monkeys that had also been infected with the virus. The control monkeys died 28, 30 and 33 days after infection from tumors. The vaccinated monkeys died 61, 64 and 94 days after infection—two from tumors and one from an accident without any signs of cancer.

Obviously this type of study will have to be expanded to include more monkeys and to follow them over a longer period of time to make sure that the cancer vaccine is truly a success. Meanwhile, a vaccine against Burkitt's lymphoma can be explored in primates because malignant lymphomas were recently induced in monkeys with the Epstein-Barr virus. □

Winter sunrise at Newgrange

Since 1699 a strange tourist attraction has been open to visitors in County Meath, Ireland. It is a 5,000-year-old passage cave or sacred tomb called Newgrange. The monument consists of a huge, artificially constructed pile of stones approximately 80 meters in diameter. A passage, 19 meters long, leads into the mound to a burial chamber where burnt bone fragments of five people were excavated in 1967. There are about 200 passage caves in Ireland, but Newgrange is unique for several reasons.

The large entrance stone, set in front of the passage, is intricately decorated and is regarded as "one of the most impressive pieces of Megalithic art in Europe," says J. Patrick of the College of Technology in Dublin. In fact, he says in the June 7 *NATURE*, "there are many other decorations within the passage and chamber, and on the kerbstones, virtually making Newgrange a



Shaded area shows 19-meter path of sunlight down passage at winter solstice.

Megalithic art gallery."

Even more interesting is the discovery made by M. O'Kelly in 1969. Above the entrance to the cave is a gap in the wall about one meter wide. During the winter solstice O'Kelly observed that four minutes after sunrise the sun's rays shine through the gap and down the length of the passage to the burial chamber, which becomes fully lighted.

O'Kelly asked Patrick to make an accurate survey of the roof box to see if this phenomenon would have occurred when the burial chamber was built. Patrick's calculations indicate that at winter solstice "the sun has shone down this passage to the cham-

ber ever since the date of its construction and will probably continue to do so forever. . . . It also means that the spectacle occurs for a number of days before and after the winter solstice."

Because no other passage grave has been found to have such a roof box and because the whole monument is so grandiose, Patrick concludes that the orientation with the winter solstice is deliberate. Judging by dating of charcoal samples collected from caulking between the roof slabs, it appears that cultures in the British Isles were investigating solar cycles 5,000 years ago, or almost 1,000 years before the main astronomically oriented structures were erected at Stonehenge. □



Window box and carved entrance stone.

June 29, 1974

413