

is ventilation. That method works up to a point, but as a mine grows and becomes more winding and complex, ventilating to prevent radon build-up becomes less effective. Respirators or masks, as a rule are not worn. They do keep out some of the radioactive particles, but the miners complain that they interfere with their work.

One area undergoing research is that of sealants. Films of latex and urethane foams are being applied to the areas already excavated to prevent the radon gas from leaking out of rock interstices.

Despite a reduction in the average working level over the years, the latest report by the National Research Council shows "a statistically significant increase in the lung cancer risk" for uranium miners. Although the study group acknowledges the role of a synergistic effect from cigarette smoking and although it makes no recommendations of safe levels, "it recognizes that decisions to safeguard the health of uranium miners must be made soon."

## DESALTING

### Giant plant cut back

Construction of the world's first large-scale combination nuclear power and desalting plant is going ahead in diminished form despite a recent setback. Originally foreseen as a 150 million gallon-a-day desalination plant on Bolsa Island, a man-made spit of land off the coast of California near Los Angeles, the final plant will be limited to 50 million gallons a day.

The original schedule called for construction to start this year, with initial operation in 1974 and full capacity in 1978. However, a pullout in September by three of the plant's main backers—the Los Angeles Department of Water and Power, the Southern California Edison Company and the San Diego Gas & Electric Company—has forced the Metropolitan Water District of Southern California to retrench. The pullout was prompted by rising costs resulting from inflation and changes in plant design.

Besides desalting capacity, power production is also threatened. Originally, the plant's capacity power was estimated at 1,800 megawatts. If none of the utilities return, MWD would be forced to run the power unit at a reduced output.

The district's hopes for the utilities' return are based on the desirability of the site, close to a huge metropolitan area, and the belief that the cost of producing nuclear power will stop rising.

Original cost estimates for the plant ran to \$444 million; the new figure is \$765 million. Last year Congress ap-

propriated \$72 million for the project.

The desalting will be accomplished by multistage flash evaporation, which has proven workable on a small scale. In the process heated seawater enters a chamber where reduced pressure causes a portion of it to flash into steam. The steam is condensed and the operation repeated on the rest of the brine in similar chambers at progressively lower pressures and temperatures.

## HONG KONG STRAIN

### Fifteen viruses plus

College campuses across the country closed for Christmas vacation a week early. Work absenteeism is high. Hospitals have asked visitors to stay at home.

The Hong Kong flu, as expected, has reached epidemic proportions in parts of the United States and its rampage is not likely to subside until mid-winter. But the exotically named ailment is probably getting more than its share of the blame.

When a person comes down with a cold, or a fever, or chills he is likely to diagnose his disease as the Hong Kong flu but, public health officials declare, 16 varieties of flu viruses are going around and not everyone who gets sick has actually been hit by the new A2 viral strain first noticed in Hong Kong last summer. Unless physicians perform laboratory tests on flu patients to identify the infecting virus—and they aren't going to do that—it is impossible to distinguish one strain from another.

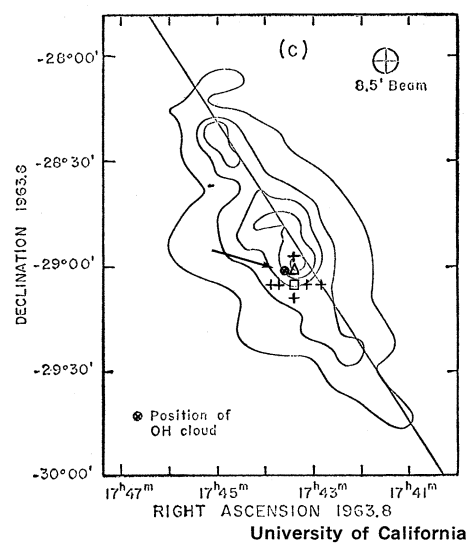
As of early this month, the U.S. Public Health Service had recorded 672 deaths attributable to the flu, and to pneumonia which often accompanies it, especially in the elderly and chronically ill (SN: 12/7, p. 570). However, officials at the National Communicable Disease Center in Atlanta caution that this figure represents only 196 "excess deaths." That is, the disease takes the lives of about 500 persons each winter, when influenza is ordinarily most prevalent.

Among healthy persons, U.S. Surgeon General William Stewart says, the new Hong Kong flu strain is no more dangerous than other types of influenza virus.

Since September, six major U.S. pharmaceutical houses have been working around the clock to produce a vaccine against the Hong Kong strain which is impervious to Asian flu vaccines that have been around since 1957 when the last major epidemic occurred. By January an estimated 20 million doses will be available with two million set aside for military use and the remaining 18 million hopefully reserved for high risk patients.

## MOLECULAR ASTRONOMY

### Ammonia between the stars



Ammonia toward the galactic core.

Researchers at the University of California in Berkeley have found molecules of ammonia in a turbulent but cool cloud of dust and gas located in the direction of Sagittarius. The region is in the direction of the center of the Milky Way galaxy, close to the position in which hydroxyl molecules were previously detected (SN: 8/17, p. 167).

The discovery of ammonia molecules in the direction of the dusty core of the Milky Way strengthens the theory that the grains in space are molecule factories generating the basic ingredients of life.

A strong source of infrared radiation (see p. 644) has also been found near both the hydroxyl and ammonia sources. Hydrogen is the most abundant material in the universe: it can combine with oxygen to form the hydroxyl molecule, with nitrogen to form ammonia and with carbon to form what is called simply the CH molecule.

Carbon, hydrogen, oxygen and nitrogen are essential ingredients of life as it is known on earth.

The diameter of the cloud, which cannot be photographed in visible light due to the obscuring dust, is a few light years. Its distance has not been determined, although the University of California group is working on the problem. The estimated density is about one molecule per liter, and the molecules were calculated to be at about 23 degrees K.

The ammonia molecules were detected using the new 20-foot radio telescope at the Hat Creek station of the university's Radio Astronomy Laboratory. The scientists are Dr. Charles H. Townes, Dr. David M. Rank, Dr. William J. Welch, Albert C. Cheung and Douglas D. Thornton.