BIOLOGY

Genetic taste: Not all snakes eat slugs

What is one snake's snack is another's scorn. Taste differences among western garter snakes seem to reflect genetic differences, according to Steven J. Arnold of the University of Chicago. "Geographic variation in behaviors that influence resource utilization is a key component in current ecological theory, but the phenomenon has been poorly documented," Arnold says. In the Aug. 12 SCIENCE he documents a feeding preference difference between two geographically separate snake populations.

To avoid the effects of experience, Arnold studies naive, newborn snakes. He offers the animals small pieces of dead slug. Snakes whose mothers were collected along the California coast generally eat the tidbit. Snakes of the same species but of inland origin are more likely to refuse the meal. In contrast, both inland and coastal garter snakes consistently eat toads and tree-frog tadpoles under the experimental conditions. Rejection of the slug persists among slug-refusing inland snakes despite increasing hunger. After 10 trials, the inland snakes fell into two groups, those that always or usually eat slugs and those that never or seldom do. The proportion of slug-eaters in a litter varies considerably, in these experiments from 14 to 82 percent.

The observed taste differences make ecological sense. Slugs are restricted to the coast and western Cascade foothills, and are generally unavailable to inland snake population.

Bacterium copies genes on demand

A basic dogma of modern genetics states that the survival needs of an organism may affect which of its genes are active, but do not change the actual genes that are present. High school texts explain that the giraffe that stretches to reach high leaves does not develop longer-neck genes to pass on to its offspring. Researchers working on bacteria have now discovered a situation where external conditions seem to alter genetic makeup. In the presence of chloramphenicol, bacteria increase the number of copies of the gene that protects them from the drug.

Daniel Perlman and Robert Stickgold working at the University of Wisconsin, exposed intestinal bacteria *Proteus mirabilis* to chloramphenicol. The gene for the enzyme that destroys the drug sits in a small circle of DNA, a plasmid, outside the bacterial chromosome. During the growth lag that follows chloramphenicol addition, an 8-micron segment of the plasmid snaps out and replicates. Strings of about five copies of the region containing the chloramphenicol resistance gene eventually snap back into the plasmid DNA molecules. This selective amplification can provide the decisive survival advantage, the researchers say in the June PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES.

Black and white and dwindling fast

Zebras are likely candidates for extinction in the near future, according to an "emergency review" in the July 28 NEW SCIENTIST. Jane Thornback of the International Union for the Conservation of Nature and Natural Resources and John A. Burton of the Fauna Preservation Society say that hunting, both legal and illegal, is causing drastic losses among these African animals. The population of Grevy's zebra, in Kenya, has fallen from 10,000 in 1971 to about 1,000 today. One subspecies of mountain zebra, Hartmann's zebra, has similarly plummeted from more than 50,000 in 1950 to 2,000 today. Thornback and Burton suggest that the only effective way to enforce a hunting ban would be to restrict international trade in zebra hides and zebra products such as coats, handbags and telephone book covers.

SCIENCE & SOCIETY

China's attempt at a renaissance

A committee of American scientists has recently returned from China, where, they report, a "renaissance" is underway. For over two weeks, a delegation representing the Committee on Scholarly Communication with the People's Republic of China visited five universities and over 25 research institutes. Based on what they saw there, the contingent, headed by National Academy of Sciences President Philip Handler, discerned that a markedly greater emphasis was being given science and technology now than ever before.

The impetus, stimulated by the new leadership of Hua Kuo-feng, is part of an overall commitment by China to modernize agriculture, industry and national defense by the year 2000.

Previously, the Chinese Academy of Sciences was regularly vilified as an elitist organization. Now, the American delegates report, it is being encouraged and supported as a prime mover in the country's modernization effort.

A new Chinese Academy of Social Sciences has been created and incorporates research institutes of economics, linguistics, history, archaeology, geography and philosophy. These disciplines, many of which were sorely ignored and criticized following the Cultural Revolution, were previously just included in the general Chinese Academy of Science.

The major universities, after a period of unsettling, have now begun to accept qualified undergraduates and are planning various programs of postgraduate instruction.

The Americans also observed that China, while still determined to remain largely self-reliant, intends to actively but selectively "import" foreign science. The new leadership makes frequent reference to a Mao Tse-tung quotation: "Our policy is to learn from the strong points of all nations."

How this policy will affect the current rate of scientist exchange between China and the United States remains to be seen. This year there will be a total of six exchanges each way, and the outcome of negotiations for next year may depend critically on the China visit by U.S. Secretary of State Vance later this summer.

Call for U.S. Immunization Commission

In recent years, extensive problems related to immunization have inspired a critical appraisal of the U.S. government's responsibility in this area. The national swine flu innoculation debacle, the alarmingly regressive escalation in the incidence of measles among children and the inadequacy or total absence of vaccination programs in segments of the society are a few examples.

Several national immunization work groups established in November 1976 reported their results to the U.S. Department of Health, Education and Welfare in March 1977. Based on this work, HEW is submitting to Congress very soon proposals for a national policy on immunization.

Now a coalition of consumer organizations and the Pharmaceutical Manufacturers Association has asked HEW to create a National Immunization Commission. It is also anxious that the commission be established before implementation of recommendations made by the work groups.

The coalition believes its opinions especially matter because they represent the normally improbable consensus of "public interest organizations and the manufacturers of pharmaceutical products."

Although HEW agrees in spirit, replies Julius B. Richmond, assistant secretary of Health, it has not decided a best vehicle for the task. And "although some of the proposals put forth by the immunization work groups can and should await resolution of this issue, others clearly cannot." He claims that a variety of imperative immunization activities "must be pursued immediately if we are to adequately protect our children."