

by William Barry Furlong

SOME PEOPLE call them "disease detectives." Others call them the "FBI of medicine." No matter what the name, they have one of the toughest jobs in all medicine: to combine the dirty, grueling legwork of the cop with the shrewd, penetrating insight of the scientist.

These are the young men and women of the U. S. Public Health Service's Epidemic Intelligence Service, a crack corps of experts who—like the U. S. Marines—go wherever trouble breaks out. Their headquarters is the Communicable Disease Center in Atlanta, Ga. Their job is to help wipe out the epidemics that still crop up with surprising frequency throughout the United States.

Though many people think we've conquered infectious disease, it still causes one death in every 10. "The situation is far more serious in the younger age groups (under 35) where the ratio is one to four," says Dr. Theodore Bauer of the U. S. Public Health Service. Infectious diseases—from diphtheria to malaria to the flu—account "for a majority of the absences among the working population and among school children; they are the main cause of absence from duty in our armed forces," says Dr. Bauer.

At times whole communities are threatened by infection. That's when the "disease detectives" go into action, first to help quell the epidemic, then to find out why it started.

A few years ago, 13 people in Trinidad, Colo., fell ill with typhoid fever. A rush call was sent to EIS, and Dr. Harold Nitowsky was assigned to the case. He quickly discovered that all 13 victims had one thing in common—they were members of the same church. When was the last time they'd been in church together?

"Why just last month at a church dinner," said one of the victims.

"What did you eat?" asked Dr. Nitowsky. The patient painstakingly recalled everything she'd eaten at the church dinner.

Then Dr. Nitowsky threw a "foodless banquet." He asked every healthy person who'd been to the church dinner to make up a list of the foods he'd eaten. He compared these lists with those given him by the typhoid victims. Through a process of elimination, he found three dishes that had been eaten by all of the victims, but not by the healthy persons—carrot salad, macaroni-and-cheese salad, and devil's food cake.

Then he went to the people who'd prepared these dishes and gave them a complete examination. One of them—a 58-year-old woman who had made the carrot salad—was, quite unknowingly, a typhoid carrier.

Every year, the EIS handles 40 to 50 such outbreaks. Last year they covered everything from smallpox in Ely, Nev., to diphtheria in Phila-

delphia. They are also carrying out long-range investigations into such diseases as leprosy, rabies, malaria, and typhus.

There are about 45 EIS agents who operate from offices in 16 states. Their average age is under 30. Only about half of them are M.D.'s. The rest are nurses, bacteriologists, veterinarians (for rabies, anthrax, and other animal diseases transmissible to man), and even engineers and statisticians—"to help put order in the docs' brains," says Dr. Alexander Langmuir, the tall, restless chief of EIS.

Each new recruit to EIS spends four weeks studying epidemics and how to combat them. "I never saw anything like this in medical school," says one young EIS agent. "I've run into diseases I've never even heard of."

On an emergency assignment—as he quickly learns—the EIS worker has the responsibility, but not the authority of a cop. He may not treat patients; that is left strictly to the private physician. Nor may he enter any epidemic area, except Federal reservations, without request from the state health officer.

"The first guardian of the nation's health is the private physician," says Dr. Langmuir. "The first responsibility in any epidemic is that of the county and state public-health officers."

THE JOB of EIS agents is not without its dangers. To find the microbe causing an epidemic, they must frequently expose themselves to its attack. Take "The Mystery of the Missing Mosquitoes."

It started, for the EIS, one mid-Summer day in 1954 when Dr. Lloyd Southwick of Edinburg, Tex., picked up a phone and touched off the chain reaction that brought EIS agents swarming into town. Dr. Southwick, a private physician, was puzzled by many vaguely disturbing things about the polio epidemic—this was before the Salk vaccine—that had broken out all around him. Usually the peak of the polio season there came in late Spring or early Summer, but now it was August.

Just as strange was the unusual number of nonparalytic polio cases among them. And Dr. Southwick couldn't see why as many adults as children were stricken—"unless," he reasoned, "it isn't polio after all."

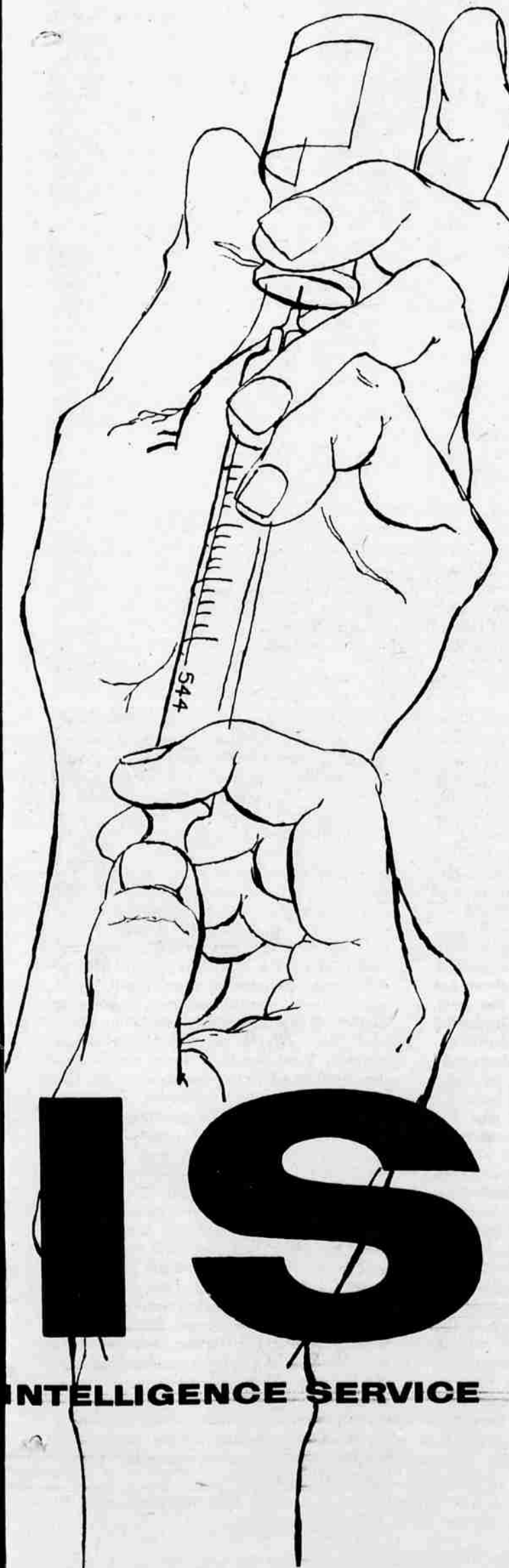
The next day, at the request of the Texas public-health officer, two EIS agents from Kansas City rushed to Edinburg. Swiftly, they confirmed Dr. Southwick's suspicions that it wasn't polio that was sweeping Hidalgo County. It was encephalitis, an inflammation of the brain that is sometimes called "sleeping sickness."

Mosquitoes are the most common source of sleeping sickness in humans. But they had been wiped out in a vigorous mosquito-control program launched after the area had been flooded by the Rio Grande earlier that Summer.

When infectious disease
breaks out, these
experts rush into action.

They
track killers
with a needle

EIS
EPIDEMIC INTELLIGENCE SERVICE



To clear up the mystery, EIS agents converged on the county from all over the West.

They spent three weeks in sleuthing. Some of them sat for hours in steaming, suffocating chicken houses, their arms bared to whatever mosquitoes might be lurking there. In their hands they clutched test tubes of chloroform to trap anything that landed on their arms.

One by one they came back to their headquarters in the jury room of Edinburg's county courthouse—with mosquitoes trapped in their test tubes. The captive mosquitoes were sped to a laboratory for analysis.

Back from the lab came the answer to the mystery. The virus of sleeping sickness was found in several of the mosquitoes. The insects were a rare but particularly hardy breed that survived in the cracks and corners of the chicken houses when the mosquito-control program was under way. Then they multiplied in stagnant water and flitted out to infect the whole county. The toll: 10 deaths, 373 cases reported, an estimated 1,000 cases unreported.

Less dangerous to the EIS agents is their detective work on food poisoning.

Within a matter of hours, 10 members of two different families in Comerio, Puerto Rico, fell ill with food poisoning. EIS agents quickly discovered that all of the victims had eaten the same type of fish and that, moreover, the fish was bought from the same merchant. In a very short time, the EIS located the merchant—who'd moved on to other towns—and examined his whole supply to make sure that he wasn't carrying any more trouble.

Recently, in a small town in New Jersey, a woman died of a mysterious ailment. EIS agents agreed with local physicians that her death seemed due to poisoning by spoiled food. The mystery was why nobody else had fallen ill, since she had cooked the meal for her family.

By interviewing members of the family who had been in and out of the kitchen while this meal was being prepared, the EIS agents learned that the woman had opened her last jar of home-canned mushrooms while cooking the meal. Before heating the mushrooms, however, she tasted one or two, then threw out the remainder because they had a peculiar taste. Her instinctive housewifely practice of tasting food before serving it saved the lives of her family—though it cost her own.

NOT ALL CASES are that simple. A few Summers ago, malaria struck 35 girls in California. The epidemic mystified state authorities because malaria rarely strikes the young and because it had been wiped out of the state years before. "This is just not the kind of disease that springs up spontaneously," an EIS agent said. "It has to come from somewhere."

Agent Roy Fritz was assigned to the case. He

found that all the victims were about 12 years old and that they were all Camp Fire Girls. It wasn't difficult to uncover the next coincidence—all the patients had attended a camp near Lake Vera in the foothills of the California Sierras. "There were an awful lot of mosquitoes at camp this year," one of the victims told him.

Fritz took a mosquito count at Lake Vera—particularly the malarial mosquito—and found it unusually high. That could explain how all the girls, living in different parts of the state, could get malaria at the same time—but where did the mosquitoes get the disease?

The only possible answer: from somebody who'd brought malaria into the state, then been bitten by the mosquitoes. With the help of local physicians, druggists, and state public-health officers, Fritz set out to find that person before he caused more damage.

He checked drugstores and pharmacies for chill- tonic sales. He checked medical histories of all camp personnel to see if they'd ever been exposed to malaria. He checked doctors' offices to see whether anybody had come in with symptoms resembling malaria, even if they'd been diagnosed as something else.

For a month he found nothing. Then Fritz heard, quite casually, of a back-yard conversation between two neighbors near Lake Vera.

"Too bad about the malaria up by the lake," one had remarked.

"Yes, but he's all right now," said the other.

Confused silence. "He?" said the first neighbor. "What do you mean 'he'? Those were all girls who got sick."

"Oh—I was talking about my son. He had malaria in Korea and had a relapse while camping up near the lake one night. But he's all right now."

Fritz quickly followed up the lead. He found that the son, a young Marine, had just returned from Korea where he'd been treated for malaria. One night while tenting out about a mile from the Camp Fire Girls, he had suffered an acute malarial relapse. That same night, he remembered, he was badly bitten by mosquitoes.

"After that it was simple," said an EIS agent. The Marine carried malaria from Korea. The mosquitoes carried the disease from the Marine to the girls who, in turn, carried it all over the state. Just one slip can cause an epidemic.

Before the girls' camp opened the next Summer, the Lake Vera region was so thoroughly sprayed that all the disease-carrying mosquitoes had been blitted.

It's persistent detective work like this, plus the techniques of medical science, which has given the EIS agents their unique reputation and usefulness.

"We're a little like FBI agents," says Dr. Langmuir, "only we track down killers with penicillin and a syringe."