

# natural sciences

## WATERFOWL

### Pothole outlook optimistic

Abnormally high rainfall in the prairies has waterfowl watchers at the Department of Interior talking optimistically for the first time in a number of years.

Severe drought in the past has dried up large numbers of potholes in the prairie region of the U.S. and Canada, cutting into the breeding of ducks and geese (SN: 9/14, p. 269). But this year the potholes are full and waterfowl are getting an early start on breeding, according to air and ground surveys from the Bureau of Sport Fisheries and Wildlife.

"This may be an excellent production year," says Interior's Dr. Leslie L. Glasgow.

## POLLUTION

### Night gas in England

Scientists at Britain's Microbiological Research Establishment (the so-called germ warfare factory) are puzzled by a nocturnal phenomenon in which bacteria left out in the open air are killed within 30 minutes.

Only at night does the bactericidal effect occur. Although atmospheric pollutants are suspected, such as unburnt fuel from automobile exhaust, and other well-known constituents of air pollution, the researchers have been unable to duplicate the lethal reaction under controlled conditions. The chemical reactions of these pollutants with each other and with nighttime levels of ozone produce a powerful germicide. But tests showed that at the relatively dilute levels at which these occur, a lethal effect cannot be demonstrated.

A wide range of organisms are affected. Whether the phenomenon affects crops and other higher living systems has not been determined, although it is known that some dark ozone-exhaust reactions produce substances that attack plant cells.

Tests with the bacteria have been performed to rule out sulfur dioxide, the oxides of nitrogen and formaldehyde, rapidly fluctuating temperature and humidity and other influences known to be harmful to bacteria.

## GENETICS

### Lysenko's rise and fall

One experiment with a single plant, by T. D. Lysenko, provided a Soviet scientist basis for a genetic theory that gained immediate political favor. But it was at the expense of biological science and agriculture in the Soviet Union until as recently as 1964, when Premier Nikita Khrushchev retired.

A recently published book, "The Rise and Fall of T. D. Lysenko," by Zhores A. Medvedev, a Russian scientist and inside observer, chronicles Lysenko's subversion of Soviet science. He ascribes Lysenko's rise to political patronage and to the theories and beliefs held by Stalin, and later, Khrushchev. Medvedev's heretofore unpublished manuscript was translated by I. Michael Lerner, professor of genetics at the University of California at Berkeley.

Lysenko dramatically proclaimed, in 1935, following his single plant experiment, that contrary to accepted

Mendelian gene theory of inheritance, the characteristics of an organism could be changed by environmental influences and genetically passed on to the next generation. Politically, the theory found support in fostering Soviet belief that the state could exert its influence upon the population of one generation, and transmit prescribed qualities to future ones.

Lysenkoism began a final decline in 1962 with the gross failure of economic and agricultural policies which had derived from his unfounded theories of agricultural production.

## AGRICULTURE

### New drip irrigation

A novel drip irrigation system which has been perfected in Israel is proving to be a highly efficient method of conserving water and greatly increasing crop yields under desert conditions.

A water engineer, Simcha Blass, and his son designed the system. Vegetable crops and fruit trees are supplied with measured amounts of water containing appropriate fertilizers conveyed through plastic, non-corrosive pipes, which are equipped with filters and attached to a simple pressure device. The main pipe and a subsidiary network are placed in shallow ploughed furrows. Each pipe is punctured at measured intervals by a dropper designed to supply each specific plant with the fertilizer-enriched water needed.

Australia will begin a large-scale trial.

## ENTOMOLOGY

### California mosquito problem

California may be developing the most serious mosquito problem in the U.S., and as one of the most efficient transmitters of human disease, the insect presents an ever increasing threat to the population of the state.

According to Dr. E. Gorton Linsley, dean of the College of Agricultural Sciences at the University of California in Berkeley, "Mosquito control is becoming increasingly difficult in California for a number of reasons, including increased human population, expanding water development that creates breeding sites, and a growing genetic resistance by mosquitoes to insecticides."

In response to the mosquito threat, California now spends over \$112,000 a year on mosquito control research. Studies center mainly on chemical and biological control, and the problem of resistance to insecticides.

Several species which thrive in areas where large acreages of permanent irrigated pasture provide ideal breeding conditions now show high tolerance for standard chemical control agents. In particular, a species of *Aedes* demonstrate strong resistance to all larvicides normally used, and all but two chemicals usually used to attack adult mosquitoes, many of which contain DDT. An intensive screening of dozens of chemicals has failed to turn up an effective control agent.

Research has revealed many potential biological controls, such as fungus, bacterial and protozoan species which cause mosquito diseases, but there has been little practical application so far.

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