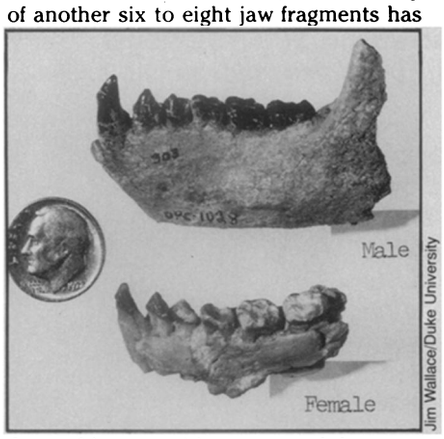
Jaws XII: Aegyptopithecus on the Road to Man

It may be hard to imagine that humans evolved from a skittish-looking, house-cat-sized ape called *Aegyptopithecus* (SN: 4/1/78, p. 196). But the evidence has become so overwhelming in the past few years that researchers say they are now certain that the creature was a common ancestor of both humans and apes. "It's like putting a jigsaw puzzle together, and all the pieces have fallen into place," Duke University primatologist Elwyn Simons told SCIENCE NEWS.

From a dozen lower jaw fossils uncovered since 1977 in Egypt's Fayum Depression, Simons and his colleagues have been able to infer a surprisingly advanced social structure and more authoritatively confirm *Aegyptopithecus*'s place about 30 million years ago on the road to human evolution. At the same time, the discovery of another six to eight jaw fragments has prompted the researchers to seriously doubt that *Aegyptopithecus*'s ape-like contemporary — *Propliopithecus* — was a forerunner of man.



Jim Wallace/Duke University

Jaws of Aegyptopithecus *reveal that large canines are absent in female teeth.*

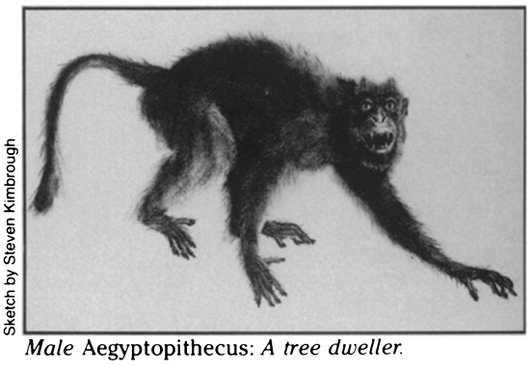
The structure of the relatively well-preserved jaws has revealed "two sexual sizes" among *Aegyptopithecus;* larger and thicker male jaws indicate that males were larger than females — 10 to 11 pounds versus 8 or 9 pounds — and that the males competed against one another for group dominance. "There were probably one or a few dominant males in the pecking order," said Simons, head of Duke's Center for the Study of Primate Biology and History.

But "most important," Simons said in a telephone interview, is the "documentation ... of a larger [than a two-creature] group size at a very ancient time. It requires intelligence to recognize and distinguish [among] animals" within the group, as well as to identify potentially dangerous apes from other "tribes," Simons says. "You don't need this [intelligence] in a mated pair." Gibbons that travel in single pairs, he notes, have the same size teeth. The discovery of similar, sex-related jaw size differences among *Propliopithecus,* on the other hand, appears to detract from that creature's evolutionary importance. On the basis of one specimen found in the early 1900s, one group of scientists has believed that because male *and* female *Propliopithecus* seemed to have small canine and front premolar teeth — a characteristic that distinguishes humans from apes — they may have been the first significant link in the chain that split off from apes and led directly to the ascent of man.

The Fayum fossils disprove this theory, Simons suggests, and at the same time indicate that *Aegyptopithecus* was considerably more similar than *Propliopithecus* to a generally accepted precursor of primitive man — *Dryopithecus,* which appeared about 20 million years ago. *Propliopithecus,* he says, was "more like the lesser apes."

Aegyptopithecus, which lived in the Oligocene period, was a vegetarian, according to Duke anatomist Richard Kay, who worked on the project with Simons and John Fleagle, a paleontologist at the State University of New York at Stony Brook. A study of the remains of eye sockets also indicates the animal was active in the daytime — another characteristic of a relatively complex society; nocturnal primates as a rule are solitary animals with little social structure.

"The important thing is we have enough new finds" to draw such conclusions, says Simons. The study will be formally reported in NATURE later this year. □



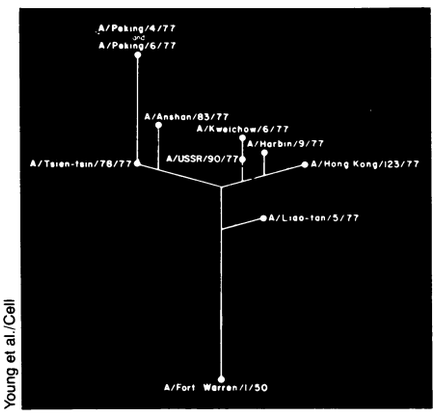
Sketch by Steven Kimbrough

Male Aegyptopithecus: *A tree dweller.*

Life story of ever-changing influenza

The shifty nature of influenza viruses is more than surface deep. Genes responsible for the internal components can change just as speedily and as dramatically as do the genes for surface proteins, Peter Palese told the Gustav Stern Symposium on Perspectives in Virology held in New York last week.

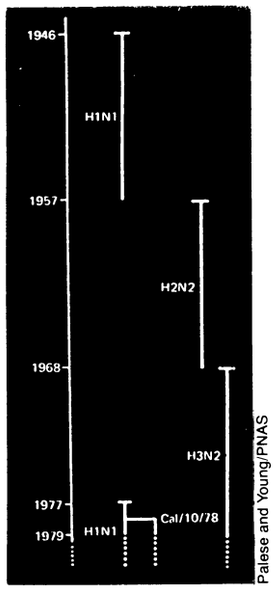
Viruses can alter by gradual accumulation of small changes in the genetic material and also by interchange of entire genes, Palese says. He and James F. Young, both at Mount Sinai School of Medicine in New York, using new gene-probing techniques, have found that an influenza virus prevalent last winter contained surface proteins of one virus combined with some of the inner components of another.



Young et al./Cell

The history of that "recombinant" influenza virus makes quite a tale. The parent, called H1N1, caused a worldwide epidemic in 1977. Scientists were surprised to discover that H1N1 was similar to an influenza strain preserved from a 1950 epidemic. In fact, it was so similar that few persons over 25, who had developed immunity to the earlier version, succumbed to the 1977 H1N1 outbreak.

The reemergence of H1N1 was the first



Palese and Young/PNAS

Influenza virus H1N1, which circulated from 1946 to 1957, reappeared in 1977, and Cal/10/78, a recombinant of H1N1 with strain H3N2, showed up the next year (right). Evolutionary tree of H1N1 demonstrates that some 1977 strains are more distant genetically from each other than from the 1950 strain.