

percentage of severe weather," he says.

Other meteorologists, such as Brant Foote of the National Center for Atmospheric Research in Boulder, say the concept of organized systems of storms is "not surprising," but that the researchers "have made the point rightly that weather prediction models don't take these systems into account and they can markedly affect the large-scale wind patterns" and possibly precipitation predictability. □

Disciplinary action for DNA violation

Last spring graduate students in a San Diego laboratory charged that the laboratory's principal investigator, Samuel Ian Kennedy, was doing recombinant DNA experiments not permitted under the guidelines of the National Institutes of Health. The students' suspicions set in motion the department, the Institutional Biosafety Committee and finally NIH (SN: 8/16/80, p. 101). On Sept. 12, 1980, Kennedy resigned from the University of California (SN: 10/4/80, p. 214). This week the special committee assigned to investigate the incident for NIH issued its report. It found Kennedy lacking in compliance with the guidelines on two matters. The first was the use of Semliki Forest virus in recombinant DNA experiments before such experiments were permitted by NIH. The committee decided it would be fruitless to try to determine whether the cloning of the viral genes was intentional or the result of contamination. It was Kennedy's responsibility to ensure the identity of the biological material, the committee says. It concludes, "Dr. Kennedy did not carry out this responsibility."

In addition to the identity of the viral genes, the NIH committee came across another "serious" guideline violation. In a grant application to NIH, Kennedy mentioned recombinant DNA experiments in mouse cells for which he had never received approval by the Institutional Biosafety Committee. The NIH committee concluded that "the seriousness of these infractions would be sufficient to warrant consideration of specific sanctions or remedial action if Dr. Kennedy still were receiving NIH support." Since Kennedy is not currently at a university or doing research, the committee only recommended conditional penalties. If Kennedy applies for NIH support within two years, a copy of the report will be supplied to the grant review committee, and if he should be awarded NIH support in that period he may be made subject to extra requirements for using recombinant DNA techniques. The action is expected to prevent Kennedy from getting NIH funds for two years, if he were to request them. It is the first "disciplinary" action that NIH has taken in its enforcement of the recombinant DNA guidelines. □

Poison from within: Novel insect control

Flipping the switch, prematurely, on insect metabolism could be a new approach to pest control, according to scientists at the Metabolism and Radiation Research Laboratory in Fargo, N.D., who have identified an event in the life of the tobacco hornworm that may be turned against the insect.

Hornworm larvae excrete uric acid as a chalky coating on fecal pellets. But during the last five days before the larvae develop into pupae, they stop excreting uric acid and instead divert it into storage until the adult moth emerges. This change in metabolic strategy appears to be under hormonal control, says James R. Buckner. He investigated the hormonal action by tying off the route from the glands to the site of uric acid storage, the fat body. Buckner finds that the hormone ecdysone triggers the uric acid storage phase. Another hormone, the juvenile hormone, inhibits the metabolic shift. That inhibition may explain why the storage of uric acid does not begin during earlier larval molts when ecdysone is released in the presence of juvenile hormone.



SEA/USDA
Making hornworm larva fight itself.

Buckner plans to look for specific chemicals that can affect the switch and that might be used for pest control. He and colleague John P. Reinecke say that a similar switch mechanism may exist in other insects that undergo metamorphosis. If so, self-poisoning by uric acid may become a general strategy in pest control. □

Noise and high blood pressure

Studies from Eastern Europe and the Soviet Union have suggested that noise can impair the cardiovascular system. Now E. A. Peterson and his colleagues at the University of Miami School of Medicine in Miami (with grant money from the Environmental Protection Agency) have made similar findings. They undertook a refined study of monkeys and found that noise can trigger high blood pressure, a major cause of strokes and heart attacks.

Peterson and his co-workers used four young adult rhesus monkeys that had become accustomed to their lab environment, then passed an open cannula into the abdominal aorta of each animal. Blood pressure waveforms arising from this site were then transduced, conditioned and digitally sampled by a computer. The animals were placed in booths where light, temperature and humidity were maintained within narrow ranges while contaminants were minimized. Two of the monkeys, serving as controls, were kept in these booths during the rest of the study; the other two monkeys were kept there for only nine days, until their blood pressures were stable.

The two experimental animals were then exposed continuously each day for nine months to recorded sounds that many persons who work in noisy industries experience on a daily basis — the sounds of an alarm clock wakeup call, a toilet flushing, running water, gargling, shaving, a radio playing, 20 minutes of the

"Today" show on television, diesel generators, pile drivers and bulldozers (recorded from an actual construction site in the Miami area), televised football, an air conditioner and a few distant motorcycles. Also, before the start of the nine-month noise exposure and right after, the two experimental animals' auditory brainstem responses were measured to see whether long-term noises also changed their hearing ability. The researchers also continued to monitor the experimental animals' blood pressure for a month after the noises stopped.

Compared with control monkeys, the two experimental monkeys experienced an average rise in blood pressure of 27 percent over the study period, Peterson and his team report in the March 27 SCIENCE. What's more, the noise raised the experimental monkeys' blood pressures without impairing their hearing. Further, their blood pressures remained high for the month after noise exposure stopped, indicating that noise can have a long-term effect on blood pressure.

Peterson and his colleagues believe that persons who work in noisy industries might experience long-range elevated blood pressure. Whether people who work in noisy industries suffer more strokes and heart attacks than persons who do not, however, remains to be determined. The EPA is now studying this possibility, David DeJoy, EPA's project director, told SCIENCE NEWS. □