has been almost a cornerstone in many attempts to account for the instruments' responses by nonbiologic means.

Yet the latest PR results, says Levin, throw the whole peroxide model into question, suggesting that more exotic chemistries must be postulated if biology is to be explained away. Horowitz, he points out, has stated that Viking's labeled-release and gas-exchange data represent oxidative reactions, while the PR indicates a reduction. "However," says Levin, "those proposing the single-cause theory—peroxide—to explain all three instrument results had theorized that the peroxide reacted to produce intermediates or free radicals, which, in turn, were responsible for the reductions observed in PR." The water added to the latest PR sample, even though it was boiled off later, ought to have driven off the oxygen from the peroxides on the soil. This precludes the peroxide-produced intermediates or free radicals from being available to reduce the carbon dioxide or carbon monoxide to form the "organic matter" detected by the experiment.

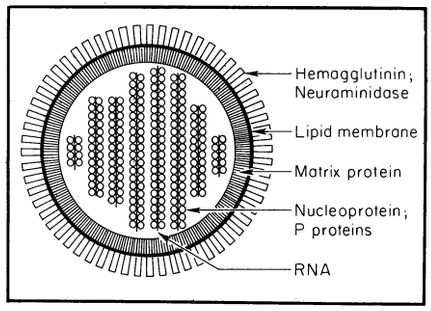
An alternative theory may be that the water merely reduces superoxides down to peroxides, leaving the reaction potential relatively intact. Gas-exchange experimenter Vance Oyama of the NASA Ames Research Center proposes this idea as part of a detailed model of Martian surface chemistry (NATURE, Jan. 13). But the case is far from closed. □

Soyuz 24 crew aboard Salyut 5

The Soviet Salyut 5 space station was successfully boarded last week by a second crew of cosmonauts—the third to make the attempt. Both of the previous attempts, last autumn, suffered considerable difficulties: The Soyuz 21 crew was forced to leave the station and return to earth prematurely because of difficulties with their spacecraft, and Soyuz 23 was unable even to dock with the station at all due to a malfunction of the Soyuz portion of the rendezvous system.

Soyuz 24 was launched on Feb. 7, carrying cosmonauts Victor Gorbatko and Yuri Glazkov, who had also been the backup crew for Soyuz 23. (Gorbatko had been in space once before, aboard Soyuz 7 in 1969.) The rendezvous and docking with Salyut 5 took place on Feb. 8, and the cosmonauts entered the station a day later. The goals of the mission have not been publicized beyond general references to biomedical experiments, earth-resources studies and the like. It has been reported, however, that both crewmen have been trained in extravehicular activity, and that in fact Gorbatko was a backup crewman for two earlier missions (Voskhod 2 in 1965 and Soyuz 5 in 1969) that included such "spacewalks." □

Fine dissection of virus: No pandemic

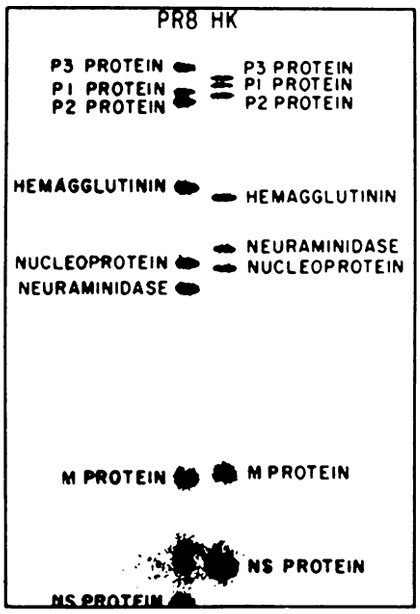


Influenza A virus: Sphere with spikes

The New Jersey swine flu virus is unlikely to cause the next influenza pandemic, say reseachers at Mt. Sinai Medical School. Their prediction is not based on the epidemiology of influenza, but on the exact composition of the swine flu virus.

At the Gustav Stern Symposium on Perspectives in Virology last week in New York, Peter Palese described techniques, developed with Jerome L. Schulman and Mary B. Ritchey, that allow a close look at the genes and proteins of influenza viruses. The influenza genes are separate segments of RNA. When the researchers compared the eight genes of different flu viruses, they found that the New Jersey influenza closely resembled the influenza that infects swine. None of the genes appeared to be from the type A influenza virus that most commonly infects humans. The New Jersey virus thus does not fit the current theory that pandemic strains of influenza result from new combinations of flu genes from animal and human viruses. "It is therefore most probable that the occurrence of New Jersey swine virus in humans in Fort Dix represents an isolated event without serious consequences," Palese writes in an article that will appear in CELL.

Separation of the eight genes of the influenza virus has made it possible for researchers to determine the genes that code for each protein in the virus and to begin clarifying the role each protein plays in infection. Two human viruses—PR8, which was prevalent before 1947, and HK, the current A-Hong Kong strain—have genes with different separation characteristics (see figure). The researchers detected the protein message of each gene by infecting a cell with different viruses and analyzing resultant viruses that included new combinations of genes. Palese and co-workers compared the proteins present in each new virus with the RNA segments and with any altered characteristics of the virus. They found, for example, that P1 and P3 proteins are necessary for synthesis of intermediate RNA strands, and P2 and nucleoprotein are probably necessary for synthesis of the RNA that goes into the final virus particles. They have also learned that not only surface proteins but also some internal proteins influence whether a virus can evade a host's immune system and infect cells.



Separation of genes from flu viruses

"Clearly we are now in a position to ask which gene(s) is involved during different replication steps and to identify genes contributing to virulence in a particular host system," Palese writes in his paper. "RNA analysis of different influenza viruses and their recombinants will open new avenues of investigation into the capricious nature of influenza virus."

The new methods of analysis may also lead to a more rational approach to selection of vaccines. "It is extremely important that any virus given to man today be completely genotyped so we know the origin of every gene. Before this, we could only identify two genes," Palese says. □

Limited use of flu shots resumed

An outbreak of A-Victoria flu in a Miami nursing home and cases scattered across the United States and Canada has prompted the Department of Health, Education and Welfare to partially lift its ban on flu immunizations. Secretary Joseph A. Califano Jr. recommended doctors vaccinate elderly and high-risk persons with the combined vaccine that protects against both A-Victoria and swine flu viruses. Although an epidemic of swine flu remains unlikely, the combination shots will be given because no single-purpose vaccine against A-Victoria influenza was manufactured this year.

Doctors may also resume immunization against B-Hong Kong flu, a milder strain that commonly attacks children. Only the