

# **Fire Investigation Caveats**

by Carter D. Roberts

In 1989, I wrote an article titled Misconceptions about “V” Patterns which was then followed by a year’s series of articles: Misconceptions about Fire Investigation. The articles covered subjects from the scientific method to the spalling of concrete. Since that time I have heard one too many lectures about the “old versus new fire investigation techniques,” some done with proficiency, others done by inexperienced and less than properly prepared instructors. The problem is that most of the critics are not coming up with anything new, and some of what is new is worse than the old.

Since the subject has been overworked, I have avoided lecturing or commenting further about “misconceptions, myths, falsehoods, conflicts, modern versus new, etc.” in fire investigation. Recently, however, a few “fads” that are detrimental to effective fire investigation have crept into the lecture circuit and been put into practice. It is time to speak out about bad science and bad practices that are not only harmful to fire investigation but often obfuscate the facts.

Some of the most recent fads that need to be more thoroughly examined and discussed are:

- High Temperature Accelerant (HTA) fires
- Criminal investigators involving themselves with civil torts
- Awards to witnesses
- Accelerant Detector Canines

This editorial would be too long to go into detail about each subject, so I will highlight some of the major problems that exist where trends have been often quickly accepted without proper peer review.

## **High Temperature Accelerant Fires**

In the state of Washington, several rocket fuel scientists were assembled to initiate a fire by the use of rocket fuel. As would be expected, very high temperatures were achieved. A video and a television documentary were made of the fire and followed by a number of articles published about HTA fires.

Some of the fads in fire investigation are often quickly accepted because of the keen interest and pressure to fight the crime of arson. At the time of the HTA fire fad, I was president of a nationwide fire investigation company with over a 130 field investigators working over 7,000 fire assignments a year. One newspaper article about HTA stated

such fires had been occurring for over ten years. My retired boss sent me the article and asked how so many fire investigators had missed HTA fires for over ten years.

I wrote back and told him we had not missed HTA fires for over ten years because they simply were vastly exaggerated and grossly overstated. A direct quote from my letter several years ago was, "I do not know if space aliens exist or not, but, until someone can provide proof, I am not convinced they are visiting earthlings."

For the most part, professionals with such experience and education in fire investigations agree that the HTA articles made an unfounded assumption with little to no merit. The sheer bulk and weight of the required rocket fuel makes setting an HTA fire most impractical for someone considering an arson fire. To my knowledge no one to date has been arrested for an HTA fire.

### **Criminal Investigators Involving Themselves With Civil Torts**

Some city, county, state and federal agencies have been expanding their scope of authority in fire investigation. When it has been discovered that a criminal act has not been committed, many agencies are not only continuing to confiscate evidence of a civil nature but are often completely destroying the scene by the use of bobcats. The fire investigator should be an archaeologist, not an excavator. These practices are effectively putting a stop to the centuries-old English system of civil procedures as well as being expensive to insurance companies.

In any technologically or scientifically based profession, authorities recognize the importance of "peer review." The latest revision of NFPA 921 also recognizes peer review as important in advancing the science and art of fire investigation. Reconstruction of the scene is recommended procedure to determining the origin and cause of the event. When any agency completely destroys and cleans a fire scene without allowing other interested parties access, often under the thinly veiled excuse of safety factors, where is the opportunity for peer review?

No one, except maybe the criminal, would want to do anything to impede a criminal investigation. But when a criminal act has not been committed, why would a government agency involve itself in civil investigations? If preserving and protecting the evidence of a non-criminal nature is the reason, then the investigator or agency should be responsible and accountable for any spoliation of evidence. The criminal investigator should also be knowledgeable about civil subrogation issues and be available for depositions and court testimony when subpoenaed.

### **Awards to Witnesses**

When a person witnesses a crime or accident, most people are willing to tell the truth to investigators and in court. To pay an award to a person to testify at best creates a moral hazard and, at worst, may be evidence of bad faith and a violation of law. Insurance

companies in particular should never put themselves into a position to be accused of “buying a witness.”

### **Accelerant Detector Canines**

By law the fire investigator is required to assume the fire is accidental unless facts are discovered to prove otherwise. Not only should we conduct scene examinations that can withstand peer review but we should use investigative techniques that will treat every fire scene with complete objectivity.

All of the training, experience and knowledge gained in fire investigation is useless unless the investigator is completely and absolutely objective when he or she arrives upon the fire scene. Several articles have been written about objectivity, ethics and how to remain unbiased when conducting a fire investigation. Apparently, from the number of injurious fads persisting in fire investigation, many more articles and many more seminars should be conducted about maintaining objectivity.

The “Accelerant Detector Canine” (not a proper naming) is one of the worst fads that has crept into the fire investigation field in the past fifty years. Not that the dog is a bad thing and not that the dog is not a useful tool, but many of those who are using the dog, or any other biological detection unit, are often utilizing it incorrectly.

First, there is no such thing as an “Accelerant Detector Canine” because the dog cannot determine intent. Only the human can determine intent. The dog can only identify where the strongest concentration of a compound such as gasoline, kerosene or other hydrocarbon is located. It is up to humans to determine the chemical makeup in a laboratory and whether or not the identified compound was used as an accelerant.

If a person arrives at a fire scene and is looking for arson, that person has no objectivity about what caused the fire. If the investigator believes the fire must be arson then it is very easy to twist facts to suit that theory instead of developing a theory from the facts. Too many times investigators arrive on a fire scene with a dog without first attempting to interpret burn patterns and determine where the fire started and whether or not there was an accidental cause.

If you had an accidental fire in your home or business, would you want a person with an “Accelerant Detector Canine” to show up to conduct the investigation? Would you want a person with “Arson Investigator” written on the vehicle or on his or her coveralls to investigate? If the investigator first brings an accelerant detector dog to a fire scene, where is the objectivity?

Only after the investigator has made every attempt to locate the origin and the cause of the fire should a mechanical or a biological hydrocarbon detector be utilized. Only then and not before then is the dog or other device of value as an investigative aid. To use the dog

too early is “a garrote around the neck of progress” and a technique that should be avoided.

If there are no accidental reasons for the fire, then the person can explore the possibility the fire was intentionally set. Investigators who are bringing “Accelerant Detector Canines” to the fire scene without first trying to interpret the burn patterns and determine the origin and cause of the fire are often destroying not only their own objectivity but the objectivity of those witnessing the work of the dog. Dogs, as well as us humans, are not infallible and are capable of errors.

More and more accidental fire scenes are being sniffed by “Accelerant Detector Canines” without the investigator first attempting to read the burn patterns. The use of these dogs in many cases is the equivalent of “Voodoo Science.” There may be many valid reasons for the presence of hydrocarbons in a scene. The simple fact that a dog “hits” on a hydrocarbon does not mean the investigator is free to draw the assumption that hydrocarbons were used as an accelerant.

If the dog “hits” and the laboratory reports the sample negative, there is no physical evidence, regardless of the sensitivity of the dog’s olfactory ability. The “Accelerant Detector Canine,” because of misuse, has affected or destroyed the objectivity of far too many investigators who are often too ready and willing to jump to a quick conclusion that the fire is arson. We must exercise a high degree of professionalism in arriving at objective conclusions. Our work strongly impacts the lives of others, the innocent as well as the guilty.

In any profession, new fads and trends will come and go. Our task, however, as professionals is to discriminate between the useful and the harmful. One of the principles of science is that when a new concept is introduced it is not accepted unless it is first thoroughly tested. We are not using scientific principles; we are accepting gimmicks. There is a need for advancements in fire investigation procedures and techniques but we must be certain that the “new” we accept is really an advancement.