Transgenic Threat To Monarchs Vastly Exaggerated, Experts Say

By Anne Simon Moffat

Last May, a junior Cornell University assistant professor of entomology, John E. Losey, Ph.D., and his colleagues showed, in a laboratory study, that caterpillars of the monarch butterfly, which thrive on milkweed, did poorly if the milkweed was dusted with pollen from corn that had been genetically changed to produce an insecticidal toxin, Bt. The toxin, named for the Bacillus thuringiensis bacterium that produces it, also discourages feeding by these insects.

Monarch caterpillars, given Hobson’s choice of eating milkweed covered with Bt-encrusted pollen, or nothing at all, died in droves in the Cornell study. Only 56% survived after four days of feeding on the tainted milkweed leaves. Losey and his Ithaca, N.Y. co-workers say:

[W]e found that [caterpillars] of the monarch butterfly (Danaus plexippus), reared on milkweed leaves dusted with pollen from Bt corn, ate less, grew more slowly, and suffered higher mortality than [caterpillars] reared on leaves dusted with untransformed corn pollen, or on leaves without pollen.

Losey’s short report, in Nature (May 20, 1999) — which editors at the London journal told PROBE was lightly refereed — was well publicized by Cornell public relations people. The photogenic character of its subject — the undistinguished caterpillars are transformed into the attractive, orange monarch adults — gained much public attention. It provoked outrage from environmental and consumer groups — as well as, from the opposite viewpoint, Losey’s entomologist colleagues.

One riposte came from a senior Cornell entomologist, Anthony M. Shelton, Ph.D., and an Australian colleague: They dismiss Losey’s report as rumor, and urge the public not be swayed by “laboratory reports that, when looked at with a critical eye, may not have any reality in the field . . . or even in the laboratory.” Stingly, Shelton and his colleague’s rebuttal carries the corny headline “False reports and the ears of man” (Nature Biotechnology, Sept.).

Dying Butterflies Depicted

At a series of Federal Drug Administration-sponsored public hearings on bioengineered foods, held across the country late last year, protesters costumed themselves as languishing butterflies. They demanded that transgenic crops be banned.

But by the last of the three hearings, in Oakland, Cal., on December 13, scientists had organized their own, counter-demonstration. They told the public that the anti-Bt protesters spurn environmentally-sound science. The Cornell publicity for Losey also triggered a defensive stance from the agricultural biotechnology industry, concerned that their huge investment in transgenic crops — in 1999, worldwide, more than half of all soybeans and about 30% of corn were transgenic — was in jeopardy.

The brief Nature report was, “Word for word, one of the highest impact papers in the modern scientific literature,” says agricultural economist Charles Bernbrook, Ph.D., a Sandpoint, Idaho-based independent consultant to consumer and environmental groups and a former senior staffer at the Board on Agriculture of the National Academy of Sciences, in Washington, D.C. Even so, Bernbrook adds, “The report had nothing unexpected to those who have studied Bt and Lepidoptera,” the insect group to which monarchs belong.

Science-Bashing Feared

The scientific community, however, is concerned that this huge outcry is unwarranted, and is fueling anti-science public opinion.

“The monarch story is a non-starter: It revealed nothing,” says plant scientist Ralph Hardy, Ph.D., president of the continued on following page
Follow-up
Sarin Use in Vietnam
Reported at the Time

TV producer April Oliver was fired by CNN for alleged flaws in her “Tailwind” cablecast on U.S. use of the nerve gas sarin during the Vietnam War (PROBE, Oct. '98). She has been spending time scrolling through newspaper microfilms in preparation for trials in the tangled lawsuits filed in the program’s wake. Oliver says she’s been looking in the old newspapers for contemporary reports of nerve gas and other chemical weapons reports in Vietnam. She’s found a few:

• On August 14, 1968, the New York Times (NYT) ran a short story from Geneva, under the headline “Soviet Assails U.S. on War Chemicals.” The text says in part:
  “The Soviet Union accused the U.S. today of having violated international law by using chemicals in the war in Vietnam.” The U.S. delegate at the Geneva disarmament conference replied that the chemicals were defoliants — popularly called Agent Orange — not anti-personnel gases like sarin.

• Facts on File, in an undated 1968 report, said that the North Vietnamese news agency reported on April 30 that the Pathet Lao, the communist ruler of Laos, had protested to the Geneva Conference that U.S. planes had dropped toxic chemicals over three Laotian villages, killing 200 Laotian civilians.

• The NYT reported on May 8, 1970: “Lethal Nerve Gas in Vietnam Charged.” Under this headline, in a story datelined Boston, a former first lieutenant in the U.S. Army said that while in Vietnam he had seen the lethal nerve gas sarin, marked with the code name GB — which is correct — in canisters at the U.S. airbase at Bien Hoa. The veteran, Larry Rottman, of Watertown, Mass., said he had never seen the gas being used, but had heard reports that it was. He made his statements at a news conference sponsored by a private group that was investigating alleged U.S. war crimes in Southeast Asia.

  The gas attack alleged in Oliver’s “Tailwind” program took place in September, 1970.

  In the wake of “Tailwind,” the U.S. government has denied that GB — sarin — was ever deployed in Southeast Asia.

  None of these accounts proves sarin was used. But they certainly do indicate that the poison gas issue has been hanging around for quite a while.
  April Oliver didn’t invent it!

# # #

No Action on Guns: The National Rifle Association, and the viewpoint it represents, continue to control Congress. It adjourned its first session late last year without passing any gun control measure — despite strong public support for new laws. Even the nation’s chiefs of police favor stronger gun laws; it is, after all, their men and women who now face criminals armed with infantry weapons.
continued from previous page

Science Foundation.

At a meeting on November 2 in Rosemont, Ill., near Chicago, sponsored by the industry-supported Agricultural Biotechnology Stewardship Working Group, early results of this research were presented. Many of the not-yet-peer-reviewed papers suggested that Bt corn was no significant threat to Lepidoptera in nature.

One reason is that corn pollen is heavy, travels little, and rarely moves more than 10 feet beyond cornfields. This means that the milkweed-loving monarchs are unlikely to come across much corn pollen, genetically manipulated or not. Milkweeds that do sprout up in cornfields often are treated by farmers as invasive weeds — and killed with herbicides. What is more, since Bt discourages feeding, if given a choice monarchs reject Bt plants and move on to others.

Swallowtails Were Unaffected

A study by field crops entomologist Chris Di Fonzo, Ph.D., of Michigan State University, in East Lansing, found that, when given a choice, “Tiger swallowtail larvae appear to avoid feeding on pollen-dusted leaves, regardless of Bt content of the pollen.” In another study by University of Illinois, Urbana, entomologists May Berenbaum, Ph.D. and Arthur Zangerl, Ph.D. — paid for with Illinois State funds — showed that survival of black swallowtail caterpillars was not affected by proximity to transgenic cornfields, at distances ranging from a foot and a half to 22 feet.

“No mortality in the field could be attributed to pollen,” says Berenbaum.

Also, a study on monarchs in the lab by entomologist Richard Hellmich, Ph.D., of Iowa State University and his colleagues, found that monarchs were adversely affected only at very high levels of pollen — densities that are rare in the field.

Berenbaum says field studies may differ from Losey’s lab work for several reasons.

* Corn pollen may emerge when the caterpillars aren’t feeding.
* Bt pollen may not cling to the milkweed leaves.
* Bt is a well-known feeding deterrent and monarchs avoid contaminated leaves.
* Bt is vulnerable to sunlight, and may be deactivated before caterpillars get to it.

Worst Case Assumed

Not all current research, however, discounts the impact of Bt on monarchs in fields. Entomologist Orley “Chip” Taylor, Ph.D., of the University of Kansas, at Lawrence, carried out a modeling study on the potential loss of monarchs due to toxic-
CV Discloses a Deadly Phoney

We reported briefly last month on the criminal case of Laurence Perry, an alternative medicine specialist who, police told us, identifies himself as a naturopath on documents they found in his office. Perry also identifies himself as a doctor of homeopathy and eclectic medicine, M.D.E., a doctor of nutritional medicine, D.N.M., a Nutrimeical doctor, N.M.D., and a Fellow of the American Nutritional Medical Association, ANMA — all of which are phoney operations: diploma mills that sell professional degrees and certificates by mail.

These credentials, in other words, are just so much B.S. Perry came to media attention in November, when he was arrested in Asheville, N.C., and charged with manslaughter. He had persuaded the mother of an eight-year-old diabetic girl to stop the child’s insulin — and treat her with herbs instead.

Child Dies

The child, Helena Kolitwenzew, died shortly thereafter, according to the Buncombe County, N.C., sheriff's office which arrested Perry and jailed him.

On December 6, Perry was indicted for involuntary manslaughter and practicing medicine without a license, according to the district attorney's office. Perry has posted bond.

His lawyer, Locke Bell, of Gasconia, N.C., said by phone, “I think he should never have been charged. The evidence will reveal that he did nothing wrong. “We’re all saddened by the death of the little girl. But we feel the death was caused by other people, rather than Laurence Perry.”

PROBE has obtained a copy of Perry’s Curriculum Vitae (CV) through the year 1987, including copies of his phoney degrees. The CV provides insight on a career path that led him through several low-level legitimate health and medical jobs, through a time in the mid-’80s when he apparently changed course. He turned his career toward “nutritional medicine” and “private research” in what he calls “bioelectromagnetics,” and also toward public — but unlicensed — alternativist practices.

His objective, Perry says in his CV is to practice preventive health care from the essential elements as I was taught, using proper diet, nutrition, and herbology and proper living habits. To establish through laboratory procedures the use of iridology [an alternativist diagnostic method] the correct analysis to bring about a homestasis [sic] condition with my patients: to continue bioelectromagnetic research, or “Frequency Medicine” as I have termed it, to enable a more stable individual analysis to be carried out for each patient. To teach these new and rediscovered relations to other practitioners in related fields. And, to learn — always, from the various spectrums that exist in the Healing Arts.

Perry was born in Chicago in 1953, and soon moved south, where he finished high school and has since lived and worked. He attended colleges in Alabama and South Carolina, but did not graduate.

He worked as an operating room technician at an Air Force Hospital in Alabama, and then was an emergency medical technician (EMT), and cardiopulmonary resuscitation (CPR) instructor at hospitals in Decatur, Ala. Then he was a lab tech in Spartanburg, S.C., where he began his alternativist career, starting as a self-employed nutritional consultant.

He claims he spent the next two years in an internship (albeit he had neither a college degree nor a medical or scientific one) that was offered by the John F. Kennedy College of Nutrimeical Arts & Sciences, in Gary, Indiana.

Degree Came First

Oddly, his CV says he obtained his doctoral degree from this school in 1984, the year he started his training, not in 1986, the year he claims to have completed it.

A scant year later, Perry received his doctor of eclectic and homeopathic medical degree, M.D.E., from the British West Indies Medical College. Its administrative offices, it turns out, also were in Gary.

According to the Indiana commissioner of proprietary education, Philip Roush, in Indianapolis, “There was no accreditation of these schools,” although their sponsor, the American Naturopathic Medical Association (ANMA) was incorporated in Indiana, before it changed its name and moved to Colorado and, more recently, to Minnesota. Referring to the Kennedy

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Feds Jolt the Naturopaths

The U.S. Department of Education (DE) is de-legitimizing naturopathic professional training.

Until recently, naturopaths - or, more accurately, the discrete minority of these practitioners who seek governmental and mainstream professional acceptance - have had a benefit that no other alt/med group has attained: Through their Council on Naturopathic Medical Education (CNME), they are recognized by the government — the DE — for the purpose of accrediting naturopathic four-year professional training schools.

This federal educational accreditation is important because it legitimizes trainees' educational credentials, and provides the schools a wide range of governmental benefits, including the ability to receive federal research grants. Accreditation allows students to apply for federal loans, and particularly lets the schools participate in other federal programs available under Title 4 of the Higher Education Act.

Failures Cited

The DE staff and the department's national advisory committee on institutional quality and integrity have recommended to the secretary of DE, Richard W. Riley, that the naturopathic CNME be stripped of its accrediting authority. This recommendation is based on a long list of inconsistencies, derelictions, and failures, including toleration of misconduct, "possibly even fraud and abuse." at one of the three U.S. schools it accredits: the Southwest College of Naturopathic Medicine and Health Sciences, in Tempe, Ariz.

The DE, in explaining its recommendation to "deny recognition" to the naturopathic CNME, cites as its "principal reason" the group's "inability to demonstrate that its actions as an institutional accreditor comply with [its own] Criteria for Recognition . . . . These [actions] can be summarized as a fairly pervasive noncompliance with the criteria requiring adherence to and enforcement of [the CNME's] published standards, policies, and procedures."

Southwest's status is particularly important to the naturopathic CNME, a DE official, Karen Kershenstein, said by phone from Washington. Reason: Southwest is the CNME's only link to the federal government for recognition purposes.

Is This a Catch 22?

What this means, she explained, is that the DE can confer its recognition on the CNME only if it accredits at least one school that meets the CNME's criteria for accreditation for the purpose of participating in a federal program, such as student loans. Lacking such a school to accredit, the accrediting agency — the CNME — loses its federal recognition. For the CNME, Southwest is the only such school. Conversely, of course, if the CNME loses its federal recognition, then Southwest loses its accreditation.

CNME Executive Director Robert Lofti, in Eugene, Ore., told PROBE that Southwest's problems have been fixed — and it's now stronger than ever.

The CNME only accredits two other naturopathic schools in the U.S., one in Seattle, the other in Portland, Ore.

The naturopathic CNME was first accorded federal recognition, without opposition, in the mid-'80s. Subsequently, there has been growing opposition to it — not, as one might expect, from medical and quack-busting sources — but, rather, from among the majority of naturopaths who did not attend a four-year school; many of them oppose any accreditation or licensing. continued on page 8

CV...

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School is News to State

The B.W.I. Medical School, "is totally new to us," Roush added. This school still has a listed phone number in Gary, Ind., which rang and was not answered when PROBE attempted to reach it.

There is no B.W.I. Medical School listed in the standard international directory of medical schools, according to a New York University medical librarian, who checked it at PROBE's request.

Perry is a former office partner of Gregory E. Caplinger, a naturopath, who was arrested several times in the '80s for practicing medicine in North Carolina without a license. Caplinger recently pled guilty to six counts of wire fraud in connection with a scheme to sell stock in a company he formed to market an alleged cure for AIDS and cancer. Caplinger is now awaiting sentencing.

Bottom line: The professional schools listed on naturopath Perry's C.V. have no educational standing. He is not trained or licensed to practice medicine — or much of anything else. •

dereliction cited

"Department of Education (DE) staff is concerned about whether the [Council on Naturopathic Medical Education] complies in practice with its [own] stated policies. In a telephone conversation with [DE] staff over the past summer, the Executive Director [Robert Lofti] indicated . . . that he had learned that there were very serious problems, possibly even fraud and abuse, at [Southwest College], and promised to follow up with a letter describing the situation in detail. No information about that suspected fraud was ever forwarded to the Department."

- U.S. Dept. of Education staff analysis of the petition for continued recognition submitted by the Council on Naturopathic Medical Education, December 6-8, 1999.
Vitamin that Prevents Terrible

One vitamin — and only one — has been proven in recent decades to significantly reduce the risk of severe suffering and death. Guess what: Most Americans who could benefit, along with their families, aren’t taking it!

Here, surely, in our vitamaniac era is an example — a paradigm — that illuminates the vast chasm between those who use vitamins for specific, scientifically valid health reasons, and the far larger number who dose themselves, often expensively, according to unproven self-help and alternativist agendas.

The vitamin in question, of course, is natural folic acid and its synthetic form, folate. They are a B vitamin.

Neural Tube Stays Open

The diseases they are known to prevent, half to three-fourths of the time or more, are the birth defect spina bifida, and related monstrous deformities such as anencephaly, where the baby is born without a brain (and in the latter case, fortunately, soon dies). These various defects all are failures of the neural tube, the tissues which enclose the spinal column, to close naturally — an event that normally occurs very early in gestation, at about 28 days. Most women still are unaware they are pregnant.

Spina bifida and anencephaly occur in one of every 1,000 pregnancies in the U.S., or about 4,000 pregnancies annually. They are far commoner in poorly nourished people, particularly in Northern China and in Mexico, where folic acid intake is particularly low.

These are horrendous diseases, both for the sufferers and for their families:

"Infants with spina bifida who survive are likely to have severe, life-long deformities, and are at risk for psychosocial maladjustment," according to a review article that was published, along with a research report and a letter to the editor on these defects, in the November 11 New England Journal of Medicine (NEJM). "Medical problems may often result from the neurologic deficit or from its repair." These include paralysis, hydrocephalus (water on the brain), deformations of the limbs and spine, as well as bladder, bowel and sexual dysfunction, and learning disabilities.

Costs Are High

"In addition to the emotional cost of spina bifida," geneticist Lorenzo D. Botto, M.D., of the U.S. Centers for Disease Control (CDC), in Atlanta, and his colleagues report in the NEJM, "the estimated monetary cost is staggering": almost a third of a million dollars for each surviving infant; a half billion annually in the U.S., in toto.

These costs are rising: Medical and surgical treatments, while never curative, nevertheless now allow the majority of spina bifida babies born in the U.S. to survive for a while, even into adulthood.

Half or more of these cases can be prevented. But most are not.

The preventive is 400 micrograms (mcg.) or more of folic acid or folate, daily, in the first month of pregnancy. Since most women don’t know they are pregnant this soon, and 50% of pregnancies in the U.S. are unplanned, the widely endorsed public health recommendation is that all women of childbearing age (meaning roughly 15 to 35 years), consume at least 400 mcg. of this vitamin daily; studies show that higher doses, up to 800 mcg., may be even more effective, and allow three-quarters or more of babies at risk to be born normal.

Chinese Women Studied

The power of this preventive therapy is described in the NEJM by a Chinese and American collaborative research group headed by CDC geneticist Robert J. Berry, M.D., and epidemiologist Zhu Li, M.D., of the Beijing Medical University. In studies involving a quarter million Chinese women, they report an 85% reduction of risk in Northern China, where spina bifida is common, and a 41% reduction in Southern China, where there is better nutrition and hence less risk of the deforming disease.

How folic acid prevents spina bifida still is not known. Back in the U.S., the good news about folic acid and spina bifida provokes very little media interest, and very little compliance with the recommendation for folic acid supplements: The average American woman consumes only 25% of the recommended preventive daily dose of folic acid, according to former CDC official Godfrey P. Oakley, Jr., M.D., a public health specialist and pediatrician at nearby Emory University. He charges, in a letter in the Nov. 11 NEJM:

"Had there been an effective national program" to prevent spina bifida in the U.S., "20,000 pregnancies ... between 1992 and 1999 would not have been affected — more than the number of pregnancies affected by thalidomide-induced birth defects in Europe 40 years ago."

Failure is Costly

This public health failure, Oakley says, is a "continuing public health emergency." He contrasts the 64 children who...
Birth Defects Is Being Ignored

have lost their lives due to front-seat air bags in this period with the 20,000 “unnecessarily affected” pregnancies due to inadequate folic acid. Getting soon-to-be-pregnant women to take folic acid supplements is an opportunity to prevent 300 times as many affected infants as the number killed by front-seat air bags.

What Oakley does not say, is that the front-seat air bags debate is fueled by forces in the auto industry — which fought air bags of all types for decades because of the cost they add to car production. By contrast, the doctors and other health professionals who care for spina bifida babies, once they are born, strongly support the preventive measures that would relieve them of this often heart-breaking job.

The problem of how to get young women to consume the requisite amount of folic acid has been battered around unsuccessfully for almost a decade now: Only one-third of women of child-bearing age take supplements containing 400 mcg. or more of folic acid, according to a recent CDC report.

Foods Are Fortified

Currently, wheat flour sold in the U.S. is fortified with folate, and some breakfast cereals are fortified with up to 400 mcg. per serving. The problem, CDC’s Botto says, is that current supplements, on average, add only one-fourth the recommended amount to women’s daily diets.

The nutrition and “natural” vitamin crowd have caused another problem: They pointed out, rightly, that folic acid, the natural form of folate, can be obtained through the diet, by consuming increased amounts of liver, leafy vegetables such as broccoli, fruits, yeast, and nuts. But it takes a whole lot of liver or leaves to provide an additional 400 mcg. of folate.

Synthetic Vitamin Is Better

Botto and his co-workers say that the efficacy of this increased dietary consumption of the vitamin in reducing spina bifida and related neural tube defects has not been proven — while the efficacy of synthetic supplements has. What is more, naturally occurring folic acid is less readily absorbed into the body than is the synthetic folate in supplements. All of this means that eating more leafy greens, etc., is a much less effective method than supplements to prevent these birth defects.

Higher levels of fortification in foods would be the cheapest and easiest way to raise American women’s folate levels, Botto and his colleagues say. Increased use of supplements — in daily folate or multi-vitamin supplements — will require a major behavioral change for most women, they add. So would, of course, the thus-far lagging effort to get everyone to eat five or more servings of fresh fruit and vegetables daily.

Ex-CDC official Oakley, who tasked himself with enumerating the political reasons for the folate failure — which current CDC’ers aren’t allowed to do — writes:

“The current administration [in Washington] both permitted the inadequate fortification regulations to be formulated, and failed to ask Congress to appropriate a single penny for CDC to build an effective supplementation program.”

Will Folate Lead to Other Supplements?

Dr. Godfrey, in Atlanta, does not think so. But a colleague is sure that it will.

This colleague is internist Victor Herbert, M.D., of the Bronx VA Medical Center, in New York.

Folate is indistinguishable from another B vitamin, B12, in standard blood tests. This means, Herbert explains, that high serum folate levels can mask B12 deficiencies — and low B12 leads to the dangerous condition called pernicious anemia: It is rare, but it can be fatal.

Herbert says half of Americans over age 50 have low or deficient B12 levels. Black women of child-bearing age also are highly susceptible to it. So, as Herbert explains in a paper prepared for a Department of Health and Human Services (HHS) conference “Partnership for Health in the New Millennium,” that starts in Washington on January 24, all Americans over age 50 should take B12 supplements. He says that the Food and Drug Administration and the HHS Assistant Secretary for Health, David Satcher, M.D., agree.

How do we do it? Add it to flour as a required fortification for flour and other foodstuffs, Herbert says.
Naturopaths...

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ing of naturopaths. They say they don’t perform surgery or prescribe drugs, and hence are not doctors. They are, rather, healers, who use herbs and other natural materials to safeguard clients’ health (PROBE, Dec.).

Naturopaths vs. Naturopaths

The DE’s long report and recommendation to Sec. Riley notes that these naturopaths have provided DE with information detrimental to the CNME. Through an opposition group called the Coalition for Natural Health, they have hired a well-known Washington law and lobbying firm to discredit the CNME, Loftt charges.

The DE says its de-certification proposal to Sec. Riley is based on the CNME’s technical and procedural failures, not on an opposition to naturopathy or its schools:

“The staff wishes to make clear that its recommendation to deny recognition is not in any way based on any philosophical differences within the profession as to what constitutes naturopathic medicine, whether or not the profession should be licensed, or what the appropriate methodology for providing naturopathic medical education should be.”

The CNME has a legal right to appeal, and executive director Loftt told PROBE that it intends to. He already has dispatched a letter to Riley, saying “We sincerely believe continued recognition is warranted and in the best interests of ensuring quality and integrity in naturopathic medical education, and in protecting the public’s health and safety.”

Riley’s decision is anticipated early in the spring.

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