

*Editor's Note: In this three-part series exclusive to Pest Management Professional magazine, Dr. Austin Frishman and Paul Bello share excerpts from their soon-to-be published Cockroach Combat Manual II. Part I, "Cockroach biology and behavior," appeared in the June issue. Part III will appear in August.*

**EXCERPT 2:**



# Worst-case Scenarios

**T**he events you will read about are true. We witnessed them and share them with you for your benefit. But the primary purpose of relating these stories isn't to be sensationalistic. It's to stress to pest management professionals (PMPs) what might happen if people in our profession didn't exist. It emphasizes how horrible a cockroach situation can become and the incredible horror humans must — or mistakenly think they must — endure daily in their homes. It underscores how important our work can be to others who depend on us.

With current technology, there's no excuse. Although

These cockroach horror stories illustrate that the war against cockroaches is far from won.

**"Cockroach Combat Manual II" Excerpt By**

Dr. Austin M. Frishman & Paul J. Bello

it's not a shame to have cockroaches, it's a sin to persist with them. Never let this happen with your customers. Do what you can to correct it wherever it exists. Do your best.

**The horror ... the horror**

I have no problem recalling the most horrendous cockroach job I ever tackled. It's the only one that caused nightmares, when I'd wake up in the middle of the night sweating.

It was an American cockroach job in a hospital on Long Island, N.Y. I was testing a new gel cockroach bait that needed a difficult test. Under the entire hospital was a crawlspace about 2.5 ft. high that housed a bunch of steam pipes and other obstacles. When you dropped down through

the floor via a hatchway, it was teaming with more than 300,000 cockroaches. There were so many, they were hanging vertically on one another's backs, covering the pillars.

The cockroaches were feeding on the crusted fecal material from a decades-old sewage leak. When you lifted the crusted material, hundreds to thousands of young nymphs scurried about. A few cockroaches were feeding on dead rats. As I put the gel baits out, the cockroaches came running to the bait, devouring it. They were fighting one another to get to the bait — many of them trying to crawl on me as I crouched in this cesspool.

I had to return to this location and bait six more times. At no time could I convince someone to return

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Cockroach Biology  
& Behavior

**Excerpt 2** (July PMP):  
Worst-Case Scenarios

**Excerpt 3** (August PMP):  
Technology &  
Technique Tips

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with me a second time. The gel I used became registered as Maxforce Gel Cockroach Bait.

— *Dr. Austin Frishman*

### Tale from the landfill

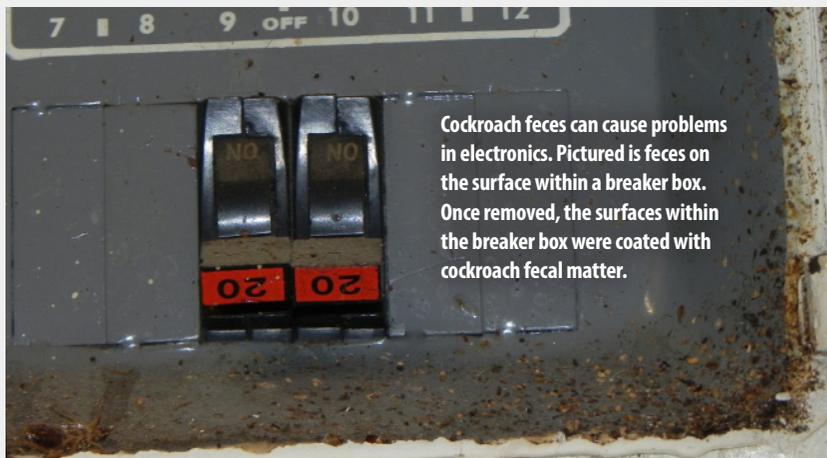
My first American cockroach encounter was in a snowstorm in Waltham, Mass. I was training technicians how to use a rodent bait on a landfill. There was about 6 in. of snow on the ground, and it continued to snow heavily. As we raked back snow and debris from the surface of the landfill, American cockroaches came bubbling out onto the snow. No way, I thought. Here's a tropical insect surviving in a northern state outdoors in the winter on the snow! The heat from the fermenting garbage provided them with enough warmth to survive and thrive.

To control these insects, you'd have to set up drums of cockroach bait (like Ni-Ban Granular) and let it flow into feeding stations placed around the perimeter and in the landfill. A few hundred pounds of bait wouldn't be excessive to handle a heavy cockroach population such as this. They might eat that much in a few days. You'd have to refill the drums for continuing baiting.

— *Dr. Austin Frishman*

### Monkeying around

For years, animal research facilities battled unchecked German and American cockroach populations because no pesticides could be used around the research animals. The cockroaches would abuse the animals by chewing on their hair and skin, which put the test



**Cockroach feces can cause problems in electronics. Pictured is feces on the surface within a breaker box. Once removed, the surfaces within the breaker box were coated with cockroach fecal matter.**

animals under stress, which, in turn, affected and invalidated the research. I'd watch animal lab technicians attempt to use flame throwers to fry the cockroaches when the animals were removed temporarily. They used steam, high water pressure and just physically crushed them – all to no avail.

One of the most difficult cockroach jobs I encountered looked relatively simple to start. It involved a greenhouse with plants for teaching purposes and a few research monkeys. American cockroaches were destroying the plants and harassing the monkeys. No residual baits or sprays were permitted. We were, however, permitted to space treat with a pyrethrin-based product. We started about 8 p.m. The monkeys were removed for treatment, and the greenhouse was closed and treated. It was retreated hourly until 6 a.m. the next morning. That totaled 11 treatments. It was aerated, and the monkeys were returned. Within two days, American cockroaches resurfaced. A further investigation showed they were living in rat burrows hidden below work benches. We had to fill every rat burrow and redo the entire job.

Years later, during the daytime while dusting rat burrows around trees on Park Avenue in New York, we unknowingly flushed American cockroaches onto the sidewalk. Only in New York do people walk by and keep on walking unfazed as cockroaches scoot between their legs to avoid getting trampled. We had to stand guard by one store to head off a few frantic cockroaches headed indoors. We did a Mexican hat dance to stop the ones running amok. This, without the advantage of pointed shoes.

— *Dr. Austin Frishman*

### The unforgettable battle

Working as a pest management technician provided me a dimension of training that couldn't be attained in the classroom. One day I was assigned to conduct a cockroach cleanout at a Section 8 apartment complex. It was a one-bedroom unit occupied by a woman and her toddler son. Visible signs and odors of German cockroaches were readily apparent in every room and, as a young technician, I thought:

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This is just like what we learned in Dr. Frishman's class.

How can people live like this?

Wow, one look at the boy's face told me these cockroaches were so bad he was missing eyelashes and eyebrows.

One look in the cabinet below the kitchen sink showed me this apartment had what we learned to term "3D roaches," which is when there are so many there's limited cabinet wall space — so the cockroaches hang onto other cockroaches.

Our tools of choice were dominated by water-mixed liquid concentrates, as well as aerosol spray products. We also used oil-based products, applied via various ultra-low-volume (ULV) injection and aerosol fog application equipment.

At that time, the methodology included using a compressed air sprayer to apply residual insecticides, followed by the use of aerosols and ULV applications to flush and kill cockroaches. The liquid residual applications were intended to provide long-term residual control and ensure cockroaches running from the directed aerosol applications would contact those treated areas to prevent successful escape.

Now, what was clearly underestimated during this job was the sheer number of German cockroaches

**Often times German cockroach populations can build to such great numbers within a home or apartment the inner and outer surfaces of appliances, such as cooktops and ranges, are covered in cockroach fecal matter.**



present within that apartment.

With liquid residual applied, it was time to lay waste to the cockroaches within the cabinets using directed aerosol applications. Armed with my belt pack aerosol application system tools, I descended on these unsuspecting cockroaches to wreak my unholy vengeance on them. That was the plan, anyway.

The results were slightly different. The 3D cockroaches were more than anticipated, and the aerosol barrage failed to drop them where they stood, which was apparent when cockroaches literally ran everywhere. The situation deteriorated before my eyes. The cabinet shelves, countertop, floor ceiling and adjoining room soon were covered with scattering cockroaches. Many eventually turned belly-up; others simply stopped running in various locations. Roaches were climbing my pant legs, falling off the ceiling on my head and under my collar down my neck beneath my shirt. Nowadays, we would've simply used a suitable vacuum and immediately removed these cockroaches without making such a mess.

The din of battle cleared and, eventually, there wasn't a living cockroach to be found.

But seeing the condition of the apartment, I couldn't leave it with so many cockroaches to clean up and decided it was best to do it myself. However, I hadn't been properly equipped and used what was available at the account at that time: a vacuum, broom, dustpan and paper bags. After clogging the vacuum with German cockroaches, the broom and dustpan were next. Dead cockroaches were swept into piles and scooped up with the dust pan into a mop bucket. While unsure of the total number of cockroaches, my observation was about 3 gallons, a large spaghetti pot full of cockroaches, plus whatever was stuffed into the vacuum. This was an image and smell I've never forgotten.

— Paul Bello

## German roommates

When Combat Cockroach Bait was first launched, a national campaign was initiated to seek the worst cockroach jobs in different parts of the country. People explained why they needed help. Once selected, the winners received me for one day along with a local PMP who'd follow up the next several months. This was repeated once a year for a few years. Here's one example to give you an idea of how severe the situations were.

In an Atlanta suburb, a young boy's bedroom had an Atlanta Braves baseball cap sitting on his shelf. When I turned it over, hundreds of cockroaches ran in all directions. Cockroaches

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cover every wheel of his toy trucks. A few cockroaches lived inside every tape deck. They had a pet hamster on a table with a pole touching the ceiling. At night, the pole became a highway for German cockroaches to descend from the attic and devour the hamster's food. The owner of the home told me that when she fed the dog, she stood with a broom to keep the cockroaches away from the food so the dog could eat. At first glance, though, you'd never know this was the case. The mother worked for the post office and dressed nicely. As a side note, the technician assigned to help me was a termite technician who thought he wanted to switch into general pest control. It was

**Using a suitable HEPA type vacuum can remove large numbers of cockroaches without creating a mess.**

his first and last job. He returned to termite work and never tried cockroach management again.

At a second location, the top of a toothbrush wasn't visible. It was covered with cockroaches — and this was in the daytime. When I pulled back the shower curtain, my first impression was the wall was covered with a dark wallpaper. But as I reached to touch it, *it moved*. The wall was covered with one massive group of mid- to late-instar German cockroaches. There were far too



many to count. Obviously, one, 10 or 20 tubes of material weren't enough to do the job. **PMP**

— *Dr. Austin Frishman*

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*Dr. Frishman and Bello, longtime pest management industry veterans, have combined their expertise to jointly author **The Cockroach Combat Manual II**, publishing later this year. You can reach Dr. Frishman at 561-487-1585, and Bello at paul bello@att.net or 770-500-0460.*