

the Stanford University School of Medicine and colleagues at Harvard Hospital in Salisbury, England, reported that they were able to protect human volunteers against flu and cold viruses by giving them interferon. Volunteers who served as controls came down with flu or colds (SN: 3/31/73, p. 208). Now Merigan and Stanford co-workers George Jordan and Richard Fried have preliminary results that interferon may provide protection against serious herpes virus infections, specifically against chickenpox and shingles. Merigan reported their results last week at the Gustav Stern Symposium on Perspectives in Virology.

Chickenpox and shingles are usually not serious, but they can be lethal in persons suffering from immunological deficiencies. So Merigan and his colleagues gave a shot of interferon daily for three consecutive days to 17 immunologically deficient patients with severe cases of chickenpox or shingles. The shots produced levels of interferon in their blood that would be effective in tissue culture.

"The most encouraging thing," Merigan says, "is that the patients could tolerate large amounts of interferon in their blood. Each shot they received contained 50 million units of interferon, putting into their blood 20 times the amount of interferon it takes to counter chickenpox or shingles viruses in tissue cultures." Merigan's volunteers who fought off cold and flu viruses received only 14 million units of interferon daily for four consecutive days, by nasal spray.

Merigan and his co-workers are now starting a clinical trial using controls to see whether interferon is indeed effective against critical viral infections. "I see the possibility of interferon being applied to hepatitis, rabies and other severe viral infections," he says.

Merigan credits much of the success he and his colleagues have had with interferon to Kari Cantell of the State Serum Institute in Helsinki, Finland. Cantell has provided them with the human interferon they've used in their clinical trials. Since Finland has one of the few centrally controlled blood banks in the world, Cantell has ready access to trillions of white blood cells, which he stimulates for interferon.

Even though human interferon is now available in bigger supplies than several years ago, it is still prohibitively expensive. The cost of one 50-million-unit injection is several thousand dollars. The key to interferon's clinical success probably lies in the unraveling of its amino-acid structure and in its subsequent synthesis. Scientists working in this direction include Christian B. Anfinsen of the National Institutes of Health, 1972 Nobel laureate in chemistry. □

Fossils show man walked 3 million years ago

There is not one but a dozen missing links in the story of human evolution, particularly in the chapter concerning the transition from ape to man. Anthropologist D. Carl Johanson of Case Western Reserve University in Cleveland has discovered a skull fragment, shin and thigh bones of a three-million-year-old man in Ethiopia that push the story back an estimated million years.

The bone fragments—femur (lower thigh), proximal tibia (upper shin) and two incomplete proximal femora (upper thigh)—were found within a 10-foot area in the Afar-Awash Valley in Ethiopia in November. Johanson believes the bones belonged to an ape man (hominid) of the genus *Australopithecus* over 25 years old and about 3- to 3½-feet tall. The left temporal skull fragment was found a mile away from the leg-bone site on Dec. 10, only two days before the expedition ended. This fragment belonged to a larger individual.

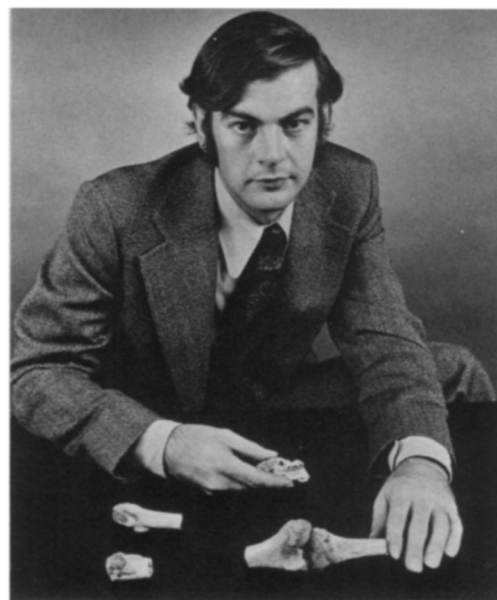
"We have absolute, concrete evidence that our ancestors walked on two legs over three million years ago," the 30-year-old scientist told a news conference sponsored by the National Science Foundation last week.

The oldest evidence of early man to date comes from a 5½-million-year-old partial skull fragment and tooth found in Kenya. But before the new finds, there was no evidence that these ape men were erect and walkers beyond two million years ago. "So we have extended our knowledge of this particular kind of fossil man well over a million years," says Johanson.

Johanson and two students from CWRU were part of an international expedition of French, Ethiopian and American scientists who spent 12 weeks in the Afar-Awash Valley.

Johanson concentrated his efforts in an area known as the Afar Triangle or Afar Depression. The triangle has received extensive attention from geologists with the renewed interest in plate tectonics. Sediments are extensive, extending approximately 150 square kilometers and having a maximum thickness of about 150 meters. The area is dry and parched, but sediment deposits indicate that rivers once flowed in the region and emptied into a lake. The abundance of fossils and the continental forces that raise the various strata make fossil hunting extremely easy for anthropologists.

"The excitement of the area is in terms of the possibility of finding not only associated body parts of beasts . . . but that these parts may be in fact articulate," says Johanson. "We



Cleveland Museum of Natural History
Johanson with Ethiopian fossils.

found a cranium of a crocodile resting right on its mantle which means that the animal died three million years ago there, was covered by sediment and fossilized. This is a situation that exists virtually nowhere else in Africa. And it is going to give us, if the indications are correct, the first possibility anywhere in the world, of finding very closely associated skeletons of early man."

When Johanson first found the shin bone, he thought it was exceedingly small to be attributed to fossil man.

"At first my impression was that it merely represented a very large monkey because we were finding numerous remains of monkeys in this area. But then I continued to survey and found just 10 feet away, a broken bottom end to the thigh bone. When I picked this up and put the two pieces together, it was immediately obvious that it was not a bone of a monkey. We then continued looking and found the two top ends of the thigh bones, unfortunately incomplete, but sufficiently complete to be able to investigate in great detail the muscles that were attached there and that are so important in one of man's primary adaptations—walking on two legs."

From the fossil remains of gazelle and white rhinos, anthropologists believe the Awash Valley was once a grassland bordered by forest. A popular theory concerning the transition from ape to man states that when early man first ventured out on the savannas or the grasslands, he encountered tall grass and began standing on his hind legs to see over the grass, to avoid his predators and to investigate possible food sources.

Johanson hopes to return to Ethiopia this year in late summer. At the moment, all the scientists have returned home, are working on their finds and developing new strategies of attack. □