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SPECIAL REPORT | A KILLER IN OUR FOOD

The deadly germ spreads to Michigan, but its source is still unknown

THE HUNT BEGINS



GABRIEL B. TAIT/Detroit Free Press

As the outbreak spread across several states, the Centers for Disease Control and Prevention in Atlanta had to find the link that would pinpoint the source of the bacteria. At the microscope is Lewis Mann Graves, a microbiologist with the CDC who worked on the case.

Second of five parts

By ALISON YOUNG,
JANET L. FIX AND JEFF TAYLOR
FREE PRESS STAFF WRITERS

SUNDAY, NOV. 15, 1998:
Hills & Dales Hospital,
Cass City, Mich.

In their 57 years together, Dottie Eberlein had never seen her husband this sick. Art Eberlein had always been so vibrant, with a sparkle of mischief in his blue eyes. Even at age 80, the retired high school band teacher had stayed active.

He was a popular figure in his hometown of Sebawaing, a one-stoplight village on the shore of Saginaw Bay, where he directed a 38-piece community band that was a highlight of local holiday festivals.

But now he lay still in a hospital bed, an intravenous line sunk in one arm, his wiry, 125-pound body aching and spent. His doctor was still searching for a diagnosis, but suspected food poisoning.

What could have attacked so quickly, with such force? The

previous day, Eberlein had eaten a turkey sandwich from a box lunch served at a senior-day event at Delta College in Bay City.

Less than a day later he was suffering miserably with severe stomach cramps and diarrhea. He was dehydrated, in awful shape and in an even worse mood. He had an important engagement to prepare for, a winter holiday concert he had directed without fail for 13 years.

From his bed, Eberlein could see the sun setting beyond the window. He knew that Dottie, 77, would be nervous about driving 20 miles home in the dark.

"You go on home," he told her.

Reluctantly, she finally did, hoping that nothing terrible would happen to him while she was away from his side.

A few hours after she left, Art spiraled into a fight for life. His blood pressure plummeted to 60/40, perilously low. His heart raced and he labored to breathe. He was on the verge of slipping into a coma, or worse.

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ERIC SEALS/Detroit Free Press

Dottie Eberlein holds on tight to husband Art, who nearly became the listeriosis outbreak's first fatality in Michigan.

INSIDE

More than a year ago, the Clinton administration announced completion of an electronic net to spot and stop outbreaks. But the net is far from complete. Also: Where to turn if you suspect something rotten in the state of your food. **PAGES 8A-9A**

DAY 1:
A Michigan meat plant struggles with sanitation. Listeriosis outbreak begins in Tennessee, Ohio, New York and Connecticut.

TODAY:
CDC zeroes in on hot dogs and lunch meat as source of deadly bug; victims are stricken in Mt. Clemens, Sebawaing, Kalamazoo, East Lansing.

WEDNESDAY:
Crisis in the boardroom: Sara Lee wrestles with confusion over its role in the outbreak and ponders the massive cost of a recall.

THURSDAY:
Sara Lee starts damage control while the USDA still sits on the fence. A consumer hot line leaves callers cold. Enter the lawyers.

FRIDAY:
What has Bil Mar taught us? Is the danger over? Far from it. Says one expert: "You bet it can happen again, and it probably will."

Read the special report on-line at www.freep.com/outbreak

PROTECTING YOURSELF

People especially vulnerable to illness caused by *Listeria monocytogenes* are pregnant women, young children and elderly people, and those with weakened immune systems.

To reduce the risk of illness, the USDA recommends that at-risk consumers and the people who prepare their food:

> **Reheat until steaming:** Hot dogs, lunch meats, deli meats, cold cuts, fermented and dry sausage, and ready-to-eat meat and poultry products. If you cannot reheat these foods, do not eat them.

> **Hands, utensils:** Wash hands with hot, soapy water — for at least 20 seconds — after handling these types of ready-to-eat foods. Also wash cutting boards, dishes and other utensils.

> **Don't eat:** Soft cheeses such as feta, Brie, Camembert, blue-veined varieties, or Mexican-style cheese. At-risk consumers can eat hard cheeses, processed cheeses, cream cheese, cottage cheese and yogurt.

> **Don't drink:** Raw milk, unpasteurized milk or foods made from it, such as unpasteurized cheese.

> **Read the labels:** Observe all expiration dates for perishable items.

Source: USDA

OUTBREAK | The hunt for killer germ begins

From Page 1A

Watching over Eberlein was his long-time family physician, Dr. Surendra Raythatha. Locals simply called him Dr. Ray.

Dr. Ray had been treating the Eberleins since he began his practice in 1980. A graduate of Wayne State University's medical school, as well as a medical school in India, Raythatha had grown fond of the small towns and friendly people in the Thumb during a rural residency in 1978.

About 10 years ago, he had discovered some precancerous cells in Art Eberlein's esophagus, necessitating removal of the esophagus to prevent future disease. Ever since, Art Eberlein had been healthy; and over the years the couple had grown to trust and admire Dr. Ray for the personal attention he had always given them.

Now, Eberlein needed that attention more than ever. He was going into septic shock because of the bacteria growing in his body. Unchecked, the infection would kill him.

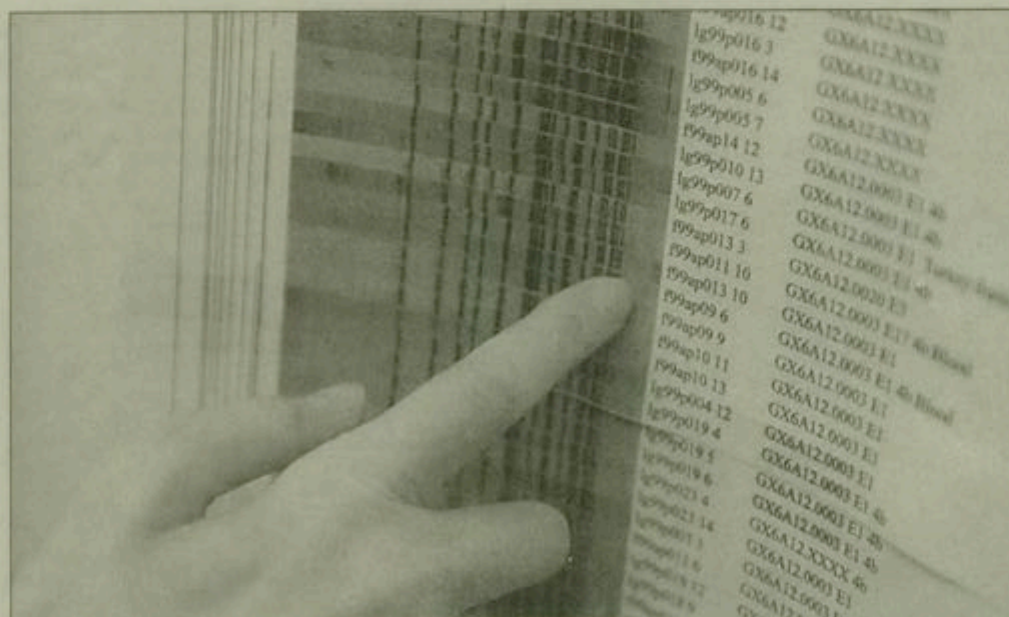
Raythatha already suspected some type of food poisoning although he had no lab results at the time.

"We were giving him massive amounts of IV fluids," a half-liter every hour, plus a dopamine drip to maintain his blood pressure, Raythatha recalled. "He was a very, very sick man. I was in there with him literally every half-hour the entire night. He was very ill."

It would be another day before Eberlein's blood tests came back. The tests revealed a rare food-borne bug that his doctor knew about but had never treated before: *Listeria monocytogenes*.



Art and Dottie Eberlein of Sebawaing look through articles she collected on listeria. His terrible illness mystified doctors at first.



A CDC microbiologist traces variations in listeria strains. The one responsible for the Bil Mar outbreak was the "E-strain." Identifying it was one thing, tracking it another.

HOW THIS SERIES WAS DONE

After a deadly disease outbreak was traced to a Michigan meat plant last winter, the Free Press set out to learn what went wrong — and explore the painful toll paid by scores of victims and by the company responsible.

Reporters Alison Young, Jeff Taylor and Janet Fix spent eight months investigating the outbreak linked to Bil Mar Foods in western Michigan.

The reporters crisscrossed the country, interviewing victims and surviving family members, federal and state health officials, company executives, former Bil Mar employees, scientists and others.

Senior U.S. Department of Agriculture officials refused to be interviewed about their handling of the Bil Mar outbreak, citing an ongoing federal criminal investigation of the plant.

Top executives at Sara Lee Corp., which owns Bil Mar, granted the only interview they have given about the outbreak.

But they refused to allow reporters inside the plant.

The Free Press team reviewed nearly 10,000 pages of documents, many obtained through Freedom of Information Act requests. The records included federal meat inspection reports from Bil Mar, along with other records from the USDA and Centers for Disease Control and Prevention. While the USDA has released some documents, it still has not fulfilled several requests that have been pending for months.

Other information sources included a federal database of citations at U.S. meat plants, court and company records, e-mail traffic between federal and state health officers, and state and county health records.

Finding victims was difficult. Government health officials would not disclose their names. In many cases, the people themselves had not even been told they were among the confirmed outbreak victims.

Through extensive reporting, the Free Press was able to identify some victims.

In one case, the paper sued the Michigan Department of Community Health to obtain the death certificate of the lone person who died in the state from the outbreak. The judge ordered its release.

Other Free Press contributors to the series include: project editor Tom Walsh; copy editors Meinart Lagies and Jim Rogers; photographers Eric Seals and Gabriel B. Tait; designer Dave Dombrowski; picture editor Caroline Couig; and Gentry J. Slets and Mark Thompson-Kolar of graphics.

TUESDAY, NOV. 24: Michigan Health Department, Lansing

The outbreak was spreading. But up to now, word still hadn't reached health officials in most states, including Michigan.

Although experts at the U.S. Centers for Disease Control and Prevention had concluded 12 days earlier that an outbreak appeared to be emerging, they had waited for further evidence before sending out a nationwide alert.

In a laboratory at the Michigan Department of Community Health, a fax machine churned out the notice. It warned health departments across the country to be on the lookout for illnesses caused by *Listeria monocytogenes*.

The fax explained that there had been a sharp increase in listeriosis cases in New York, Ohio, Connecticut and Tennessee.

Michigan health officials checked their records: Only two listeriosis cases had been reported to them in recent weeks, one from October and the other from November. That didn't seem out of the ordinary for a state that annually sees about two dozen cases.

Art Eberlein was one case. The other, dating to early October, involved a young woman enrolled at Western Michigan University in Kalamazoo.

The woman at first just had flu-like symptoms. The next day her roommate found her delirious in their dorm room, according to Dr. Rick Tooker, Kalamazoo County's chief medical officer. She was rushed to the emergency room at Bronson Hospital.

There, doctors discovered she had meningitis, a dangerous swelling of the lining of the brain and spinal cord that can cause coma and death. A culture of fluid taken during a spinal tap revealed that the listeria bacterium was causing the meningitis.

Kalamazoo County health officials began the routine follow-up, quizzing the student about what foods or beverages she consumed.

"Every day, or nearly every day, she'd have a deli turkey sandwich," Tooker recalled in a recent interview.

When Tooker's office first investigated, the significance of the woman's lunch routine wasn't obvious. Later it would become crystal clear. Sara Lee Corp. sponsored the deli stands in dorms across campus, and the meat she had eaten came from Sara Lee's Bil Mar Foods plant, in nearby Borculo.

The woman eventually recovered, Tooker said. She was never publicly identified.

As the state health department reviewed the two cases, there were no obvious links. But following the CDC's instruction, they rounded up lab samples from the two patients and shipped them to Cornell University in New York for genetic fingerprinting, a way of identifying each bacterium's unique structure.

Michigan health officials could have run the tests; they consider themselves pioneers in the technology. But because of cost concerns, the department had a policy of only doing such tests after an outbreak had already been identified in the state.

While the state waited for results from Cornell, the toll of victims was growing in Michigan.

One woman was already dead.

WEDNESDAY, NOV. 25: Clinton Grove Cemetery, Mt. Clemens

On the day before Thanksgiving, Gloria Andrzejewski's family buried her and said their final good-byes.

She was just 56. An active member of Zion United Church of Christ in Mt. Clemens, where she had served as secretary for 13 years, Andrzejewski was a woman of strong faith. Before her death, the Clinton Township woman had endured a 15-year struggle against multiple myeloma, which causes bone marrow tumors. The condition had weakened her immune system.

And that had made her vulnerable to infections.

So she was no match for a bacterium like *Listeria monocytogenes*.

Andrzejewski died on Nov. 22 at Harper Hospital in Detroit.

Her family and her best friend declined to talk about what happened. Their grief is still too strong.

They didn't learn she had been infected by the listeria bacteria until test results came back after her death.

And they had no idea her death had been linked through genetic fingerprinting to a nationwide outbreak until contacted by the Free Press this summer.

THURSDAY, NOV. 26: A retirement complex in East Lansing

The day after Andrzejewski's funeral, George O'Brian began his own fight against death. It was Thanksgiving Day.

Up to then, O'Brian had enjoyed good health, especially for a man of 94. He was still independent, able to care for himself and get around on his own with the help of a walker. And he could still see and hear well enough to enjoy sports on radio and television, especially broadcasts of his beloved Michigan State Spartans and Detroit Tigers.

After watching football throughout the day, O'Brian began to feel ill. By bedtime, he couldn't get up out of his living room chair. He had a fever of 103 degrees but refused to go to the hospital.

The next morning he was still suffering. That was it. His wife, Mareta, insisted he go to the hospital. At Ingham Regional Medical Center, doctors began treating him with antibiotics. The diagnosis didn't come until three days later: listeriosis.

O'Brian was in agony. Stomach cramps wracked his body. His belly was bloated. His body burned with fever.

O'Brian loved turkey club sandwiches. His wife recalled that she usually bought the Sara Lee brand. Genetic fingerprinting would later confirm that he had been infected by the strain of listeria traced to the Bil Mar outbreak.

After weeks in hospitals and a nursing home, O'Brian finally returned home in mid-February. But he never really recovered.

The ravages of the disease stripped him of his independence, leaving him unable to walk or care for himself without assistance. And the illness nearly stole his will to live.

He began to tell his wife of 48 years, "I wish I had died, because the pain is so terrific."

FRIDAY, NOV. 27: Lorain County Health Department, Ohio

Dr. Eileen Dunne had been on a long chase with no reward.

She was new at this kind of work, but she was also tireless and smart. She had joined the U.S. Centers for Disease Control and Prevention just five months earlier as an epidemic intelligence officer.

She worked with Dr. Paul Mead, the CDC epidemiologist in charge of the nationwide listeria outbreak investigation. He had dispatched her to Ohio to look into several listeriosis cases reported there.

Even though Dunne, 33, was a CDC

newcomer, she had arrived on the job with substantial credentials. She had nine years of medical training, including an MD in public health from Tulane Medical School, a residency in internal medicine at Oregon Health Sciences University and specialty training in infectious diseases at the University of Colorado.

Until she began working with Mead on the listeria cases, Dunne had never before investigated a multi-state bacterial outbreak. Indeed, this was only her second epidemiological field study.

Dunne initially focused on three cases reported at Anchor Lodge, an upscale nursing home complex in the Cleveland suburb of Lorain, on Lake Erie. Those turned out to be false leads.

The genetic fingerprint of the listeria that sickened the nursing facility's residents didn't match the fingerprint of the outbreak strain. So she shifted direction. Working with the Lorain County Health Department, Dunne decided to go door-to-door and use the phone to question other listeriosis victims who had been interviewed previously, in hope of finding something that was overlooked the first time.

Her persistence paid off with a find that would turn out to be one of the crucial breaks in the investigation.

Dunne and a local health official contacted a woman in Lorain who had given premature birth to a girl in early November. Both mother and child had been diagnosed afterward with listeriosis.

"She remembered making and eating chili dogs on Oct. 3," Dunne recalled in an interview. "But she never got sick."

To Dunne's amazement, the woman had held on to that package of Ball Park hot dogs.

Dunne marveled at how eager the woman was to help, even while dealing with the stress of diapers, bottles and new motherhood.

"I thought it was neat," Dunne said. "Things were a little crazy for this woman. Her baby was screaming and there was baby stuff everywhere, but she really wanted to help so others didn't get sick."

Dunne packed the hot dogs in ice and shipped them off to the CDC's lab for testing.

MONDAY, DEC. 14: U.S. Centers for Disease Control, Atlanta

Lots of victims. Not enough answers. That's how it had been for weeks in the slow-moving investigation to find the source of the outbreak.

But a few important clues were finally emerging.

Health officials, after weeks of knocking on doors and quizzing people about what they had eaten, had hit on a common theme. Many of the 41 known victims had reported eating hot dogs. (Because of a flaw in the CDC's questionnaire, victims were not asked whether they ate deli meat.)

Three hot dog brands stood out — Ball Park, Bryan and Khan. All were made by Sara Lee.

But Sara Lee was a huge company, with several meat plants producing hot dogs under these and other brand names.

The package of Ball Park franks recov-

ered from the refrigerator of the Lorain County woman offered a strong lead. The manufacturing codes on the package listed their maker as federal plant No. P-261.

Bil Mar Foods in Michigan. The CDC was still running tests on the hot dogs to determine whether they were contaminated with listeria. Results were still three days away.

But another clue was pointing to Bil Mar.

In New York, experts at Cornell University had discovered some additional samples that tested positive for the outbreak strain of listeria. One came from a sample of Sara Lee chicken deli meat that also was made at the Bil Mar plant.

In his cramped office, Mead reviewed all the data. Too many signs pointed to Bil Mar.

Mead determined it was time to get someone to the plant.

He decided to send Dunne from Ohio. He reached her on Dec. 14 at the Lorain County Health Department, where she was going through patient files.

Usually calm, Mead could hardly contain his excitement, Dunne recalled.

"He said we'd really had a big break," Dunne said.

"He asked if I'd be interested in going to the plant."

Of course, she said enthusiastically. "It was an exciting moment," she recalled. "Something EIS officers live for. You get to play a pivotal role in public health by sleuthing out a very unusual pathogen. It's great to be part of that."

She boarded a plane for western Michigan.

TUESDAY, DEC. 15: Days Inn, Grand Rapids

Carrying just the one travel bag she had taken to Ohio, Dunne had arrived in Grand Rapids late the night before. By midday Tuesday, she was back at the airport holding a sign bearing the names of the investigators from the U.S. Department of Agriculture who were to join her in the search.

They headed to a nearby Days Inn and spent the evening until 11 going over evidence the CDC had compiled pointing to the Bil Mar plant, about 18 miles away in Borculo.

Dunne shared details from an update Mead had dispatched by e-mail that day to health departments across the country.

"Dear Colleagues," the Mead memo began. "The pieces of the multistate listeria puzzle appear to be falling into place..."

As of that day, the CDC had identified 37 people who got sick in eight states, including two known cases in Michigan. All had fallen ill between Aug. 2 and Nov. 30. All were all infected by the rare E-strain of *Listeria monocytogenes*. The CDC's research had found a common link: Many of the victims had eaten hot dogs, and in particular Sara Lee brands.

There was a sense of urgency. As Mead noted, dangerous food was probably still out there.

"Hot dogs have a long shelf life (decades in my freezer)," he wrote, "and we have good reason to believe that cases are ongoing... it is not clear that the company will feel that the data is strong enough to support a recall at this time. WE DESPERATELY NEED ADDITIONAL PRODUCT INFORMATION: brand names, establishment numbers, dates of production for both hot dogs AND deli meats. We ask you to please redouble your efforts to get this information."

A sense of urgency had also finally hit Michigan public health officials.

Test results had arrived from Cornell University proving that the two known Michigan cases — Art Eberlein and the unidentified college student — were part of the outbreak.

"At that point we started calling hospitals asking: 'Do you have any listeria samples you haven't reported? If you haven't sent them in, please do,'" said Frances Downes, then the state's acting laboratory director.

State law requires doctors, hospitals and laboratories to report all cases of certain diseases, including listeriosis, to the state, because they can be warning

OUTBREAK

From Page 8A

signs of a possible outbreak. But cases often go unreported, as was evident in this outbreak.

After calling Michigan's 15 largest hospitals, the state had uncovered six unreported listeriosis cases.

A total of nine Michigan cases ultimately would match the outbreak strain: Three adult residents of an Oakland County group home; a 5-year-old Detroit child; an elderly woman in Barry County; the Western Michigan University student in Kalamazoo; and Eberlein, O'Brian, and Andrzejewski.

It's possible that other Michigan listeriosis cases slipped through the cracks.

There was no way to know.

WEDNESDAY, DEC. 16:

Bil Mar Foods plant, north of Zeeland

Dunne and the USDA investigators arrived at the plant shortly after 7:30 a.m. They were met by security and given down-filled coats, white overcoats, boots, and hair nets before being ushered into the plant.

All the layers made the inspectors look 40 pounds heavier. "We looked like obese doctors on rounds," Dunne said.

Dunne was struck immediately by the enormity of the task ahead of her.

"We walked all the way through the plant, and it seemed to take forever," she recalled. "The place was huge."

She saw overhead conveyors carrying boxes of meat throughout the plant. People were walking back and forth. Vehicles hauled boxes from one side of the plant to another.

"Everything seemed to be moving all at once, and I wondered how in the world does everything get orchestrated properly," she said. "It was all unbelievably complex, and I wondered if we'd ever find the cause of the outbreak."

The inspection team was escorted into a windowless conference room, where plant managers had questions for Dunne. They wanted to know why their plant was the target of an investigation.

She explained the reasons and outlined what the investigators wanted to do. Then they got to work.

They scrutinized sanitation procedures, reviewed the steps taken to keep raw and finished products separated, and the hygiene practices of workers. They also took swab samples on equipment and surfaces, looking for listeria contamination, and shipped the samples off for testing. It would be at least a week before the results were back.

So they continued looking inside the plant for ways and places where listeria bacteria could have gained a foothold.

Bil Mar had a slaughtering operation and cooking operation in one plant.

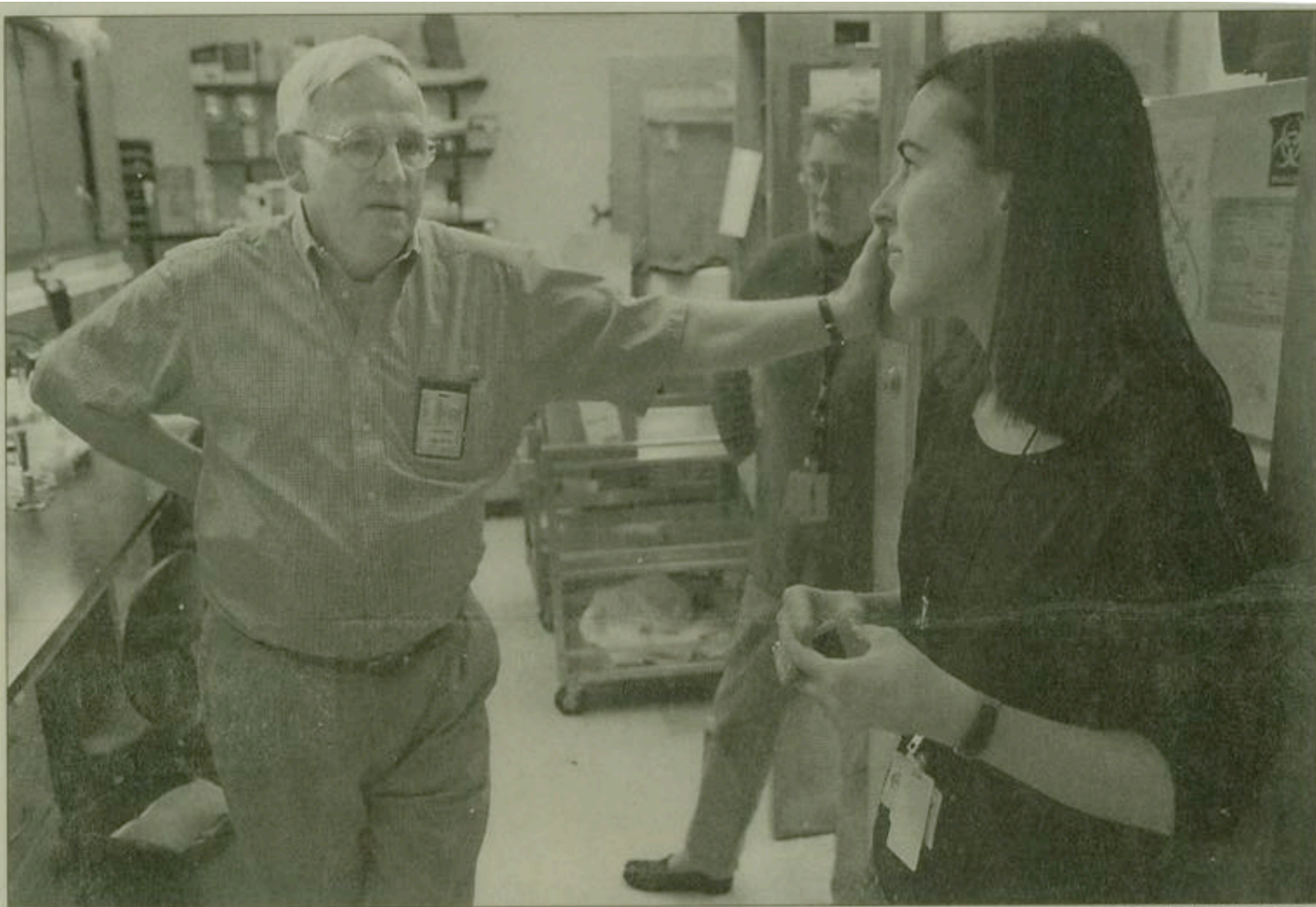
In a large area dubbed "kill and evis," for eviscerate, workers slaughtered thousands of turkeys a day. The slaughtering operation had been around for decades, but Sara Lee had planned to phase it out in 1999.

Slaughtered turkeys are a bacteria haven, as are all raw meats; they can carry a scary assortment of disease-causing bacteria, from salmonella and campylobacter, to deadly *E. coli* and *Listeria monocytogenes*.

For that reason, workers were instructed to take care when moving about the plant, to prevent the spread of bacteria from raw to cooked foods. They were supposed to change their lab-like work coats when they moved from one place to another, rinse their shoes in iodine foot baths and stop at hand-washing stations.

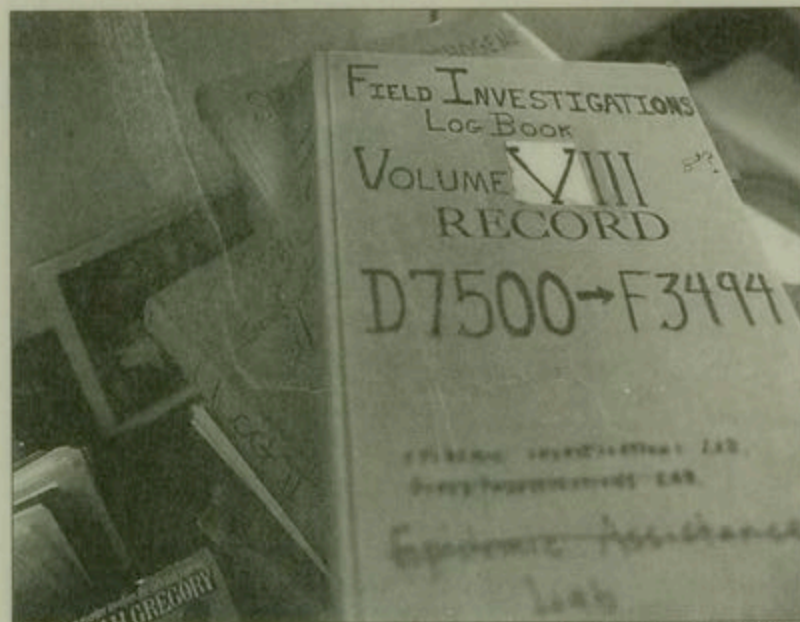
At the hot dog production lines, Dunne watched the process in amazement as workers emulsified raw meat, squeezed it into skin-like casings, cooked them and packaged them.

"When I saw hot dogs being made, it



GABRIEL B. TAIT/Detroit Free Press

Dr. Eileen Dunne, right, helped solve the puzzle. Here she talks to CDC microbiologist Wallis DeWitt with Peggy Hayes nearby.



GABRIEL B. TAIT/Detroit Free Press

turned my stomach, and I think it would turn most people's stomach," Dunne said. "But it wasn't a dirty process, and we found nothing to suggest the process was contaminated."

In making hot dogs and deli meats, two steps were crucial to make them safe.

First, workers needed to cook the products thoroughly. Proper cooking kills bacteria. Second, they needed to make sure the cooked meats were not exposed to contamination before they were packaged. Which meant the work surfaces that came in contact with food needed to be carefully cleaned and sanitized.

After two long days with the federal team on site, plant managers were growing uncomfortable with the intense scrutiny. The tension showed during a second meeting, Dec. 17, between plant officials and the inspection team.

"During this second meeting, several members of the management expressed their concern over having a large number of people in white coats repeatedly walking through the plant and how it might impact on the plant's interests," Dr. Stephen Guryca, one of the USDA officials involved in the inquiry, later wrote in a memo.

But that same day, more evidence was pointing to the plant: The initial tests on the Ohio woman's hot dogs showed they were contaminated with *Listeria monocytogenes*. The CDC's lab needed another two days to complete genetic

The deadly story of listeriosis is written in these CDC logs. They contain records on all samples analyzed.

But this work may have caused listeria bacteria to spread through the plant, Dunne and Mead believed. Their suspicions appeared supported by the plant's own records.

Dunne asked whether the plant was doing microbiological testing. At first she was told no.

But she then learned that workers had taken regular swab samples up until November. When she reviewed the test results, Dunne noticed that, after the July 4 construction, workers recorded a sharp increase in cold-loving bacteria, which could include *Listeria monocytogenes*.

The number of positive samples remained high until the testing ended in November. Company officials later explained that they weren't overly concerned, because the tests showed only the presence of cold-loving bacteria in general and the plant was re-cleaned after each positive test.

Because it can take up to a week to get results from tests that specifically detect *Listeria monocytogenes*, most plants use the more general tests that give results within minutes.

But Mead and his colleagues at the CDC immediately suspected that the work might have spread dust laden with listeria throughout the plant. The refrigeration unit became a suspect. There was one more thing. On Dec. 19 the final results of genetic fingerprinting tests on the listeria from the Ohio woman's hot dogs showed they matched the E-strain fingerprint that was sickening people across the country.

While this was a critical link, it wasn't absolute. Because the package had been open and in the woman's refrigerator for months, it was possible the hot dogs became contaminated there and not at the Bil Mar plant.

Mead knew he needed more than a hunch about the construction dust and an open package of hot dogs if he were going to lobby for a recall of the millions of pounds of Bil Mar products that were still in grocery stores and people's homes.

"We were pretty sure we were right," Mead said. "But we knew it would be devastating if we were proved wrong."

ALISON YOUNG can be reached at 248-586-2603 or at young@freepress.com.

Coming Wednesday: Crisis at Sara Lee

ABOUT LISTERIA

The bug

Listeria monocytogenes is only one bacterium in the listeria family of bacteria, but it's the dangerous one. The others are harmless. Unlike most other food-borne bacteria, which only grow at room temperature, *Listeria monocytogenes* can also grow in cold, refrigerated environments. Through genetic fingerprinting, scientists have discovered distinct strains of *Listeria monocytogenes*. The strain involved in the Bil Mar Foods outbreak was called the "E strain."

What it does

It causes listeriosis, which includes such flu-like symptoms as headache, fever and diarrhea. In the most serious cases, the bacteria can strike the nervous system, causing meningitis and encephalitis. Nearly one out of four people infected with *Listeria monocytogenes* die.

Whom it strikes

It can hit anyone, but most healthy bodies will fight it off. Among the vulnerable are the newborn and the elderly, and people with weakened immune systems. Especially at risk are pregnant women and their fetuses: *Listeria monocytogenes* can cause miscarriages and stillbirths. About 1,850 listeriosis cases are reported in the country each year; many more probably go undiagnosed.

Affected foods

Foods most likely to harbor the bug are hot dogs, lunch meats and other ready-to-eat cooked meats; soft cheeses, raw milk, and raw meats.

Incubation period

A few days to eight weeks.

Symptoms

Persistent fever and other flu-like symptoms, such as nausea, vomiting and diarrhea.