

# For the Birds

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I suppose anytime you've spent better than half your life doing something, it's easy to get complacent and have a know-it-all attitude. Tenure seems to convince us that we've seen, heard, felt, and done it all, that there is nothing left under the sun for us to learn. Then BAM! Nature shows us a different way to look at things. It reveals that there are in fact multitudes of things that we do not know and probably never will know. It also teaches us that our opinions must be changeable when new information or experiences prove old postulates false and establish new ones. This is particularly true when conducting fire investigations.

In practically any fire investigation report you read, there will be a sentence addressing the process of elimination. It may simply state, "Examination eliminated all other causes," or something similar. The intent is to tell the reader that I, as a fire investigator, have in fact examined anything with the potential to produce ignition, and that I have through that examination eliminated it as the cause. Though the statement is succinct, the process is not. In actuality, if my process is put to the test, I must be able to prove that I examined all ignition sources and devices common to the area and I developed and evaluated hypotheses whereby an ignition source may have been brought to the fuel. I am saying in essence that I have followed a systematic investigative procedure that afforded me the opportunity to collect data, evaluate that data, and to exclude by utilizing deductive reasoning and logical analysis, all other ignition sources.

In many cases this process is simple. Direct evidence establishes the fire's origin and there is only one cause in the area that has any merit whatsoever. Other sources of ignition are so far removed as to be incapable of providing ignition and the direct evidence of cause is so conclusive that no other hypothesis holds water. But, in many others the process is far more complex, and herein comes the rub. To eliminate a cause, the investigator must be able to envision all conceivable ignition hypotheses, not just the most obvious, but all. For this reason, the investigator's ability to adequately eliminate causes will be directly proportional to not only his education and experience, but his life experience. And, with this in mind, we lead into our story:

Springtime is best known for propagation. Birds nest, bees pollinate, and the natural world replenishes itself. Living in the country, I get a front-row seat to this spring ritual. In fact most years it is not unusual to find seven or eight nests tucked away neatly in the foliage that abounds in my yard and on window ledges. On a couple of occasions, I have actually found nests in evidence cans lying on a shelf in my garage.

With spring comes another ritual--yard work. As a result, it is not unusual for my garage to remain open from early in the morning till late at night, thus the nests in the evidence cans. On this particular Saturday morning, I open my garage and begin my morning tinkering. Five minutes or so later, I begin to smell smoke, look up, and see a light gray

haze looming over the back side of my garage door opener. On closer inspection, I see the plastic lens for the garage light discoloring and what appears to be grass, leaves, and straw wedged between the lens and the case for the opener. The ventilation opening in the plastic cover has provided sufficient room for a bird to nest in the fixture. The low-density nesting materials have undergone pyrolysis and are beginning to smolder. Free burning is imminent. (See Photos Below)



Let's now imagine that I did not discover this nest. Imagine that I am a homeowner living beyond my means. I've had some unforeseen financial difficulties, I've had my house up for sale for the past three months, and my wife left with her Aerobics instructor six months ago. I work at the local K-mart and even though my garage is cluttered, and I don't park my car in it, I leave through it each morning. On this morning, I leave as usual and never notice the nest.

As I leave, I shut the garage door with the remote, and the light stays On seven minutes or so. The dried material that has been subjected to heating from the light each day begins to darken more and to smolder. The light goes Off, but the smoldering continues, insulated by the surrounding material. Small flames begin to flicker, and loose burning material begins to fall through the opening in the plastic cover. The flames intensify, the cover ignites, twists and warps and falls onto a boat in the garage, which has become more of a trash receptacle than a recreational device. It is filled with newspapers, discarded boxes, and the webs of tiny spiders. The padded seats ignite, then the papers and boxes, the resins in the fiberglass, and the fuel in the gas tank. A ceiling layer is developing, small windows at the top of the garage door begin to break, and within minutes the fire in the garage transitions to flashover, involving a wooden potting table; a four-wheeler; two cans of gasoline, one mixed with oil and one without; and an abundance of other stored items. By the time the local volunteer fire department arrives, the garage is fully involved, the fire has taken off most of the roof, and the fire is progressing into the kitchen and other points north. The department has enough water to make a relatively good stop. Sufficient patterns remain to establish the general origin for the fire and the investigation begins.

Now, what is going to happen here? Would an investigator by training and experience be able to eliminate all causes? Where would it appear the fire originated? Would there be evidence remaining to establish the accurate cause? Would circumstances relating to the individual's lifestyle affect the outcome of the investigation? Can this fire scene yield an accurate, unbiased investigation?

The answer to the last question is, of course, yes it can. The findings would probably be inconclusive or unknown, but an investigator performing an unbiased and accurate evaluation would not let outside factors influence his opinion. Either sufficient evidence is there or it is not.

The problem is, it takes discipline to ignore outside factors. In the real world, the investigator will probably establish an origin around the boat, since the debris from the burning fixture fell into it and the subsequent heat-release and flame-height would have obliterated any identifiable evidence indicating the real cause. Other than possibly the boat's battery, few ignition sources common to the area would exist, leading to the

hypothesis that this fire required the introduction of an ignition source.\* The scene is documented and statements are taken. The owner doesn't smoke, the weather was clear, and your local electrical engineer has ruled out electricity as a fire cause. The Insurance Company's SIU investigator makes you aware of the owner's financial condition and marital problems. You saw the For Sale sign in the front yard. What is the cause? Everything is factored into the various hypotheses you have developed. Only one conclusion can be formed. This fire was incendiary. All other causes are eliminated.

Herein lies the problem with establishing a Negative Corpus or conducting an improper elimination. Although the elimination process is ultimately essential, finding direct evidence in such cases is equally essential. Direct evidence is that evidence that directly proves the cause by positive rather than negative inference. For instance, a bead on a conductor may be direct evidence of a short circuit. However, specific evidence of fire spread and development from that point on the circuit, with an effective analysis of heat, fuel, and ventilation interaction would be direct evidence of it serving as the initiator for the fire. Depending on the intensity of the conflagration and the extent of damage, the direct evidence may or may not be sufficient to effectively eliminate other causes. If not, the investigator must show a systematic elimination process that includes the utilization of other experts if the elimination requires expertise beyond his or her ability. If after subjecting the evidence and information to critical analysis more than one conclusion can be drawn, the fire is undetermined. If the direct evidence in conjunction with the elimination process proves the cause and excludes all others, the investigator renders a cause determination. If sufficient evidence exists to establish a fire's cause it will in general be clear and convincing.

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\* It can be argued here that the hypothesis is correct, since the fire in the boat did require the introduction of the burning material from the nest. However, the boat is not the origin. Its involvement was the direct result of a fire originating at the fixture.