

been identified in the particulate phase of smoke and some 200 in the gaseous phase. The gas phase is hazardous because it inhibits mucous transport in the windpipe, thus interfering with the body's ability to carry foreign particles out of the lungs.

According to Dr. Charles J. Kensler of Arthur D. Little, Inc., Cambridge, Mass., a private research organization, the gaseous phase of cigarette smoke may be the most important part of the problem. Charcoal filters, he says, effectively remove between one-half and three-quarters of the toxic hydrogen cyanide and acrolein content of smoke.

Cigarette research at Little is supported in part by Liggett and Myers, manufacturers of Lark and Duke brand charcoal filter cigarettes. ♦

NON-PROLIFERATION

Treaty Nears Final Stage

While U.S.-Soviet relations have suffered from the strains of the Vietnam war and the Middle East crisis, these troubles do not seem to have seriously affected joint efforts to come up with a treaty halting the spread of nuclear weapons.

The two nations have been trying since January 1964 to agree to a draft treaty. They are so eager now, they will offer one despite the fact that they themselves are unable to agree to a key section—inspection.

Last week, as negotiators at the Geneva non-proliferation talks waited for a promised Soviet-U.S. joint draft treaty to be placed on the table—it had been expected for weeks—the following developments were taking place:

- India, which had previously expressed doubts about the treaty, renewed them. Deputy Prime Minister Maraji Desai said he didn't think the pact would have any meaning so long as China was not included.

- The U.S. Atomic Energy Commission continued its postponement of the nuclear excavation tests, which it had called off last February while talks were going on. The AEC asked Congress for funds for the test, called Project Cabriole, in the fiscal 1968 budget, but no date has been set for it.

- Eleven inspectors from the International Atomic Energy Agency, which would play a major role in policing a non-proliferation treaty, had their first chance to inspect one of the important stopping-places for atomic weapons material: a nuclear fuel reprocessing plant at West Valley, N.Y. They will be studying the inspection procedures for several weeks.

Even when the U.S.-Russian draft is

put on the conference table, the treaty will still face two major hurdles:

- The U.S. and the Soviet Union still have not agreed on who will do the inspecting of nuclear plants.

- The non-nuclear nations are not happy with their rights and safeguards under the treaty.

India's expressed doubts are typical of the uneasiness with which the treaty is viewed by non-nuclear nations. Protection from nuclear blackmail by non-signers of the treaty, particularly Red China, is one issue involved. Another is the development of peaceful nuclear explosives technology, with guarantees from nuclear powers to share that knowledge.

Russia wants inspections to be carried out by the International Atomic Energy Agency, which at present has 29 inspectors. The U.S., while an enthusiastic IAEA supporter, is faced with the problem that some European countries, especially West Germany and Italy, have been under inspection by Euratom, the European Common Market agency, and want to continue that system.

Besides the still open inspection provisions, and the pledges regarding international security and peaceful technology, the treaty includes articles under which nuclear signers would promise not to supply weapons to nations that didn't have them, and non-nuclear nations that joined the treaty would agree not to develop the weapons or accept them from any nuclear nation. These provisions were acceptable to both U.S. and Soviet negotiators. ♦

FLU

Epidemic May Test Drug

If there is an epidemic or big outbreak of Asian flu this winter, it could have the advantage of providing a thorough test of the controversial antiviral drug amantadine hydrochloride. Although the drug has been approved for flu prophylaxis by the U.S. Food and Drug Administration, Dr. Albert B. Sabin, of oral polio vaccine fame, and several other virologists have objected to its use on a general prescription basis until field trials are held "under carefully controlled conditions."

The Public Health Service has predicted substantial numbers of A-2 influenza cases this year in areas east of the Mississippi River. Officials at the PHS Communicable Disease Center, Atlanta, Ga., say they expect a possible outbreak to begin in December on the East Coast and work its way west, inasmuch as only a few cases occurred in the area last year

and this type of flu runs in two to three-year cycles.

The oral drug amantadine is not mentioned by the Public Health Service, which recommends its own shots beginning Oct. 1 for people who have not been immunized later than 1963. Only one booster shot is necessary for those who have had the vaccine in the past four years.

The American Medical Association's Council on Drugs says evidence to justify the use of amantadine under proper medical supervision is sufficiently strong that it sees no justification in restricting its use by physicians. In an evaluation of the drug it warns about dosage and adverse reactions.

Officials of E. I. du Pont de Nemours & Company, Wilmington, Del., whose laboratories produce amantadine hydrochloride (trade name Symmetrel), say that 13,000 persons have been given the drug in various parts of the world, and they are at a loss to know why there are any objections to it. The Food and Drug Administration approved Symmetrel on Oct. 18, 1966 for prescription use in preventing Asian flu. It is not recommended for treating the disease once a person has it.

Dr. Sabin believes the drug has been inadequately tested. "There is only one valid investigation in human adults," he says. This study was with prisoner volunteers exposed to natural infection with influenza A-2 virus. He said that two studies in institutions for mentally retarded children were inconclusive.

Here are some of his criticisms:

- In the only study carried out in ferrets, the disease was markedly aggravated by the drug.

- When used against German measles, or rubella, during the 1964 epidemic, amantadine "not only failed to show protective effect, but suggested a possible aggravating effect because the incidence of disease was five times higher among children, aged 15 or younger, receiving the drug than in those receiving placebo."

Two influenza vaccines are available for the 1967-68 season. A newly introduced bivalent vaccine contains only the A-2 and B strains that are currently prevalent. The other (polyvalent) vaccine, similar to that used in past years, incorporates older strains (types A and A-1) as well as the newer A-2 and B strains.

The Public Health Service Advisory Committee on Immunization Practices says that use of the bivalent vaccine should provide a greater degree of protection against current strains of flu than previously has been possible. This is true because total activity of the vaccine is divided equally between strains. ♦