

natural history

Even aphids have B.O.

Nobody loves aphids very much, and sometimes they even repel each other. Cynthia J. Kislw and L. J. Edwards of the University of Massachusetts have found that green peach aphids are repelled by droplets secreted from two tubes protruding from the sides of aphids of the same species. When an aphid that had been forced to secrete droplets was placed on a leaf with other aphids, the others left the leaf or moved to the other side. Similar responses were observed in other species, though not all species reacted with equal intensity.

The function of this repellent is unclear, the researchers write in the Jan. 14 *NATURE*. It probably isn't a self-defense mechanism because aphids don't always release the substance when threatened. But a predator attacking one aphid may release repellent and warn the other aphids. The repellent may also keep aphids spaced apart, or it may be a signal by which one aphid, which senses a new leaf on which to feed causes the others to leave the old leaf, the researchers suggest.

How a locust stretches

When a mother locust lays her eggs, she extends the lower part of her abdomen, normally 2.5 centimeters long, into a hole in the ground that is 8 or 9 centimeters deep. Flexible membranes that join the abdomen's rigid segments are unfolded and stretched. But whether the abdomen is inflated like a balloon by an increase in internal air pressure or stretched like a rubber band by the external valves pulling against the sides of the hole is disputed.

In the Jan. 21 *NATURE*, J. F. V. Vincent and Sonya D. E. Wood of the University of Reading, England, report that it is external pull that stretches the abdomen. By piercing one of the membranes with a razor and observing that no blood spurts out, they found that the internal pressure must be the same as external pressure.

Because the abdomen does not snap back to its original length when the locust releases its grip on the sides of the hole, they conclude that the membranes are visco-elastic. The locust can pull a membrane out to a new length, sustain the force for a short time while the membrane adapts, and release it.

Cave insects of Hawaii

The Hawaiian Islands, isolated from other lands by huge stretches of water, lack many of the fauna found in other places and has developed its own peculiar types. Francis G. Howarth of Honolulu's Bernice P. Bishop Museum has found a rich variety of specialized arthropods in lava tubes or caverns on Hawaii.

He reports in the Jan. 21 *SCIENCE* that five insects from four orders—a plant hopper, a water treader, two groups of cricket and a species of water beetle—live in lava tubes of Mauna Loa and Kilauea. These have all become adapted to life in caves, with reduced eyes and elongated antennae. Many of the cave dwellers common in other parts of the world are absent in Hawaii, he explains, so caves were populated by adaptation of native Hawaiian groups.

Because the lava flows in which the insects were found are too young (90 to 20,000 years) for the specialized insects to have evolved in them, he believes they disperse from one lava tube to another.

February 5, 1972

medical sciences

Candy additive found toxic

A food additive called NDGA, which has been used for a decade to increase the storage life of candy and fats, has been found to interfere with respiration in animal cells and whole organs perfused with the additive. The amounts of NDGA tested compared with those used in foods.

The investigators—Chidamdaram Bhuvaneshwaran and Krishnamurti Dakshinamurti of the University of Manitoba, Winnipeg, report their findings in the Jan. 4 *BIOCHEMISTRY*. "NDGA is not a proper substance to use as a food additive, and I recommend that such use be discontinued," Dakshinamurti said in an interview.

Sampling baby teeth for lead

Lead damage to urban ghetto children is more than fiction. A study of 425 ghetto youngsters treated for lead poisoning showed that 22 percent were mentally retarded and 20 percent had recurrent seizures. Clinical detection of dangerous levels of lead in children before it does damage, however, has been difficult. Blood lead levels are transitory, bone tissue samples impractical for large-scale surveys. Then Herbert L. Needleman of The Children's Hospital, Boston, and Orhan C. Tuncay and Irving M. Shapiro of the University of Pennsylvania came up with the idea of using children's baby teeth to estimate the amount of lead in their bodies.

They obtained 69 baby teeth from dental clinics serving the ghetto and 40 baby teeth from suburban dentists. The teeth were ground up, the lead extracted, centrifuged and submitted to a spectrophotometer. The investigators report in the Jan. 14 *NATURE* that tooth lead for ghetto children ranged from 51.1 to 109 parts per million, compared with 11.1 to 14.8 parts per million for suburban children. The wide discrepancy in lead content among the ghetto youngsters, Needleman told *SCIENCE NEWS*, can best be explained by differences in lead consumption.

Now it's 'natural family planning'

One of the less popular and less sure methods of birth control is the rhythm method—abstinence from intercourse during a woman's monthly fertile period. At a conference this week sponsored by the Human Life Foundation and the National Institute of Child Health and Human Development, it became apparent that rhythm has a new name—"natural family planning." Such a name is obviously appealing in view of the current back-to-nature movement (natural foods, natural childbirth, etc.). Yet the conference also pointed up that researchers are slow to give the technique more accuracy.

The calendar and daily-temperature-taking still appear to be the best ways of determining fertility during the monthly cycle. A recently publicized saliva test does not seem to be working out. A glimmer of hope for users of the method resides, though, in a woman's pinpointing fertility by physically sensing, not just by viewing, changes in the mucus discharge emitted throughout the cycle. The days after menstruation are marked by a dryness that gradually changes to a cloudy and sticky mucus. As the mucus becomes slippery, elastic and clear, it marks ovulation. When the mucus becomes cloudy and sticky again it signifies that ovulation has passed.

91