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## ENTOMOLOGY

# Cockroach Brain Surgery

► **PERFORMING A SERIES** of delicate operations on cockroaches may provide basic information on the central nervous system and hormone operation in man.

Dr. R. T. Yamamoto of the U.S. Department of Agriculture removes tiny brain-associated endocrine glands in his study of hormone operation in the female American cockroach.

Although his work at the Insect Physiology Laboratory at Beltsville, Md., is a basic study, Dr. Yamamoto says it may have applications in the understanding of the complex and delicately balanced hormone system in mammals.

When the female cockroach is mature, her endocrine glands instigate the production of a sex attractant. Shortly after mating, the attractant production stops and egg development begins.

Careful surgical removal of this gland, the corpora allata, will stop the attractant production. Juvenile hormones that inhibit the sexual development before the roach is mature will restart the production of attractant after it has been stopped by the removal of the corpora allata.

Dr. Yamamoto is studying the complex system of hormones that stops the production of sex attractant and begins the production of eggs after the female has mated.

He found the changeover is controlled through the central nervous system, possibly through the production of a hormone by the brain. Severing the nerve from the brain to the corpora allata can change the cycle from attractant to ovarian production.

To obtain evidence of the brain's role in this sequence, Dr. Yamamoto and an assistant, D. H. Chen, performed one of the most delicate operations in the entire series of experiments—tying off the tiny nerve from the brain to the corpora allata with

a single silk fiber. They hope to pin down whether the nerve transmits a secretion or an impulse that in effect shuts off the attractant production.

This research is part of an intensive effort to learn details about insects and their habits as a basis for developing effective methods of insect control. The females' ability to attract males and to mate can be controlled if it is known what mechanisms stop the production of the sex attractant.

However, Dr. Yamamoto says this inhibition of reproduction as a pest control would present serious problems in getting the hormone to wild females.

• Science News Letter, 85:174 March 14, 1964

## MEDICINE

## Spinal Effect Not Epidemic, But Chance

► **A SPINAL DEFECT** in 16 Atlanta babies previously thought to be "epidemic" was reported to be a probable chance happening in the Journal of the American Medical Association, 187:570, 1964.

Drs. Gilbert W. Mellin and Michael Katzenstein of the College of Physicians and Surgeons, Columbia University, said that statistics on 15,333 deliveries followed from 1946 to 1962 show the defect, called meningocele, to be well within the "range of chance."

• Science News Letter, 85:174 March 14, 1964

## Nature Note

### Fisher

► **ONE OF NATURE'S** most fearless mammals is the fisher, a whirlwind fighter.

With its blazing eyes, bristling fur and shrill screams, the fisher kills the porcupine regularly for food, although unlike others he suffers no ill effects from swallowing the barbed quills.

The fisher, scientifically known as *Martes pennanti*, belongs to the marten family and is one of the rarest fur bearers today. Its fur is blackish brown, and one fisher may measure almost four feet from nose to tail.

Ranging from New England northwest across Canada and then south along the West Coast almost as far as San Francisco, the animal is so rare that there is an average of one every hundred square miles.

If you are a night prowler in the woods, you might see this animal that does not hibernate as he races swiftly up and down trees, swims across rapidly flowing rivers or bounds along the ground in the search for food.

The fisher's mating season begins in April, but the young will not be born until 11 months later. The family usually consists of three or four children which do not reach maturity until they are two years old.

• Science News Letter, 85:174 March 14, 1964

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