

The white-suited figures have been working in the hot Tennessee woods for several hours. Earlier that morning they located what appeared to be a grave, following a tip-off to police that a serial killer has buried at least one of his victims here. They've started to expose the remains of a body, when a shout from one of the team alerts them to an unwelcome development. "Okay," she says, peering into the grave. "Looks like we got two."

The scenario is fictional: no serial killer, no tip-off. But the bodies themselves are real. If it seems a particularly grisly form of make-believe, that's only a reflection of the even grimmer reality it attempts to reconstruct. If this were a real murder, the forensic evidence collected here could help capture the killer. Mishandled, it could also let that same killer go free.

The exercise being carried out in these Tennessee woods is part of a new crime scene training programme run for police officers and crime scene investigators by the National Forensic Academy in Knoxville, Tennessee. It aims to deliver training that's as close to the real thing as possible; not only does it blow-up real cars for its bombs and booby-traps section, and burn down actual houses for its arson module, it's also the only course in the world that uses human cadavers in some of its reconstructions.

"We try to cover every serious crime," says Jarrett Hallcox, the NFA's programme co-ordinator. "There's nothing better than experiential learning. It's hard to get a police officer to sit in a classroom unless you tie him down. But if you see a car explode, you'll remember what you've picked up a lot better than if you're just told about it."

Funded by the Department of Justice, the NFA is part of the Law Enforcement Innovation Centre, a partnership between the University of Tennessee and the Knoxville Police Department. Using specialist instructors from organisations such as the FBI and Alcohol, Tobacco and Firearms Bureau as well as civilian experts, its ten-week residential course provides a mix of lab work, classroom-based studies and realistic field exercises to instruct its students in all aspects of crime scene processing, from blood-pattern analysis and gunshot residue to terrorist crimes scenes and weapons of mass destruction. And murder.

The training is the first of its kind in the US. High profile cases such as the OJ Simpson murder trial, where doubts about the prosecution's evidence contributed to Simpson's acquittal, had highlighted the importance of crime scene processing, and the need for proper collection, identification and preservation of evidence.

But while courses in individual forensic disciplines, such as fingerprinting and crime scene photography, already exist, until now there has been nothing that offered a more comprehensive approach, far less any sort of national standard. While police and civilian crime scene examiners in the UK have to undergo training approved by the Association of Chief Police Officers (generally at the National Training Centre for Scientific Support in County Durham, although the Met. has its own school), in America requirements - and standards - vary from state to state.

"Right now the ways crime scene investigators are being trained, it's kind of like the Wild, Wild West. Everybody's just shooting their guns off, hoping to hit something," Hallcox says. "In more rural, smaller departments you could be thrust into a job and have no formal training. They probably have some experience, but then they're the crime scene expert. And you can see the evidentiary problems when that case goes to court."

Crime scene and forensic training is now a hot topic in the US, says Hallcox. It's becoming recognised that some sort of 'centralisation process' is needed, so that any police officer or crime scene investigator testifying in court can demonstrate a nationally recognised level of training, regardless of which state they're from. It's this benchmark that it's hoped the NFA will eventually provide. "We believe, and so does Congress and the Department of Justice, that we can be the standardisation mechanism for this," Hallcox affirms.

The academy opened its doors last autumn, after almost two years of research and development. And if a need for such training was already recognised, six days before the start of its inaugural class it was underlined in a far more potent way than anyone could have predicted.

"September 11th was a wake up call," admits Hallcox. "We were in the final stages of preparing for our first class, and then that happened. Right off

the bat our second week of instructors, which is photography taught by the FBI evidence response team, were called away to Pennsylvania to cull the plane wreckage.”

With the world’s largest crime scene suddenly present in New York, forensic examination suddenly acquired a whole new significance. “It showed the magnitude of what could happen. And it highlighted the need for such training. No doubt about it,” Hallcox says.

The NFA has three classes scheduled for this year (from 2003 they will be running four), and demand for the sixteen places on each has been high. The \$6,500 fee is generally paid by the student’s own police department, and includes accommodation and use of a laptop computer as well as a kit of technical and photographic equipment for the duration of the course. At the end of it, in order to graduate students have to successfully process mock crime scenes set up by an FBI evidence response team.

The academy is based in the Law Enforcement Innovation Centre’s headquarters, a large brick building that, incongruously, also houses the Boys and Girls Club of Greater Knoxville. At the moment most of its students are from the south east, especially Tennessee (the course was initially geared towards rural law enforcement agencies, where the need for training was perceived to be greatest). But after just three sessions word is already spreading; so far there has been take-up from fifteen states, with students coming from as far away as Chicago, Hollywood and North Dakota.

On the Monday morning of their sixth week, the students of the third class begin to drift into the classroom at 8.00am. There’s a uniform of sorts: dark blue NFA polo shirt (the academy’s logo is a skull, a fingerprint and a gun emblazoned on a shield), combat trousers and black boots. The students are predominantly police officers; bulky, beef-fed men for the most part. But not all of them.

“I’m here to enhance the skills I already have, in addition to learning new ones,” says Jennifer Rhinebarger, one of the four women in the class. A civilian crime scene investigator – or ‘criminalist’ - for the police department in Plato, Texas, she already has over four hundred hours of forensic training that took her five years to obtain. Even so, she still regards the NFA as something

not to be missed. “All the instructors they have are nationally and world renowned in their fields, and you can’t learn from anybody better than that.”

So far the class have already covered aspects such as crime scene management, latent fingerprint processing, and forensic sketching. But the coming week is the one they’ve been waiting for: Body Recovery.

While other countries may have their own version of the NFA’s training (the police National Training Centre in County Durham also uses mock crime scenes in its nine-week course), the academy goes to extreme lengths to ensure that their reconstructions are realistic. The theory is that the more life-like the recreations are, the better prepared the students will be when they encounter the genuine thing. For the blood-spatter analysis, expired human blood from blood-banks is used rather than pig; houses earmarked for demolition are set on fire to replicate arson instead of custom-built sets. But it’s the body recovery exercise that really sets the NFA apart.

“That’s our calling card. It’s what makes us unique,” claims Hallcox. “There’s several places where you can go and excavate pig remains, but nowhere other than right here can you find a research facility where you can excavate human remains. And that’s worldwide.”

It’s run in conjunction with the University of Tennessee’s outdoor Anthropological Research Facility. Known more colloquially as ‘The Body Farm’, it was started in 1980 by Dr William Bass to document and investigate the process of decomposition, and especially to find ways of establishing the all-important time-since-death of human remains. It is unique in that it’s the only anthropological facility in the world to use actual human cadavers in its research. While some are unclaimed indigents supplied by the medical examiner, the majority of bodies are donated, either by the individuals themselves or their families. Last year alone the facility received nearly fifty; an egalitarian mix of university professors, lawyers, nurses and vagrants.

With the exception of the FBI, which spends a week each year at the site for its own in-house training, only the NFA is allowed to use the facility for body recovery exercises. The class will spend the next three days here, carrying out two exercises. The first is called surface recovery, and involves

processing a mock crime scene where there are scattered skeletal remains. The second, and more difficult, will be to excavate an actual buried body.

The day before they begin, Dr Bass himself instructs the class in what to look for when dealing with a crime scene involving human remains. He has worked on dozens of crime scenes during his career, and though officially retired is still very much a part of the facility. His Snoopy tie and informal delivery helps counter the undeniable grimness of his subject, but there's no disguising the underlying seriousness.

"There are no stupid questions," he tells them. "You don't want to assume too much when you're dealing with a crime scene."

For the next two hours the students are presented with slides from crimes scenes Bass has worked on, along with lessons drawn from each. "You always, always X-ray burn material, and you always X-ray maggot covered material. There could be a knife underneath."

The class listen impassively as he describes the length of time it might take a body to fully decompose, or 'skeletonise'; the effect on vegetation of volatile fatty acids from a corpse, and the fact that as a body decomposes the skin will slough off hands 'like a glove'. Easily mistaken for a leaf when the body is outdoors, it's often overlooked by investigating officers, who thereby miss one of the best means of identifying the victim (in what sounds like a grisly recipe, Bass tells them that if it's soaked overnight in warm water, fingerprints can still be taken from it).

Early next morning the class gather in the car park outside the Body Farm gates. Spread over two acres of wooded hillside, the facility is hidden behind a high wooden and chain-link fence topped with razor wire. There's nervous banter as the students liberally douse themselves with insect repellent (everything in Tennessee seems to bite or sting) and don protective white coveralls, gloves and overshoes. Ominously, masks are also available in case anyone can't handle the smell.

The general feeling is one of anticipation, but also apprehension, even amongst the more seasoned hands. "I've been around some dead bodies and stuff, but I've never done anything like this. This is a first," says Sammy Liles, a police lieutenant from Martin, Tennessee. An affable bear of a man, like

most of his classmates Liles will be expected to pass on what he's learned to his fellow police officers when he returns to his department.

But despite thirteen years of experience, he admits to being nervous about what's ahead. "This is what it's all about. This is actually hands-on. You can look at all the slides and read all the books you want to, but until you get your hands dirty, you just don't know."

The students are given a preliminary talk by Jackie Fish, the NFA's project manager, reminding them to respect the fact that all the bodies they will see inside are still individuals whose rights must be respected. With a final admonition to watch out for poison snakes, spiders, and toxic plants, the gates are opened and they're allowed in.

It's a macabre setting. Two bodies are immediately visible lying in the open, but they are part of other projects and nothing to do with today's exercise. The facility researches such aspects as the time it takes for hair to slough off a body, the role of insects on decomposition, even the differing effects that light and shade will have on the process of decay. The NFA students have been warned what to expect, and all appreciate the value of the work done by the facility. Still, there's an understandable hush as they're led up the hillside where they're to spend the rest of the day.

The class has been split into two groups, each of which will have its own crime scene. These are already cordoned off with yellow police tape – the exercise is to process the crime scenes, not locate them. Scattered amongst the trees and bushes of each are human bones, the positions of which have been carefully recorded by the instructors so that each piece can be accounted for. As an additional test, trace evidence such as shell casings have also been included without the students' knowledge.

"Y'all ready for the walk through?" Detective Brian Kiersey asks his group. The 43 year-old from Collierville, near Memphis, is one of the most experienced members of the class, having been a police officer for the past twenty years. Although he has worked on several homicide investigations, the actual recovery process is as new to him as it is the rest. Unlike some of them, however, he's actively looking forward to it.

“I’m looking at it as a police officer who’s been in court before and had to testify as to my processing of certain crime scenes. You can’t re-do it, and if you screw up you can’t go back. I hate that.”

The students form a line and slowly work their way through the crime scene, marking anything they find with a miniature orange flag. It soon becomes apparent that this is less easy than it sounds; not only is there a thick leaf cover on the steep and uneven terrain, but it’s often difficult to distinguish small bones from stones and pieces of wood.

“I found some vertebrae up by that tree,” Kiersey says during a water break. Even in the trees’ shade it’s already hot and humid, making the coveralls unbearable. Shaking his head, Kiersey gives a rueful laugh. “Oh, Lord, this is gonna be a day.”

By the end of it, the location of everything the students have found has been noted, the whole procedure carefully photographed (two photographic instructors have travelled from South Carolina’s Investigation Forensic Unit to oversee this aspect), and each piece of evidence placed into a brown paper evidence bag, ready for sending to the crime lab if this was a real investigation. One group missed three small bones out of the thirty scattered in their crime scene, the other only one. Not one hundred per cent scores, perhaps, but not too bad for what amounts to a novice class.

But everyone is aware that the real test will come the next day. For the burial recovery the class is again split into groups. Using long metal probes to test for tell-tale softer ground, the two graves are soon located. After examination with a metal detector, a grid of string is pegged over each site so that the position of everything found within it can be logged, and then the actual excavation starts.

It’s a dirty, painstaking business, requiring a literally archaeological thoroughness. Most of the digging is done with hand trowels, and every inch of soil has to be carefully sieved. Anything that looks remotely like evidence is carefully recorded and bagged. Even samples of maggots and insect eggs are taken and stored in small jars – these can reveal a wealth of information, such as how long the body may have been here.

With the temperature now in the 90s, tempers are growing short. One student thinks she may have found tissue. "Tissue as in skin?" another asks. "Well, it ain't Kleenex," comes the retort.

But it's several more hours before the first group discovers what they're looking for. "It's got a sock on it," the student says, carefully brushing away the soil from the leg bone she's exposed. A few minutes later its partner is also unearthed. Unfortunately, shortly afterwards a third is discovered; true to the serial killer scenario, the instructors have thrown a curve-ball at the students by placing two bodies in the same grave.

The second group, meanwhile, are having their own problems: they are over two feet down and while they've found a .22 bullet, so far there's no sign of a body. Which means it's either deeper than they were expecting, or they've been digging in the wrong place.

They're told to keep going.

It takes until the following afternoon before the bodies are fully uncovered. Having been placed here several months before, the remains are mainly skeletal, with items of rotting clothing still attached. Everything is photographed, and sketches made of the bodies' positions. After the remains have been carefully removed, the class's final duty is to replace them with new ones (actually several months old) from the facility, ready for the next NFA class. As a final touch, a note saying 'Good Luck' is put into a plastic film container and buried as well.

Tired, sweaty and dirty, the main emotion amongst the students is relief that it's over. But none of them doubt the value of what they've just been through. "It's amazing. It's great because you can actually look at these remains and visualise what they've been telling us about for the last two weeks," says Jennifer Rhinebarger. "The opportunity is once in a lifetime, basically."

Despite his earlier nervousness, Sammy Liles agrees. "It's been hot and tiring, but it's given you a real-to-life experience of working a crime scene with a body," he says. "I was afraid of the gruesomeness and the grossness of it, but wasn't near as bad as I expected. I enjoyed it for the most part, if you

can say that. I wouldn't want to do it for a living. But I'm glad to say that I've come, I've seen, I've experienced."

As realistic as it is, however, it's still only training. The bodies were donated, the crime scenes staged, not real. But a grim reminder of the reason – and the need – behind it is delivered that same week, with the news that a five year old girl has been abducted and murdered by a paedophile serial killer in California. A man is swiftly arrested, but it's nevertheless a sobering example of what's at stake.

It's admittedly early days for the academy – after only three intakes they are still fine-tuning the course, using input from the students themselves. But there are already signs that it is beginning to make a difference. "We're getting feedback all the time," says Jackie Fish. "The students who've been here have gone back to their agencies and already started training or setting up evidence recovery teams. We're getting success stories, and it's only going to get better and better."

Expectations are clearly high, as is indicated by the additional \$1m of funding that the National Institute of Justice has recently provided to create a National Forensic Science Institute in Tennessee of which the NFA will be only a part. The hope is that the academy will eventually become a model for crime scene training across the US. Given the scale of the task that might not happen for some time - getting fifty notoriously independent states to toe the federal line will not be easy. But Jarrett Hallcox believes that the effort needs to be made.

"It's not glamorous like in these television shows, where they show up in their dresses and make-up. These people are down on their hands and knees, culling through the muck and the guck, because someone has to do it. Because there's evil in the world."