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Photography in Arson Investigations

John Kennedy
PHOTOGRAPHY IN ARSON INVESTIGATIONS

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The author, a Special Agent with the Mutual Investigation Bureau, Chicago, works in close cooperation with fire and police authorities in investigating fires of suspicious origin, explosions, arson, and related crimes. Drawing upon this experience he has prepared his present article dealing with the use of photography in such investigations. John Kennedy is a Lt. Commander, USNR, Intelligence Division, and has prepared a manual on arson investigations which is now used by the Navy. He has published other articles on the subject and lectured at various schools and seminars on aspects of arson investigation.—Enbroz.

Many lecturers and papers on photography leave the audience or reader with the uncomfortable feeling that forensic photography is a difficult subject to be attempted only by the most accomplished technician or investigator. These presentations often deal with formulas, mathematics, film processing techniques, and so called "wonder films". Such highly technical papers and discussions are fine in their proper place, but they are better suited for the professional photographer and the laboratory technician. This presentation is meant to be a fundamental, elementary discussion of the practical aspects of photography. It is intended for the average arson investigator.

It is not necessary that one be a professional photographer to take photographs in arson investigations. One need know nothing about developing and the intricate processes involved there. It is not mandatory that the investigator be mechanically minded nor even be able to read an exposure meter, although it is agreed one cannot have too much information on these aspects of the problem. The simple truths are that arson photography, although exceedingly important to the investigator, is really simple and need not be expensive.

Every arson investigator should carry a camera and film. He should take his own photographs and should supervise the taking of all other photographs during the investigation in every instance, whether or not he employs a professional photographer.

Photographs need not be taken by professionals to be introduced as evidence. The general rule regarding the admission of photographs into evidence is merely that they be relevant to the issues of the case and that they be verified. Any competent investigator can take photographs which will be suitable for introduction as evidence.

It is always better to have a professional, unprejudiced photographer take a photo if one knows it is going to be introduced into evidence, but one should not be

2 The fact that the photograph was taken by a professional photographer is considered prima facie evidence that the photograph was taken properly. State v. Mannion, 136 A 358, 82 N.H. 518 (1927).
so dependent that unnecessary delay occurs, or that the progress of the investigation is hindered because a professional photographer is not readily available. A photograph taken by an arson investigator at the fire scene during or immediately after the fire may well be of considerable more value in the prosecution of an arson case than a series of photographs taken by the professional photographer days after the fire.

It is good investigative technique for the investigator to take his own photographs immediately regardless of whether or not a professional photographer is to be employed later. Often this decision to do it immediately and get it done will be the difference between having valuable photographs and not having them when the case goes to trial. Sometimes a decision is made to forego taking a photograph because of the difficulty, expense, or time involved in procuring a professional photographer. If the investigator is properly equipped and knows how to take photographs, he can easily do this work himself.

If a professional photographer is employed, the investigator may wisely decide to supplement this photo coverage by taking additional photographs himself throughout the investigation. Often the investigation will require several days or weeks, but the professional photographer will be present only one or two of these days.

Regardless of the identity of the photographer and whether he be a professional or amateur, all photographs should be taken at the direction of and under the supervision of the investigator. The investigator should be present as a witness while the photographing is being done. There are several reasons for this. The investigator will want to instruct the photographer as to just what views to take and from what angles, directions, and distances because the investigator knows best of all just what evidence he wishes to preserve by photographing it. He will want to be present during the photographing to insure that the photographer is properly carrying out his instructions.

There may be no second opportunity to photograph an arson scene because it may be altered due to changing conditions caused by the elements—wind, rain, snow, or water—or by firemen or other persons, well-meaning or otherwise.

In addition to the practical reasons requiring the investigator to be present while photographs are being taken, there is an excellent legal reason. Courts commonly require that photographs be verified as to accuracy by a reliable witness before they may be introduced.3

With regard to who may verify photographs and the usual court procedure, it is held that the accuracy of the photographs can best be shown by the photographer who took them.4 If the photographer has died, or if he is living but not immediately available, the investigator may attest to the accuracy of the photograph if he was present when the photograph was taken. In fact, any witness who is able to state that the photograph is a true and accurate reproduction may make the verification.5

The courts are usually not insistent on the verification being made by the photographer. One opinion in substantiation of a decision states, in part, “There is no case,

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3 “It is common not only to permit but to require evidence that the print is an accurate reproduction of the object photographed.” State v. Evans, 224 P. 492, 115 Kan. 538 (1924).
we believe, in which the verification of the photographer has been held essential to
the competency of the picture as evidence, and there are several cases in which the
pictures have been admitted without such verification."

No investigator should avoid taking his own photographs simply because he feels
that the court may bar the introduction of such photos as evidence on the grounds
that the investigator is a prejudiced photographer. Photos taken by police and peace
officers have been admitted into evidence over objections after their accuracy was
established. The investigator is not normally considered to be a prejudiced party,
but rather a "fact finder."

Prosecutors and deputy prosecutors are not given the same distinction as are the
so called "fact finding" investigators. Prosecutors as a class are considered "semi-
judicial" and should not attempt to introduce into evidence photographs taken by
themselves or which will require their verification as to accuracy.

This problem of arson investigation and photography has been discussed many
times wherever arson investigators gather. In one discussion pertaining to photog-
raphy in arson investigations, one deputy state fire marshal stated that he takes
photos of only those arson cases that result in litigation. The problem here, of course,
is to determine on the first day of the investigation just what cases will result in
litigation. No one can tell on the first day what evidence is going to be uncovered
and whether or not that evidence will be sufficient to justify an indictment and a
prosecution for a crime, or will result in other litigation. Inasmuch as photos of the
fire scene should be taken as soon as possible, it should be a routine procedure to take
photographs of all fire scenes immediately upon arrival. Then, regardless of the ul-
timate outcome of the investigation or the changes that may result in the appearance
of the fire scene, the photographs will be available.

The arson investigator who takes his own photographs immediately upon ar-
riving at the fire scene, and follows this through by taking additional photos as evi-
dence is uncovered and upon every other occasion during the investigation when a
photograph is called for, is in an enviable position. He has permanent records of the
scene as of the time the photos were taken. This is tantamount to stopping the clock.
It means, in effect, that when the investigator attempts to reconstruct the fire
scene at a later date, days, weeks, months, or even years later, he will have the
valuable assistance of the photo, or a series of photos, to refresh his memory or that
of a witness. He can prove finally and conclusively as to the appearance of the fire
scene at the time the photo was made.

At any meeting of investigators where forensic photography is discussed, it is ex-
pected that someone will ask the question, "What kind of camera is best suited to
the needs of the arson investigator?" There is no simple answer to this because it
depends on the arson investigator—his method of travel, his expense account limita-
tions, his reasons for taking photographs, and the problems and advantages peculiar
to him.

7 Gaughan v. Michigan Interstate Motor Freight, 94 F. 2nd 266 (C.C.A. 7th, 1938).
8 People v. Crandall, 57 P. 785, 125 Cal. 129 (1897).
Lieutenant Carl H. McCommons of the Fire Department, Baltimore, Maryland, conducted a survey of State Fire Marshals in 1955 and inquired, "What type and make of camera is used by your office in photographing fire scenes?" He reported his findings as follows:

Four states failed to answer this question in any way. The Speed Graphic appears to be the most popular make for this type of work as eight of the states mentioned that particular make of camera. The other states use cameras such as the CE-93 Graphic; Regular camera used in criminal work; Kodak Tourist II; Argus; Voigtlander-120; and Kodak 120.

The arson investigator who has his car with him may prefer a Speed Graphic 4 x 5 with attachments. He may have the necessary space in his auto to conveniently carry this equipment. The investigator who travels extensively by public transportation and has a space problem may favor the Kodak Tourist with compact flash attachment which, along with several rolls of film and flash bulbs, will occupy only a third of his brief case.

Some investigators are using the new Polaroid Camera and, therefore, a few words about this relatively recent innovation may be of value. The Polaroid Camera was put on the market in 1947. It differs radically from other types in that it produces a completely processed print in less than 60 seconds. It is a camera with built-in developing tank using a method known as "diffusion transfer reversal." It is really very simple to operate and the camera has been improved and simplified since its introduction. This may well be the camera of the future as it is sure to be improved even more.

However, there are, at the present time, certain disadvantages in the use of this type of camera for investigative work. Two of the big disadvantages are:

1. Difficulty and expense in obtaining copies of prints.
2. The absence of any substantial amount of "law" and court decisions regarding the admissibility of such photos into evidence. Some courts require the submission of a negative along with the print. It is normal procedure to discard what might be termed the "negative" in this kind of photography.

Some investigators say they prefer to adopt a "wait and see" attitude with regard to Polaroid Cameras and to "play safe" by using the accepted types of cameras.

The investigator who takes color photos may prefer the Argus or one of the miniature type cameras so suitable for color work. Color photography is ideally suited to arson investigations. Scenes of debris and burned or charred material are more graphic and the various degrees of charring and burning are more easily distinguishable when shown in color. The same views in black and white are less contrasting and more difficult to interpret. The subject of color photography is worthy of separate treatment in some less elementary dissertation.

The camera with telephoto lens is not usually practical or necessary for arson work, although in frequent instances some phases of investigative procedures in connection with "stake outs" or surveillance work may require this type of photography.

Motion picture cameras and the use of cinematography, although not generally
used for arson work, are well adapted to pictorially recording the act of confessing\(^9\) and reenacting the crime.\(^{10}\) The basic principles which govern the admission of still pictures into evidence are the same principles which apply in regard to the admission of motion pictures into evidence.\(^{11}\)

The size of the camera utilized to take a photograph is of inconsequential consideration in determining the admissibility of the photo into evidence.\(^{12}\) There is no legal objection to small or miniature cameras.

It is not intended to discuss in detail the various types and kinds of lenses in this presentation. Let it be sufficient for the purpose of this paper to indicate the general acceptance of the anastigmat lens among professional photographers as the one lens most generally suitable for legal photography and for taking photographs as evidence in arson investigations.

Some of the simple facts of photography pertain to a debunking of three widely circulated pieces of misinformation which prevails.

1. "Some of the best photos are taken with a "little old box camera." They are not. A so-called "box camera" is actually a pre-focused camera on which no adjustment can be made for various distances, hence it is almost always out of focus, does not give clear, detailed photos and is unsuitable for most of the photos required by arson investigators.

2. "Arson Photography is an expensive facet of arson investigative work." This is not true. The price of the Kodak Tourist, for example, with flash attachment is about fifty dollars and is completely satisfactory for practically all arson work. The complete cost of taking 24 photographs including 12 exterior or outdoor views and 12 interior views of "shots" requiring flash bulbs is only about five dollars including film, bulbs, developing, and printing.

3. "Arson Photography is a difficult and exacting science." Not true! There are only three main settings on most cameras, less on others. There is a setting for distance from the camera to the object being photographed, lens speed, and camera opening or aperture as it is usually called. These are relatively simple settings and with a few minutes instruction and after a few practice rolls, the most uninitiated person can be taking good photos. Proper photography in arson investigations is not expensive nor is it difficult, but it is highly important.

**Exterior Photographs**

Photographs taken at a distance, sometimes called Neighborhood Photos, can be used in the investigator's report to identify the scene, that is to graphically show the investigator's superior, the prosecutor, or any other person reading the report, the neighborhood of the fire scene. This may include the nearness of houses or other dwellings, the proximity of the burned building or object to the road or fence or to

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\(^9\) Motion pictures of confessions have been admitted into evidence to show the voluntary nature of the confession and the absence of force or coercion. Commonwealth v. Harold Roller, 100 Pa. Super. 125 (1930).

\(^{10}\) Sellers v. State, 124 S.W. 770, 93 Ark. 313 (1910).

\(^{11}\) Motion pictures are several still pictures used in series. Heiman v. Market St. Py., 69 P. Ind. 178, 21 Cal. App. 2nd 311 (1937).

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Figure 1. Exterior view of fire scene

Figure 2. Exterior side view of the same building as shown in Figure 1

other buildings or dwellings, to show the means of admission and egress from the premises, to show the comparative relationship or distance to other objects which may be of importance. Not only is that shown in these Neighborhood Photos, but it is shown with clarity and brevity as compared to an attempt of one or more persons to reconstruct the scene by word picture or written description.

Exterior identification photos of the burned structure should be taken from all sides in series, as sometimes a front, rear or side view when shown independently may be misleading as to the extent, type and kind of damage. Two photographs of the same burned structure were taken by an investigator. The front view indicated little or no damage while the rear view showed the structure to be, to all intents and purposes, totally damaged with just the front wall remaining in the manner of a "false front" (figures 1 and 2).

INTERIOR PHOTOGRAPHS

In some instances views taken of each of the four sides of a burned dwelling or other structure will not indicate the entire extent of the damage. These exterior photos should be supplemented by interior views. This is often true in brick walled structures which are gutted by fire. It is also true of frame structures wherein several fires occur or a rapidly spreading fire results from the use of accelerants which burn or "gut" the inside, leaving the outer walls standing after the fire was extinguished.18

In these cases a series of photos are necessary to show the true and accurate extent of the damage. Incidentally, this series of photos may also show the unusual or suspicious nature of the fire and may serve as a "link" in a chain of evidence used to establish the incendiary nature of the fire or the "corpus delicti" (figure 3).

CORPUS DELICTI PHOTOGRAPH

The Corpus Delicti Photograph is one showing the incendiary origin of the fire. This may be done by taking a single photograph, but more likely would be accomplished with a series of photos. Photographs of two or more separate and nonconnected and unrelated fires which were simultaneous are considered to be Corpus

18 In a fire case in civil court, photographs of the damaged building, properly qualified and verified, were admitted into evidence to show the extent of damage. Security Insurance Co. of New Haven v. Dazey, 78 F. 2nd 537 (C.C.A. 7th 1935).
Photograph taken within a room of a house partially destroyed by fire showing graphic evidence of preparation for fire and perhaps indicating the possible motive. The window shades have been nailed over the windows. Practically valueless furniture was substituted for the usual insured furnishings. Bedclothing, mattress, rugs, and personal objects usually found in the bedroom have been removed. The type of furniture shown is the kind which if badly damaged by fire would leave just enough traces and remains to indicate that there had been some furniture in the room but insufficient evidence to identify the amount and kind of furniture.

Delicti Photographs. Photographs of incendiary devices, trailers, and flammable liquids which are foreign to the premises are other examples of Corpus Delicti Photographs. The corpus delicti of the crime of arson may be shown as a chain of events including the testimony of witnesses and photographs which corroborate those statements or help the witness to explain his testimony.\(^4\)

A fireman may testify as to separate, simultaneous and unconnected fires. His testimony may be supplemented by the use of photographs as exhibits. These photographs may enable the court and jury to more clearly visualize the scene and may more sharply reveal conditions necessary to establish the corpus delicti.

The very nature of the crime of arson and the difficulty usually encountered in proving the corpus delicti makes it one of the types of crimes and resultant investigations which is best suited to be served by photography. It therefore behooves the investigator of arson and suspicious fires to be more generally familiar with photography and the proper use of the camera than those investigating other crimes.

**Before and After Series of Photographs**

The Before and After Photo series requires that the photo be taken after the fire and the investigator locate and obtain a photo of the premises taken before the fire. These photos make it easier to reconstruct the structure as it was before the fire.

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Figure 4.

A photograph of a dwelling made prior to the fire and procured by the investigator for use in interviewing and interrogating.

Figure 5.

A view of the same property photographed during the investigation showing the extent of fire damage. Figures 4 and 5 are good examples of the Before and After series.

and may aid in determining the extent or severity of damage by comparing the two photos (figures 4 and 5).

The photos depicting the scene after the fire are admissible as evidence, if otherwise qualified, even though some time has passed since the fire occurred, providing the changes are not material. The test of admissibility here is based not so much on the length of time that has passed since the fire and the taking of the photograph, but on the amount and nature of the change that has taken place in that time.

The Early Photograph

The Early Photo is one taken at the early stages of the fire and is often useful in determining where the fire started and thus may aid the investigator in proving the cause or origin of the fire. This is another instance where the investigator is not concerned with taking a photo, but in procuring one that has already been taken. Newspaper files and amateur and professional photographers who often attend local fires are the greatest source for these so called "Early Photographs."

Another manner in which photography can serve us is to present a series of photos taken at intervals when a fire scene is being overhauled, screened, searched, or debris removed. These photos will show the progress and change at the scene as the overhauling, digging, or screening is going on, and preserves the view of the scene before the change occurred.

The arson investigator who takes his own photographs or who has a photographer readily available can, when evidence is being uncovered, immediately take a photograph of the scene while the evidence is partially uncovered. Later when the evidence is examined, he can take another photograph which will provide a permanent record of the manner in which the evidence was uncovered. The investigator who does not take his own photographs will face the problem of stopping all the work until a photographer can be summoned in order to take these photographs or, on the other hand, letting the "diggers" and "screeners" go ahead and completely uncover the object before he even knows the relative significance or value of the evidence being recovered. To be safe, the investigator equipped to take his own photographs will take the photograph and not worry about the belated arrival of the professional photographer.

Another type of photograph used by the arson investigator is that taken from the point of observation of a witness to show exactly what he could see from that vantage point. This helps to eliminate all future dispute about whether or not the witness was in a position to observe what he described.

If the witness said he discovered the fire from his third floor window a block away, it is advisable for the investigator to go at once to that building and take a photo of the fire scene from that window. Then, in the event the witnesses' building is razed or view obstructing structures are erected between the fire scene and the point of observation, that fact will be permanently and pictorially recorded.

Although a wide angle lens is sometimes desirable for use in small areas, if one is unavailable or unobtainable, similar satisfactory results may be obtained by use of a series of photos of continuing overlapping sections of the same scene. When these photos are put together in series they will form a mosaic or compilation which will reflect the scene in its entirety and exactly as it appeared at the time the series was taken.

Photographs of the fire scene may be used during the investigation when questioning witnesses as an aid in clearly and correctly transmitting the information supplied by the witnesses. The witness may then, with the visual aid of the photograph, describe exactly where events transpired about the fire scene and thus eliminating misunderstandings which occur when visual aids are not available.

Photographs of the witnesses or suspects may be taken as they are being questioned, when they sign their statement, or as they are being fingerprinted. When
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this is done the investigator should ask the witnesses to smile. It is advisable that police officers or investigators are not depicted in the photo wearing guns or with any other type weapons in evidence as this display might be misconstrued by some as a form of coercion. This would detract from the purpose of the photo which is to show the well-being of the witness and the voluntary nature of his act.

3. Photographs of the reenactment of the crime sometimes serve to show the voluntary nature of the confession. In some cases these reenactments have enabled the investigators to obtain further evidence and corroboration of the commission of the crime by the individual who confessed to having committed the arson. In one such case an arsonist showed the investigators where he had discarded the gasoline can after using it.

4. Photographs may be used to prove forced entry at the fire scene. This may be done by photographing the broken door or window showing evidence of having been forced for purposes of illegal entry. Once the crime of breaking and entering has been established, the crime of arson is often easier to prove. If the suspect admits to the felonious crime of breaking and entering, he may be adjudged guilty of arson even though he contends he accidentally set the fire. The courts have held that a fire, even an accidental one, caused during the commission of a felony, is considered to be arson. The willful, malicious intent may be inferred when a fire is started as a result of a person committing a felonious act even though the fire occurs accidentally.16

5. Photographs may be used to indicate the time of power failure. The photographing of a stopped electric clock in a burned building may indicate the time of power failure. This may assist the investigators in determining the approximate time of the fire when not otherwise known.

6. Photographs may be used to prove preparation and show motive for the fire. The photographing of a room where contents of little or no value had been substituted for valuable insured contents which had recently been removed may show preparation and motive for the fire (figure 3). Windows which have been painted, covered over, or otherwise altered to prevent witnesses and neighbors from seeing the fire in its early stages and reporting or extinguishing it, when photographed, provide a permanent pictorial record. These photos show preparation for the fire in a more vivid, “hard hitting”, and convincing manner than could be achieved by any narrative of the investigator.

PREPARING THE PHOTOGRAPHS FOR THE REPORT

Many investigators not only submit their photographs to be used as exhibits, but also prepare photographs to illustrate and supplement their investigation report. The best method of preparing the photos for the investigation report so that the full and complete story is told in the best descriptive manner is again a matter of the preference of the investigator and the purposes and needs which are served by the report.

One excellent method is to utilize both the diagram and the descriptive photo index in conjunction with the photographs. In this use, each photo bears a consecutive number and is pasted on a sheet of paper bearing a complete descriptive index. Accompanying the photos and the index is a diagram of the premises with a

16 People v. Fanshawe, 137 N.Y. 68, 32 N.E. 1102.
numbered arrow corresponding to the number of the photo indicating the place from which the photo was taken and the direction the camera was pointing. The photo index is usually headed by a simple statement as to the identity of the photographer, time and date of the fire, time and date photos were taken, witnesses present, kind, type and make of film and camera, location of negatives, and person or firm who developed the film.

Under the number of the photo is the information pertaining to that photo, such as:

&1, Camera facing North at Albert and Central Streets showing South side of fire damaged building. Note soot stains coming from upstairs southwest bedroom window and going up to roof, which further corroborated the investigator's contention that the fire started in this bedroom. Following photos show this bedroom to be most badly damaged and that the fire was confined to the upstairs portion of the house in the southwest portion.

**Introducing the Photograph into Evidence**

In general photographs may be introduced into evidence if they are:

1. Relevant to the issue and
2. Verified as accurate.

Photographs are admissible when they are of assistance to the jury in understanding some issue or fact of the case. Photographs need not be verified by the photographer who made them. This verification may be made by any person who can testify that it is an accurate reproduction.

**Preparing the Photograph for Introduction as Evidence**

**Size**—The size of the photograph is not important. It shouldn't be so small as to be indistinguishable. It need not be 8 x 10 but that is a good acceptable size.

**Marks and Writing on the Print**—Much has been written about this and although marks or writing does not automatically invalidate the photo and in several cases is acceptable if marked, in general it is better if no notations or marks are made on either the front or back. Let the photo speak for itself.

**Witnesses and Photos**—A photo may be shown to a witness who is on the stand in order for him to refresh his memory if it is shown that accurate testimony could not be received from that witness unless he did refresh his memory.

**Summary**

Each arson investigator should take his own photos whether or not he has the services of a professional photographer. In all cases he should supervise and direct the photographic work done during his investigation. Throughout the investigation he should take care to insure that all photos taken will meet the legal requirements for admission into evidence. All arson investigators should take full advantage of the many uses of photography which are so well suited to assist in the highly specialized and difficult task of arson investigation.

20 Jones v. State, 74 So. 843, 16 Ala. App. 7, cert. denied, 75 So. 1003, 200 Ala. 696 (1917).