



## 9 / what's in the meat

**O**N JULY 11, 1997, Lee Harding ordered soft chicken tacos at a Mexican restaurant in Pueblo, Colorado. Harding was twenty-two years old, a manager at Safeway. His wife Stacey was a manager at Wendy's. They were out to dinner on a Friday night. When the chicken tacos arrived, Harding thought there was something wrong with them. The meat seemed to have gone bad. The tacos tasted slimy and gross. An hour or so after leaving the restaurant, Harding began to experience severe abdominal cramps. It felt like something was eating away at his stomach. He was fit and healthy, stood six-foot-one, weighed two hundred pounds. He'd never felt pain this intense. The cramps got worse, and Harding lay in bed through the night, tightly curled into a ball. He developed bad diarrhea, then bloody diarrhea. He felt like he was dying, but was afraid to go to the hospital. If I'm going to die, he thought, I want to die at home.

The severe pain and diarrhea lasted through the weekend. On Monday evening Harding decided to seek medical attention; the cramps were getting better, but he was still passing a good deal of blood. He waited three hours in the emergency room at St. Mary-Corwin Hospital in Pueblo, gave a stool sample, and then finally saw a doctor. It's probably just a "summer flu," the doctor said. Harding was sent home with a prescription for an antibiotic. Tuesday afternoon, he heard a knock at his front door. When Harding opened it, nobody was there. But he found a note on the door from the Pueblo City-County Health Department. It said that his stool sample had tested positive for *Escherichia coli* 0157:H7, a virulent and potentially lethal foodborne pathogen.

The next morning Harding called Sandra Gallegos, a nurse with the Pueblo Health Department. She asked him to try and remember what

foods he'd eaten during the previous five days. Harding mentioned the dinner at the Mexican restaurant and the foul taste of the chicken tacos. He was sure that was where he had gotten food poisoning. Gallegos disagreed. *E. coli* 0157:H7 was rarely found in chicken. She asked if Harding had consumed any ground beef lately. Harding recalled having eaten a hamburger a couple of days before visiting the Mexican restaurant. But he doubted that the hamburger could have made him ill. Both his wife and his wife's sister had eaten the same burgers, during a backyard barbecue, and neither had become sick. He and his wife had also eaten burgers from the same box the week before the barbecue without getting sick. They were frozen hamburgers he'd bought at Safeway. He remembered because it was the first time he'd ever bought frozen hamburgers. Gallegos asked if there were any left. Harding said there just might be, checked the freezer, and found the package. It was a red, white, and blue box that said "Hudson Beef Patties."

A Pueblo health official went to Harding's house, took the remaining hamburgers, and sent one to a USDA laboratory for analysis. State health officials had noticed a spike in the number of people suffering from *E. coli* 0157:H7 infections. At the time Colorado was one of only six states with the capability to perform DNA tests on samples of *E. coli* 0157:H7. The DNA tests showed that at least ten people had been sickened by the same strain of the bug. Investigators were searching for a common link between scattered cases reported in Pueblo, Brighton, Loveland, Grand Junction, and Colorado Springs. On July 28, the USDA lab notified Gallegos that Lee Harding's hamburger was contaminated with the same strain of *E. coli* 0157:H7. Here was the common link.

The lot number on Harding's package said that the frozen patties had been manufactured on June 5 at the Hudson Foods plant in Columbus, Nebraska. The plant seemed an unlikely source for an outbreak of food poisoning. Only two years old, it had been built primarily to supply hamburgers for the Burger King chain. It used state-of-the-art equipment and appeared to be spotlessly clean. But something had gone wrong. A modern factory designed for the mass production of food had instead become a vector for the spread of a deadly disease. The package of hamburger patties in Lee Harding's freezer and astute investigative work by Colorado health officials soon led to the largest recall of food in the nation's history. Roughly 35 million pounds of ground beef produced at the Columbus plant — enough meat to pro-

vide every single American with a tainted fast food hamburger — was voluntarily recalled by Hudson Foods in August of 1997. Although public health officials did a fine job of tracing the outbreak to its source, the recall proved less successful. By the time it was announced, about 25 million pounds of the ground beef had already been eaten.

## an ideal system for new pathogens

EVERY DAY IN THE United States, roughly 200,000 people are sickened by a foodborne disease, 900 are hospitalized, and fourteen die. According to the Centers for Disease Control and Prevention (CDC), more than a quarter of the American population suffers a bout of food poisoning each year. Most of these cases are never reported to authorities or properly diagnosed. The widespread outbreaks that are detected and identified represent a small fraction of the number that actually occurs. And there is strong evidence not only that the incidence of food-related illness has risen in the past few decades, but also that the lasting health consequences of such illnesses are far more serious than was previously believed. The acute phase of a food poisoning — the initial few days of diarrhea and gastrointestinal upset — in many cases may simply be the most obvious manifestation of an infectious disease. Recent studies have found that many foodborne pathogens can precipitate long-term ailments, such as heart disease, inflammatory bowel disease, neurological problems, autoimmune disorders, and kidney damage.

Although the rise in foodborne illnesses has been caused by many complex factors, much of the increase can be attributed to recent changes in how American food is produced. Robert V. Tauxe, head of the Foodborne and Diarrheal Diseases Branch at the CDC, believes that entirely new kinds of outbreaks are now occurring. A generation ago, the typical outbreak of food poisoning involved a church supper, a family picnic, a wedding reception. Improper food handling or storage would cause a small group of people in one local area to get sick. Such traditional outbreaks still take place. But the nation's industrialized and centralized system of food processing has created a whole new sort of outbreak, one that can potentially sicken millions of people. Today a cluster of illnesses in one small town may stem from bad potato salad at a school barbecue — or it may be the first sign of an outbreak that extends statewide, nationwide, or even overseas.

Much like the human immunodeficiency virus (HIV) responsible for causing AIDS, the *E. coli* 0157:H7 bacterium is a newly emerged pathogen whose spread has been facilitated by recent social and technological changes. *E. coli* 0157:H7 was first isolated in 1982; HIV was discovered the following year. People who are infected with HIV can appear healthy for years, while cattle infected with *E. coli* 0157:H7 show few signs of illness. Although cases of AIDS date back at least to the late 1950s, the disease did not reach epidemic proportions in the United States until increased air travel and sexual promiscuity helped transmit the virus far and wide. *E. coli* 0157:H7 was most likely responsible for some human illnesses thirty or forty years ago. But the rise of huge feedlots, slaughterhouses, and hamburger grinders seems to have provided the means for this pathogen to become widely dispersed in the nation's food supply. American meat production has never before been so centralized: thirteen large packinghouses now slaughter most of the beef consumed in the United States. The meat-packing system that arose to supply the nation's fast food chains — an industry molded to serve their needs, to provide massive amounts of uniform ground beef so that all of McDonald's hamburgers would taste the same — has proved to be an extremely efficient system for spreading disease.

Although *E. coli* 0157:H7 has received a good deal of public attention, over the past two decades scientists have discovered more than a dozen other new foodborne pathogens, including *Campylobacter jejuni*, *Cryptosporidium parvum*, *Cyclospora cayetanensis*, *Listeria monocytogenes*, and Norwalk-like viruses. The CDC estimates that more than three-quarters of the food-related illnesses and deaths in the United States are caused by infectious agents that have not yet been identified. While medical researchers have gained important insights into the links between modern food processing and the spread of dangerous diseases, the nation's leading agribusiness firms have resolutely opposed any further regulation of their food safety practices. For years the large meatpacking companies have managed to avoid the sort of liability routinely imposed on the manufacturers of most consumer products. Today the U.S. government can demand the nationwide recall of defective softball bats, sneakers, stuffed animals, and foam-rubber toy cows. But it cannot order a meatpacking company to remove contaminated, potentially lethal ground beef from fast food kitchens and supermarket shelves. The unusual power of the large meatpacking firms has been sustained by their close ties and sizable

donations to Republican members of Congress. It has also been made possible by a widespread lack of awareness about how many Americans suffer from food poisoning every year and how these illnesses actually spread.

The newly recognized foodborne pathogens tend to be carried and shed by apparently healthy animals. Food tainted by these organisms has most likely come in contact with an infected animal's stomach contents or manure, during slaughter or subsequent processing. A nationwide study published by the USDA in 1996 found that 7.5 percent of the ground beef samples taken at processing plants were contaminated with *Salmonella*, 11.7 percent were contaminated with *Listeria monocytogenes*, 30 percent were contaminated with *Staphylococcus aureus*, and 53.3 percent were contaminated with *Clostridium perfringens*. All of these pathogens can make people sick; food poisoning caused by *Listeria* generally requires hospitalization and proves fatal in about one out of every five cases. In the USDA study 78.6 percent of the ground beef contained microbes that are spread primarily by fecal material. The medical literature on the causes of food poisoning is full of euphemisms and dry scientific terms: coliform levels, aerobic plate counts, sorbitol, MacConkey agar, and so on. Behind them lies a simple explanation for why eating a hamburger can now make you seriously ill: There is shit in the meat.

## the national dish

IN THE EARLY YEARS of the twentieth century, hamburgers had a bad reputation. According to the historian David Gerard Hogan, the hamburger was considered “a food for the poor,” tainted and unsafe to eat. Restaurants rarely served hamburgers; they were sold at lunch carts parked near factories, at circuses, carnivals, and state fairs. Ground beef, it was widely believed, was made from old, putrid meat heavily laced with chemical preservatives. “The hamburger habit is just about as safe,” one food critic warned, “as getting your meat out of a garbage can.” White Castle, the nation's first hamburger chain, worked hard in the 1920s to dispel the hamburger's tawdry image. As Hogan notes in his history of the chain, *Selling 'Em by the Sack* (1997), the founders of White Castle placed their grills in direct view of customers, claimed that fresh ground beef was delivered twice a day, chose a name with connotations of purity, and even sponsored an ex-

periment at the University of Minnesota in which a medical student lived for thirteen weeks on “nothing but White Castle hamburgers and water.”

The success of White Castle in the East and the Midwest helped to popularize hamburgers and to remove much of their social stigma. The chain did not attract a broad range of people, however. Most of White Castle’s customers were urban, working class, and male. During the 1950s, the rise of drive-ins and fast food restaurants in southern California helped turn the once lowly hamburger into America’s national dish. Ray Kroc’s decision to promote McDonald’s as a restaurant chain for families had a profound impact on the nation’s eating habits. Hamburgers seemed an ideal food for small children — convenient, inexpensive, hand-held, and easy to chew.

Before World War II, pork had been the most popular meat in the United States. Rising incomes, falling cattle prices, the growth of the fast food industry, and the mass appeal of the hamburger later pushed American consumption of beef higher than that of pork. By the early 1990s, beef production was responsible for almost half of the employment in American agriculture, and the annual revenues generated by beef were higher than those of any other agricultural commodity in the United States. The average American ate three hamburgers a week. More than two-thirds of those hamburgers were bought at fast food restaurants. And children between the ages of seven and thirteen ate more hamburgers than anyone else.

In January of 1993, doctors at a hospital in Seattle, Washington, noticed that an unusual number of children were being admitted with bloody diarrhea. Some were suffering from hemolytic uremic syndrome, a previously rare disorder that causes kidney damage. Health officials soon traced the outbreak of food poisoning to undercooked hamburgers served at local Jack in the Box restaurants. Tests of the hamburger patties disclosed the presence of *E. coli* 0157:H7. Jack in the Box issued an immediate recall of the contaminated ground beef, which had been supplied by the Vons Companies, Inc., in Arcadia, California. Nevertheless, more than seven hundred people in at least four states were sickened by Jack in the Box hamburgers, more than two hundred people were hospitalized, and four died. Most of the victims were children. One of the first to become ill, Lauren Beth Rudolph, ate a hamburger at a San Diego Jack in the Box a week before Christmas. She was admitted to the hospital on Christmas

Eve, suffered terrible pain, had three heart attacks, and died in her mother’s arms on December 28, 1992. She was six years old.

The Jack in the Box outbreak received a great deal of attention from the media, alerting the public to the dangers of *E. coli* 0157:H7. The Jack in the Box chain almost went out of business amid all the bad publicity. But this was not the first outbreak of *E. coli* 0157:H7 linked to fast food hamburgers. In 1982 dozens of children were sickened by contaminated hamburgers sold at McDonald’s restaurants in Oregon and Michigan. McDonald’s quietly cooperated with investigators from the CDC, providing ground beef samples that were tainted with *E. coli* 0157:H7 — samples that for the first time linked the pathogen to serious illnesses. In public, however, the McDonald’s Corporation denied that its hamburgers had made anyone sick. A spokesman for the chain acknowledged only “the possibility of a statistical association between a small number of diarrhea cases in two small towns and our restaurants.”

In the eight years since the Jack in the Box outbreak, approximately half a million Americans, the majority of them children, have been made ill by *E. coli* 0157:H7. Thousands have been hospitalized, and hundreds have died.

## a bug that kills children

*E. coli* 0157:H7 is a mutated version of a bacterium found abundantly in the human digestive system. Most *E. coli* bacteria help us digest food, synthesize vitamins, and guard against dangerous organisms. *E. coli* 0157:H7, on the other hand, can release a powerful toxin — called a “verotoxin” or a “Shiga toxin” — that attacks the lining of the intestine. Some people who are infected with *E. coli* 0157:H7 do not become ill. Others suffer mild diarrhea. In most cases, severe abdominal cramps are followed by watery, then bloody, diarrhea that subsides within a week or so. Sometimes the diarrhea is accompanied by vomiting and a low-grade fever.

In about 4 percent of reported *E. coli* 0157:H7 cases, the Shiga toxins enter the bloodstream, causing hemolytic uremic syndrome (HUS), which can lead to kidney failure, anemia, internal bleeding, and the destruction of vital organs. The Shiga toxins can cause seizures, neurological damage, and strokes. About 5 percent of the chil-

dren who develop HUS are killed by it. Those who survive are often left with permanent disabilities, such as blindness or brain damage.

Children under the age of five, the elderly, and people with impaired immune systems are the most likely to suffer from illnesses caused by *E. coli* 0157:H7. The pathogen is now the leading cause of kidney failure among children in the United States. Nancy Donley, the president of Safe Tables Our Priority (STOP), an organization devoted to food safety, says it is hard to convey the suffering that *E. coli* 0157:H7 causes children. Her six-year-old son, Alex, was infected with the bug in July of 1993 after eating a tainted hamburger. His illness began with abdominal cramps that seemed as severe as labor pains. It progressed to diarrhea that filled a hospital toilet with blood. Doctors frantically tried to save Alex's life, drilling holes in his skull to relieve pressure, inserting tubes in his chest to keep him breathing, as the Shiga toxins destroyed internal organs. "I would have done anything to save my son's life," Donley says. "I would have run in front of a bus to save Alex." Instead, she stood and watched helplessly as he called out for her, terrified and in pain. He became ill on a Tuesday night, the night after his mother's birthday, and was dead by Sunday afternoon. Toward the end, Alex suffered hallucinations and dementia, no longer recognizing his mother or father. Portions of his brain had been liquefied. "The sheer brutality of his death was horrifying," Donley says.

As Lee Harding learned, adults in perfect health can be stricken by the pathogen, too. Six months after seemingly recovering from his bout of *E. coli* 0157:H7 food poisoning, Harding began to urinate blood. He was diagnosed as having a kidney infection, one that he believes was facilitated by residual tissue damage from the Shiga toxins. Although the infection soon passed, Harding still experiences occasional pain three years after eating a Hudson Beef hamburger. Nevertheless, he considers himself lucky.

Antibiotics have proven ineffective in treating illnesses caused by *E. coli* 0157:H7. Indeed the use of antibiotics may make such illnesses worse by killing off the pathogen and prompting a sudden release of its Shiga toxins. At the moment, little can be done for people with life-threatening *E. coli* 0157:H7 infections, aside from giving them fluids, blood transfusions, and dialysis.

Efforts to eradicate *E. coli* 0157:H7 have been complicated by the fact that it is an extraordinarily hearty microbe that is easy to trans-

mit. *E. coli* 0157:H7 is resistant to acid, salt, and chlorine. It can live in fresh water or seawater. It can live on kitchen countertops for days and in moist environments for weeks. It can withstand freezing. It can survive heat up to 160 degrees Fahrenheit. To be infected by most foodborne pathogens, such as *Salmonella*, you have to consume a fairly large dose — at least a million organisms. An infection with *E. coli* 0157:H7 can be caused by as few as five organisms. A tiny uncooked particle of hamburger meat can contain enough of the pathogen to kill you.

The heartiness and minute infectious dose of *E. coli* 0157:H7 allow the pathogen to be spread in many ways. People have been infected by drinking contaminated water, by swimming in a contaminated lake, by playing at a contaminated water park, by crawling on a contaminated carpet. The most common cause of foodborne outbreaks has been the consumption of undercooked ground beef. But *E. coli* 0157:H7 outbreaks have also been caused by contaminated bean sprouts, salad greens, cantaloupe, salami, raw milk, and unpasteurized apple cider. All of those foods most likely had come in contact with cattle manure, though the pathogen may also be spread by the feces of deer, dogs, horses, and flies.

Person-to-person transmission has been responsible for a significant proportion of *E. coli* 0157:H7 illnesses. Roughly 10 percent of the people sickened during the Jack in the Box outbreak did not eat a contaminated burger, but were infected by someone who did. *E. coli* 0157:H7 is shed in the stool, and people infected with the bug, even those showing no outward sign of illness, can easily spread it through poor hygiene. Person-to-person transmission is most likely to occur among family members, at day care centers, and at senior citizen homes. On average, an infected person remains contagious for about two weeks, though in some cases *E. coli* 0157:H7 has been found in stool samples two to four months after an initial illness.

Some herds of American cattle may have been infected with *E. coli* 0157:H7 decades ago. But the recent changes in how cattle are raised, slaughtered, and processed have created an ideal means for the pathogen to spread. The problem begins in today's vast feedlots. A government health official, who prefers not to be named, compared the sanitary conditions in a modern feedlot to those in a crowded European city during the Middle Ages, when people dumped their chamber pots out the window, raw sewage ran in the streets, and epidemics raged.

The cattle now packed into feedlots get little exercise and live amid pools of manure. "You shouldn't eat dirty food and dirty water," the official told me. "But we still think we can give animals dirty food and dirty water." Feedlots have become an extremely efficient mechanism for "recirculating the manure," which is unfortunate, since *E. coli* 0157:H7 can replicate in cattle troughs and survive in manure for up to ninety days.

Far from their natural habitat, the cattle in feedlots become more prone to all sorts of illnesses. And what they are being fed often contributes to the spread of disease. The rise in grain prices has encouraged the feeding of less expensive materials to cattle, especially substances with a high protein content that accelerate growth. About 75 percent of the cattle in the United States were routinely fed livestock wastes — the rendered remains of dead sheep and dead cattle — until August of 1997. They were also fed millions of dead cats and dead dogs every year, purchased from animal shelters. The FDA banned such practices after evidence from Great Britain suggested that they were responsible for a widespread outbreak of bovine spongiform encephalopathy (BSE), also known as "mad cow disease." Nevertheless, current FDA regulations allow dead pigs and dead horses to be rendered into cattle feed, along with dead poultry. The regulations not only allow cattle to be fed dead poultry, they allow poultry to be fed dead cattle. Americans who spent more than six months in the United Kingdom during the 1980s are now forbidden to donate blood, in order to prevent the spread of BSE's human variant, Creutzfeldt-Jakob disease. But cattle blood is still put into the feed given to American cattle. Steven P. Bjerklie, a former editor of the trade journal *Meat & Poultry*, is appalled by what goes into cattle feed these days. "God-damn it, these cattle are ruminants," Bjerklie says. "They're designed to eat grass and, maybe, grain. I mean, they have four stomachs for a reason — to eat products that have a high cellulose content. They are not designed to eat other animals."

The waste products from poultry plants, including the sawdust and old newspapers used as litter, are also being fed to cattle. A study published a few years ago in *Preventive Medicine* notes that in Arkansas alone, about 3 million pounds of chicken manure were fed to cattle in 1994. According to Dr. Neal D. Bernard, who heads the Physicians Committee for Responsible Medicine, chicken manure may contain dangerous bacteria such as *Salmonella* and *Campylobacter*, parasites

such as tapeworms and *Giardia lamblia*, antibiotic residues, arsenic, and heavy metals.

The pathogens from infected cattle are spread not only in feedlots, but also at slaughterhouses and hamburger grinders. The slaughterhouse tasks most likely to contaminate meat are the removal of an animal's hide and the removal of its digestive system. The hides are now pulled off by machine; if a hide has been inadequately cleaned, chunks of dirt and manure may fall from it onto the meat. Stomachs and intestines are still pulled out of cattle by hand; if the job is not performed carefully, the contents of the digestive system may spill everywhere. The increased speed of today's production lines makes the task much more difficult. A single worker at a "gut table" may eviscerate sixty cattle an hour. Performing the job properly takes a fair amount of skill. A former IBP "gutter" told me that it took him six months to learn how to pull out the stomach and tie off the intestines without spillage. At best, he could gut two hundred consecutive cattle without spilling anything. Inexperienced gutters spill manure far more often. At the IBP slaughterhouse in Lexington, Nebraska, the hourly spillage rate at the gut table has run as high as 20 percent, with stomach contents splattering one out of five carcasses.

The consequences of a single error are quickly multiplied as hundreds of carcasses quickly move down the line. Knives are supposed to be cleaned and disinfected every few minutes, something that workers in a hurry tend to forget. A contaminated knife spreads germs to everything it touches. The overworked, often illiterate workers in the nation's slaughterhouses do not always understand the importance of good hygiene. They sometimes forget that this meat will eventually be eaten. They drop meat on the floor and then place it right back on the conveyer belt. They cook bite-sized pieces of meat in their sterilizers, as snacks, thereby rendering the sterilizers ineffective. They are directly exposed to a wide variety of pathogens in the meat, become infected, and inadvertently spread disease.

A recent USDA study found that during the winter about 1 percent of the cattle at feedlots carry *E. coli* 0157:H7 in their gut. The proportion rises to as much as 50 percent during the summer. Even if you assume that only 1 percent are infected, that means three or four cattle bearing the microbe are eviscerated at a large slaughterhouse every hour. The odds of widespread contamination are raised exponentially when the meat is processed into ground beef. A generation ago, lo-

cal butchers and wholesalers made hamburger meat out of leftover scraps. Ground beef was distributed locally, and was often made from cattle slaughtered locally. Today large slaughterhouses and grinders dominate the nationwide production of ground beef. A modern processing plant can produce 800,000 pounds of hamburger a day, meat that will be shipped throughout the United States. A single animal infected with *E. coli* 0157:H7 can contaminate 32,000 pounds of that ground beef.

To make matters worse, the animals used to make about one-quarter of the nation's ground beef — worn-out dairy cattle — are the animals most likely to be diseased and riddled with antibiotic residues. The stresses of industrial milk production make them even more unhealthy than cattle in a large feedlot. Dairy cattle can live as long as forty years, but are often slaughtered at the age of four, when their milk output starts to decline. McDonald's relies heavily on dairy cattle for its hamburger supplies, since the animals are relatively inexpensive, yield low-fat meat, and enable the chain to boast that all its beef is raised in the United States. The days when hamburger meat was ground in the back of a butcher shop, out of scraps from one or two sides of beef, are long gone. Like the multiple sex partners that helped spread the AIDS epidemic, the huge admixture of animals in most American ground beef plants has played a crucial role in spreading *E. coli* 0157:H7. A single fast food hamburger now contains meat from dozens or even hundreds of different cattle.

## all we care to pay

"THIS IS NO FAIRY STORY and no joke," Upton Sinclair wrote in 1906; "the meat would be shoveled into carts, and the man who did the shoveling would not trouble to lift out a rat even when he saw one — there were things that went into the sausage in comparison with which a poisoned rat was a tidbit." Sinclair described a long list of practices in the meatpacking industry that threatened the health of consumers: the routine slaughter of diseased animals, the use of chemicals such as borax and glycerine to disguise the smell of spoiled beef, the deliberate mislabeling of canned meat, the tendency of workers to urinate and defecate on the kill floor. After reading *The Jungle* President Theodore Roosevelt ordered an independent investigation

of Sinclair's charges. When it confirmed the accuracy of the book, Roosevelt called for legislation requiring mandatory federal inspection of all meat sold through interstate commerce, accurate labeling and dating of canned meat products, and a fee-based regulatory system that made meatpackers pay the cost of cleaning up their own industry.

The powerful magnates of the Beef Trust responded by vilifying Roosevelt and Upton Sinclair, dismissing their accusations, and launching a public relations campaign to persuade the American people that nothing was wrong. "Meat and food products, generally speaking," J. Ogden Armour claimed in a *Saturday Evening Post* article, "are handled as carefully and circumspectly in large packing houses as they are in the average home kitchen." Testifying before Congress, Thomas Wilson, an executive at Morris & Company, said that blame for the occasional sanitary lapse lay not with the policies of industry executives, but with the greed and laziness of slaughterhouse workers. "Men are men," Wilson contended, "and it is pretty hard to control some of them." After an angry legislative battle, Congress narrowly passed the Meat Inspection Act of 1906, a watered-down version of Roosevelt's proposals that made taxpayers pay for the new regulations.

The meatpacking industry's response to *The Jungle* established a pattern that would be repeated throughout the twentieth century, whenever health concerns were raised about the nation's beef. The industry has repeatedly denied that problems exist, impugned the motives of its critics, fought vehemently against federal oversight, sought to avoid any responsibility for outbreaks of food poisoning, and worked hard to shift the costs of food safety efforts onto the general public. The industry's strategy has been driven by a profound antipathy to any government regulation that might lower profits. "There is no limit to the expense that might be put upon us," the Beef Trust's Wilson said in 1906, arguing against a federal inspection plan that would have cost meatpackers less than a dime per head of cattle. "[Our] contention is that in all reasonableness and fairness *we are paying all we care to pay.*"

During the 1980s, as the risks of widespread contamination increased, the meatpacking industry blocked the use of microbial testing in the federal meat inspection program. A panel appointed by the National Academy of Sciences warned in 1985 that the nation's meat in-