trochemical Co. site in Niagara Falls.

Among other findings by the State Assembly was a July 19, 1978 statement to Army Board of Inquiry investigators by Frank Ventry, a former heavy-equipment operator at the Love Canal dump. He described army personnel arriving in trucks and jeeps that several times unloaded sealed drums of materials to be rolled into the dump. But the army report issued one month later claimed there was no evidence to support such charges.

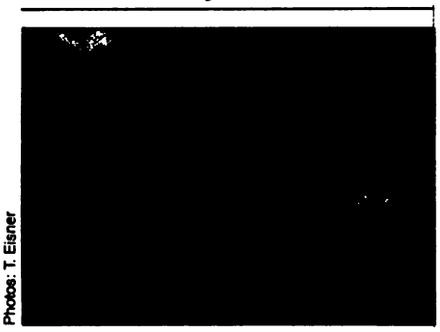
The State Assembly report described several other apparent ambiguities, and its researchers continue to sift through public records for further signs of government involvement.

"Hardcore evidence" proves DOD manufactured toxic chemicals around Love Canal and that the government transferred highly contaminated real estate to private companies after the war, says Andrew Roffe, attorney for the State Assembly. And, he told SCIENCE NEWS, circumstantial evidence, in the form of several eyewitness reports, documents the dumping of those chemicals. "What we want the government to tell us is if they didn't dispose of [those chemicals, as they claim], what did they do with them?" State Assembly hearings set for June 30 will further examine the record of federal involvement about Love Canal. □

Food report: The fat's in the fire

Hold off on the bacon and eggs — the experts can't agree. The National Food and Nutrition Board's recommendations (SN: 5/31/80, p. 343) are being attacked on several fronts. The board's recent report said the evidence that cutting fat and cholesterol intake will reduce heart attack risks is insufficient to make a diet recommendation to the general public. The board chose to discount epidemiological evidence as not proving cause and effect. The American Heart Association and the Departments of Agriculture and Health and Human Services hold with their previous recommendations that people should cut down moderately on fat and cholesterol in the diet. John W. Farquhar, a member of the Nutrition Committee of the AHA, says the available data support lowering fat and cholesterol intake. He says, "... most groups agree it is not necessary to have all the pieces of the puzzle before one could devise coherent action." In addition, members of the Food and Nutrition Board are being challenged on their food industry affiliations. Chairman Alfred E. Harper, for instance, says he gets about 10 percent of his income from "industry consultantships," mainly from the Pillsbury Co. and Kraft, Inc. Another member of the board, Robert E. Olson, is an adviser and speaker for the American Egg Board and the Dairy Council of California. □

Carminic acid as a chemical Judas



Photos: T. Eisner

The Laetilia *caterpillar (left) responds to a forcep "attack" by regurgitating droplets of carminic acid. The winged male and newborn Dactylopius* — Laetilia *prey and provider of carminic acid — "hide" in the white, waxy powder and silken threads produced by the female.*

Carminic acid is a fickle chemical. Found in the blood and muscles of the scale insect *Dactylopius*, the red chemical seems to faithfully protect the insect from most of its predators — until the caterpillar of the moth *Laetilia* chooses to partake of *Dactylopius*. Then, carminic acid not only fails to deter feedings, but, upon ingestion, begins to function as the caterpillar's chemical defense.

Carminic acid's "defensive infidelity" was uncovered by Thomas Eisner and colleagues of Cornell University in Ithaca, N.Y. The compound, an important dye in the textile industry before aniline dyes ($C_6H_5NH_2$ derivatives) were introduced, is a type of quinone — a six-carbon ring doubly bonded to two oxygens. Since other quinones — such as those found in millipeds — are potent feeding deterrents to predators, Eisner and colleagues expected the quinone carminic acid to serve a similar function in *Dactylopius*.

To test their expectations, the Cornell researchers — who report their investigation in the May 30 SCIENCE — devised feeding-preference experiments in which ants were offered a choice between sucrose solutions with and without carminic acid. Allowing the ants to determine whether carminic acid is a feeding deterrent was a "convenient and accurate bioassay," says research colleague Stephen Nowicki: "Ants represent very general predators; they will feed on just about anything they come across."

The results of all feeding tests — including one conducted in darkness to rule out the possibility of color discrimination — were unanimous: Carminic acid proved to be a potent feeding deterrent to ants.

Carminic acid betrays its apparent defensive function in *Dactylopius*, however, in favor of the *Laetilia* caterpillar. While examining *Dactylopius* colonies, Eisner and colleagues found the caterpillars feeding on the scale insects. Moreover, when gently prodded or pinched, the caterpillars emitted droplets of carminic acid at a concentration slightly higher than that in *Dactylopius*. A new series of ant tests indicated that the carminic acid in *Laetilia* also probably serves as a chemical defense.

"*Laetilia* is to be envisioned as an animal which, through evolutionary specialization, has managed to 'crash' through the defensive chemical barrier of its host, while at the same time appropriating the weaponry for protective purposes of its own," Eisner and colleagues report. □

Adoptee study finds alcoholism genetic

While it may still be conceivable that a nagging spouse, a demanding job or meagre finances can drive a person to drink, accumulating research evidence strongly suggests that genetics is the overriding factor in many cases of alcoholism. University of Washington at Seattle scientists have reported that the offspring or siblings of alcoholics appear to react more acutely to alcohol than do other persons (SN: 1/6/79, p. 6).

Now, University of Iowa researchers report that youngsters born to alcoholic parents but reared by adoptive parents develop alcoholism significantly more often than do adoptees of nonalcoholic parents. "These findings suggest the importance of a genetic factor in alcoholism," report psychiatrist Remi J. Cadoret and colleagues Colleen A. Cain and William M. Grove in the ARCHIVES OF GENERAL PSYCHIATRY. The group found, moreover, that "none of the environmental factors — psychiatric or alcohol problems in the adoptive family, or exposure to discontinuous mothering as an infant — predicted adoptee alcoholism."

"If there are environmental effects [contributing to alcoholism], I don't think they've been demonstrated really well," Cadoret told SCIENCE NEWS. "In this sample, there is no evidence that environmental variables interact significantly with biologic variables to potentiate or ameliorate the risks of adoptee alcoholism due to a biologic background."

The research technique was similar to that used by Harvard psychiatrist Seymour Kety, who has reported apparent genetic as well as environmental components in schizophrenia and depression