

NAS Notes

Gathered at the fall meeting of the National Academy of Sciences at Ann Arbor, Mich.

POPULATION/GENETICS

Crash program rejected

A crash program to solve the problems of whether heredity or environment has the dominant role in how man reacts to the world around him is not in order at this time. Although heredity may have a role in causing poverty, slums, dropouts and crime, these problems most likely will be solved by changing the environment.

That was the gist of the statement made by the Council of the National Academy of Sciences at its meeting. It is considered by many to have been quite strongly worded. The statement was made because some Academy members had claimed that the role of heredity in today's social problems was being ignored by scientists.

ENTOMOLOGY

Fungus farmers

Ants may be the world's best farmers. They eat only one thing, a fungus that they grow themselves.

Finding the chemical basis for the close association between the Attine ants, inhabiting an area extending from Argentina to the southern United States, and the fungus they culture is the aim of research reported to the Academy meeting by Prof. Michael M. Martin of the University of Michigan.

He believes this association is the key to the ants' successful exploitation of their environment.

Although many animals feed on fungi, the culturing of fungus by the Attine ants is the only known example of creatures growing their own. Prof. Martin brought 75 pounds of *Atta* back from Panama for his laboratory study of their culturing of fungus.

ECOLOGY

Malaria mosquito growth blocked

A potentially effective and selective method for biological control of the malaria mosquito involving a fungus that grows within the larva of the mosquito itself was described at the Academy meeting.

The fungus, *Coelomomyces*, kills only the Anopheles mosquito, Dr. J. N. Couch of the University of North Carolina reports. It is the first fungus harnessed for the killing job and the only control method known that is absolutely specific for mosquitoes. The fungus grows in the body cavity of the larvae, consuming the fat the larvae need to develop into pupae and then mosquitoes.

Dr. Couch's co-workers are Drs. C. J. Umphlett and M. O. P. Iyengar.

BIOCHEMISTRY

Proneness to breast cancer

Proneness to breast cancer can be detected in individuals before the disease attacks, the Academy meeting

was told. Dr. Roger J. Williams of the University of Texas in Austin reported that he and his co-worker, Dr. Rose Mary Gutierrez, find "distinctive patterns of ketosteroid excretion in the urine are definitely associated with breast cancer."

This, Dr. Williams said, is "but a first step in the prevention of breast cancer—an outcome much to be desired." The distinctive excretion patterns may even indicate different degrees of proneness.

Their conclusions are supported by recent findings of Drs. R. D. Bulbrook and J. L. Hayward of London, who observed distinctive differences in steroid excretion patterns in women on the Island of Guernsey three months to five years before the appearance of breast cancer.

Dr. Williams said that such studies as his and those of the two English doctors "have much wider implications for the prevention and management of diseases of many varieties."

BIOCHEMISTRY

Memory formation in goldfish

Evidence that the production of RNA in the brain is important for long-term memory formation has been found by two University of Michigan scientists in their continuing studies of memory in goldfish. Their most recent research shows that memory formation is very much like a growth process.

In previous experiments, Drs. Bernard W. Agranoff and Roger E. Davis discovered that two unrelated drugs, puromycin and acetoxycycloheximide, that blocked protein manufacture also impaired memory formation in goldfish. It has been known that RNA synthesis is required for protein synthesis in the brain, and now it appears that RNA synthesis is involved in long-term memory formation.

In their latest experiments, the researchers learned that actinomycin D, a drug that blocks RNA synthesis, also blocks long-term memory formation. When a sublethal dose of actinomycin D was injected intracranially, it caused rapid depression in brain RNA synthesis. Under these conditions, the fish were able to learn the training task but were unable to repeat it later, showing that long-term memory was blocked.

GEOCHEMISTRY

Indian artifacts dated

For 120 years, U.S. archaeologists have tried to determine the source of Indian obsidian artifacts found in the Midwest and dating from about 2,000 years ago. The obsidian arrowheads and knives were found in prehistoric Hopewellian culture sites. Archaeologists have suggested they could have originated in Alaska, the Southwest, Mexico or the Yellowstone Park area.

Prof. Adon A. Gordus used neutron activation analysis to prove the artifacts could have come only from the Yellowstone area. Prof. James B. Griffin, director of the University of Michigan's Museum of Anthropology, reported the findings.