

## **Writing Bloodstain Pattern Analysis Reports ... One Analyst's Opinion.**

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No matter what the nature of an analysis, the function of any analysis is to enlighten and inform. We examine data and ultimately conclude something about that data with the intent of sharing the information with someone who can utilize it. Thus any analyst must be able to report their effort in a concise, understandable and effective manner. Reporting on bloodstain pattern analysis (BPA) is no different.

I recognize this document is certain to be scrutinized by a variety of individuals, first and foremost by my peers, but very likely by lawyers looking to catch us "messaging up". Thus I offer the following with the clear understanding that it is simply an opinion, there is no absolute standard for reporting in forensics, there can't be. The reports prepared by the myriad of analysts involved in bloodstain pattern analysis must blend with and conform to the standards of their individual organizations. Some may have significant latitude to choreograph their reports, while others are required to follow a strict regimen with no deviation. With that in mind, let's consider some of the ways we might possibly fashion an effective bloodstain pattern analysis report.

### ***Observations and Opinions***

I think it imperative to first point out the obvious; a bloodstain pattern analysis report is exactly that, an analysis. The contents of the report will go far beyond the observational report prepared by those responsible for crime scene processing. Recognizing this distinction is important as it demands that we limit the nature of the crime scene processing report. The crime scene report is first and foremost an observational document; it should detail the characteristics and conditions of the scene as well as detailing the actions taken by the crime scene processor. This is done without interjecting opinion as to what those conditions define relative to the crime itself.

If your organization's primary crime scene processors are not responsible for conducting the actual bloodstain pattern analysis, they should strive to eliminate significant opinion evidence from this observational report. Note that I say significant opinion. Simply put there is no excuse for a crime scene processor not to have a working knowledge of bloodstain patterns, which should include the ability to recognize basic patterns and understand how to document that evidence for others. Deciding and reporting that a particular pattern is "spatter" is a conclusion any way we cut it. But as long as the crime scene processor is sufficiently trained I don't think this impacts on their responsibilities of reporting on the conditions of the scene. Referring to a particular stain as an apparent cast off is no different than arriving on scene and reporting that they found a victim with three apparent gunshot injuries. We may not be doctors but that doesn't prevent us from recognizing basic patterns of injuries. So it is for basic patterns of bloodstains. But this observational report should always include detailed descriptions of the stains along with the observer's lay classification. Granted counsel may argue that these classifications are opinion evidence and seek to prevent the crime scene processor as a lay witness from testifying to them, but that in no way prevents the witness from describing what they saw

(the characteristics of the stain).

### *Essential Elements of the BPA Report*

The report prepared by the bloodstain pattern analyst entails both observational data and opinion based on the analysis. The analyst is trained to recognize details above and beyond those noted by the crime scene processor and these details may allow a more refined classification and or allow the analyst to include or eliminate some particular mechanism as the source of the stain. The analyst's observations are the foundation of their opinion and thus are an essential part of the analysis report. These are always detailed observations. For example given Figure 1 the description might be:

- In the upper left quadrant of the fitted sheet, opposite the position of the pooled pattern are a series of non-descript pattern transfers. The primary transfer is approximately 7 cm in length and 3.5 cm in width. Present is a section involving clear vertical linear lines, each separated by a voided area of approximately 2.5 mm. Centered 8mm to the immediate left of the first vertical demarcation is an evident patent pattern approximately 3.5 – 4 mm in size with an elliptical/circular shape. The blood is consistent with the DNA of Victim 1.

The description for Figure 1 isn't a simple spatter pattern and these complex narrative observations show the necessity of a second essential element to the BPA report, references. Bloodstain patterns are graphic. We can see them, thus as analysts we can point to what we believe to be specific characteristics in the stain; for this reason there really shouldn't be ambiguity as to what we saw and are discussing. If it can be seen, then in most instances it can be photographed and those photographs allow us to share our observations with anyone. Therefore I think it imperative to establish a reference system that allows the report reader to associate specific photographs to specific stains. If the analyst is responsible for photographing the scene themselves, they become masters of their own fate. The analyst can establish a normal system of identifying photographs (e.g. their number on a photo log or their digital file number) to specific stain patterns. If however the analyst relies on someone else to take the photographs and for whatever reason that person chooses to just take lots of photos with no photo log, the analyst will need some method of annotating these photographs to produce a form of identification.

A second aspect of the reference and just as important is any DNA or serology result. In bloodstain pattern analysis, knowing who the blood belongs to is a significant factor in deciding our conclusions. By the time the final bloodstain pattern report is prepared, the DNA work is likely to be complete. But like any forensic document, DNA and serology reports can be confusing to the casual reader. The analyst should identify the DNA result for a particular stain and then provide their reader with a specific cite where the result was reported in the DNA report.

Once these associations are made (e.g. photograph to specific stain, DNA result to specific stain) including them in the report is a simple matter, for example:

- Stain References: Photos 15, 208, 209, 210, 211 DPS DNA Report, dtd 12 Jun 03,

pg. 3.

All this reference section does is allow the reader to effectively locate photographs (overall, evidence establishing and evidence close-ups) of the stain in question, which they can refer to as they read the report. It then provides a quick synopsis of the DNA or serology results. This information is not intended to replace the DNA report, but rather to quickly direct the reader to the appropriate information and its location in the DNA report.

An interesting side issue to the reference aspect is the analyst's notes. Notes and sketches are a normal part of scene or evidence examinations. They ultimately serve as reference to the analyst when writing the report. We do not typically release these notes unless asked for specifically in discovery; nor do we typically refer to them directly in the report. The report however synthesizes important actions and observations discussed in notes. Since these critical documents are discoverable, it is imperative that the analyst examine the observational information in the report against their notes to ensure accuracy. Don't be worried about initial contradictory conclusions (e.g. you first reported a stain in your notes as likely cast off, then after more critical analysis decided upon a classification of impact spatter); conclusions often change due to more specific information and experimentation. Just be prepared to explain why your conclusion changed. It is important however to ensure the details listed in the notes have been synopsized accurately in the report.

Up to this point, in effect we have all the trappings of a crime scene processing report, primarily observational data regarding the evidence in question. The next essential element in the report is the conclusion. It is here we step from the lay witness to the expert, by offering opinion as to the nature and source of the bloodstain pattern in question.

Writing conclusions can be tricky. If the analyst follows an acceptable protocol for bloodstain pattern analysis, the first conclusion is simply a classification of the stain or pattern. In other words, what is it? This is followed by conclusions regarding directionality and motion or perhaps impact angle, area of convergence and or area of origin. It should be evident that such conclusions are limited to the specific pattern in question. They speak to the more objective aspects of the analysis. Continuing the example for Figure 1:

Conclusions: This is a pattern transfer. An object was bloodied and in contact with the fitted sheet in this location. This undefined object had a series of equally spaced straight surfaces separated by either a depressed area or a space of approximately 2.5 mm. There was no swiping motion evident in the pattern.

Obviously in the case of a spatter type stain, a discussion of the directionality of the stains, impact angle and area of origin would be included, but whatever the nature of the stain we have yet to consider the pattern in relation to other patterns and evidence. Using a standard protocol, we first identify what the pattern itself defines without incorporating other information. Following this protocol, the next area of concern is correlation of one pattern to another (e.g. associating castoff patterns that emanate from a specific impact pattern) and to other evidence. In the case of a stain like Figure 1 this may be nothing more than identifying the presence of other similar pattern transfers on other objects. For example:

- This pattern transfer was similar in size and shape to two pattern transfers noted on the comforter (Patterns # 4 and 7). All exhibited similar class characteristics as described.

Having defined the nature of the pattern, directionality, area of convergence or origin aspects and any interrelationships the pattern holds to other patterns or the scene, the final area of the conclusion is to deal with viable source events. This is often considered by counsel to be the bottom line of the analysis: What specific action brought this stain into existence? It is here that the analyst's objectivity can fail them or they can paint themselves into a corner. As we consider this area I feel it important to remind the reader that ours is a class characteristic discipline. A spatter pattern is a spatter pattern, so excluding sufficient scene context, it may be impossible to associate a spatter pattern to a specific event, particularly in a scene in which multiple spatter events unfolded. The classic example of this mistake is absolute association of a specific spatter size to a specific event (e.g. High Velocity to gunshot or some form of explosive force and Medium Velocity to blunt trauma).

In this final portion of the conclusion the analyst examines viable hypothesis regarding the source event and wherever possible eliminates as many of them as they can. Continuing the example for Figure 1:

- There were two bloodied objects of interest examined from the scene that seemed to be a possible source of this pattern. The first was the knit blouse of the victim. The knit weave in effect resulted in a series of vertical lines with a depressed area between each. Examination of the clothing revealed the separation between the weave to be approximately 2mm. Pattern transfers created using a sample of the knit cloth resulted in a pattern with class characteristics that were inconsistent with the scene pattern.

The second object of interest was the compensator of the shotgun barrel. The barrel was manufactured with a series of 12 spaces cut through the barrel, each spacing approximately 2.5 mm in size. The barrel diameter is about 28 mm and with depression of the barrel on a soft surface, resulted in an area of contact at least 3 -4 cm in width. Additionally there is a small front sight bead (3.5 mm in size) on the compensator which is situated 8 mm forward of the vertical spaces. Pattern transfers created using the compensator resulted in a pattern with class characteristics consistent with this scene pattern. See Figure 2.

Note that the conclusions do not state that the compensator is "the" source for the pattern transfer. On the contrary, we have eliminated one source, the knit shirt; but cannot eliminate the second source, the compensator. Lacking individualized characteristics in the pattern transfer and a subsequent examination by a tool mark examiner in which the compensator was individualized to the pattern (an extremely rare situation), all we can really say is the compensator could be the source. Granted, the scene context (e.g. a lack of any other viable objects with similar class characteristics) will likely lead the jury to the conclusion that the pattern was caused by that object... but that is always their decision.





Figure #1

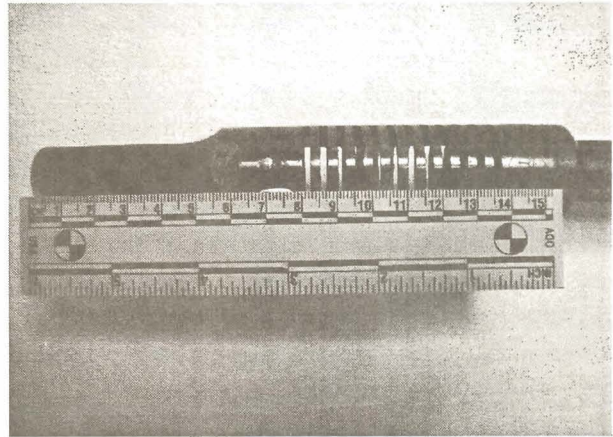


Figure #2

It should be obvious that it is in these broad conclusions, regarding source events, that we make the most mistakes. Analysts simply go too far. For example, an appropriately trained analyst won't have trouble recognizing impact spatter; the presence of small stains with consistent gamma angles, the way the gamma angles radiate out from an apparent source, the progressive change in shape of the stains as they get further from that point will speak volumes to the analyst. But if there are several spatter producing type injuries, perhaps an expiratory event as well, or even the possibility of CPR by a bystander, such factors can cloud the ability of the analyst to be confident of which of these events was the true source of the spatter.

In terms of objectivity, the mistake most often encountered in the BPA report is seeing a single source event and working the pattern into this event. In other words the analyst chooses a conclusion they like and then tries to fit the data to it. Using scientific method we always allow the data to define the conclusion. If a particular source event cannot be eliminated by the available data, then we have to accept that it is still possible and to be objective the report must reflect that. If we end up with several possible source events, then so be it. That certainly won't prevent, if circumstances warrant, the analyst from offering an opinion of why they believe one is more likely than the other so long as they recognize the uncertainty of that opinion and appropriately express it.

One has to be careful in pursuing hypothesis. We can not, nor should not, pursue all the "Elvis is in the building" theories that are so common in the court. But the analyst should consider any viable hypothesis that present themselves based on the scene context and as discussed seek to include or exclude them. If you fail to mention these areas in the report, you're guaranteed to consider them at trial. Defense counsel will see that omission as an opening, something to be pursued. If you are prepared, then all is well. If however, you failed to evaluate the issues at all, I can tell you in all candor that the witness stand is not the place to try and evaluate them. Don't let defense counsel tactics scare you into mentioning every wild theory anyone can come up with, but do deal with viable theories that might be suggested based on your scene. Obviously, when presented with a specific theory (e.g. based on an admission) the analyst should examine it thoroughly and decide if the theory is or is not valid in their eyes.

The last essential element of the bloodstain pattern report is one which I have only recently adopted, that is a glossary. In the past I've argued against the necessity of such a document. Given the common sense manner in which I think conclusions should be expressed, I have always found that in effect my conclusion defined the classification. For instance if I called a stain a cast off, then in the conclusion I would invariably state that "a bloodied object was swung in" in whatever fashion the castoff indicated. Over time and primarily while reading documents that utilized terminology that I was not as familiar with; I've recognized the importance of the glossary to the casual reader. With a glossary attached as an appendix to the report, the reader can easily maintain their place in the report, turn back to the glossary and remind themselves of a particular term and then go back to the report without skipping a beat. So a glossary of terms should be an integral part of the bloodstain pattern report. I don't advocate using a specific set of terms (e.g. IABPA, IAI). With regards to reports, the only important factor is that the reader understands what you mean by your use of a term.

### *Some General Considerations*

There are some general issues the analyst should consider when preparing a BPA report. First and foremost, be precise. It is imperative that our reader is clear on what stain among the many stains we are discussing. Another consideration is to include all relevant data and effort. In many instances the analyst will conduct experiments in an effort to include or exclude a particular mechanism as the source of a stain. This information should be included and described in some level of detail. Another consideration is to be sure to identify all relevant data that was used in the analysis. This will ensure that others understand what information led you to the conclusion you reached. A final consideration is to identify limiting factors. If you were unable to visit the scene and conducted the analysis from photographs alone, it is not uncommon to find areas that simply did not get sufficient photographic coverage. Lacking a true understanding of the condition in these areas will often limit your opinion. Be sure to advise the reader how these limitations affected the conclusions possible.

### *The Ethics of Reporting*

As a private consultant I work for both prosecution and defense and it is my experience in both realms that leads me to a final discussion, that of the ethics of reporting. I can tell you that it is routine for defense counsel to ask the expert to not write a report. I have heard it said that complying with this request is unethical on the part of the expert. This statement is patently biased and without rationale. Every bloodstain pattern analyst has a responsibility to comply with all valid requests from the justice system, so long as the request is considered ethical within that system. Imagine a situation in which you are testifying and an objection is raised by opposing counsel. You might well believe that you should be allowed to answer and that the jury deserves to hear the answer, but if the judge says no, then you comply. It is not your right, no matter what your personal feelings or ethical ideas, to reject the judges ruling and blurt out an answer.

I don't run the world and I certainly don't define how the justice system works. Lawyers and judges do run the system and when they clean up their act, we will all be better off for it. As

long as a jurisdiction feels it is allowable for lawyers to operate by sending memos to each other telling them that "so and so" will basically testify to "this or that", then that is their decision about their system. There certainly are jurisdictions in the United States where that is not acceptable, where experts on both sides **MUST** prepare a detailed written report and provide it by a discovery date well in advance of trial. Otherwise the expert will not testify. If the justice system is really interested in truth then that should be the standard for everyone. Until that standard is in place I will continue to comply with all legal requests made by counsel on both sides.

The ethics of the legal profession has led to a convoluted and antagonistic environment. As analysts we have to be cautious of getting caught up in the lawyer's games, both prosecution and defense. We have to recognize where the ethical lines are drawn. This is not wholly a defense issue, for example in one recent instance I was involved in, a bench serologist played crime scene investigator at a quadruple homicide. She clearly had no formal training in crime scenes and didn't belong there, but despite that mistake she was allowed to collect bloodstained evidence. She never prepared a crime scene report, never created any form of sketch and never explained specifically where these items had been recovered from. Over the phone she agreed to meet and specifically answer questions regarding this issue. When I arrived for the meeting however, the prosecutor was present, and when asked the first question she responded "I don't answer questions". Imagine a scientist claiming that they don't answer questions. Imagine a crime scene investigator claiming that they don't answer questions. That is their function in life, to apply their skills and knowledge to answer specific questions.

With or without a report I am always available to any opposing lawyer and will answer any questions they have regarding my conclusions or expected testimony. All they need do is pick up a phone and ask. However, do not take this to mean opening yourself *carte blanche* to the opposing counsel. Such access should be structured in a way that both attorneys know what is and isn't being said and your time is not simply wasted on fishing expeditions. I've also seen BPA reports written in which the analyst basically states "If called to testify I would explain how the stains came into being." That is not a report; it's a statement of intent. It is of no different than not writing a report in the first place.

The ethics of reports is not simply limited to the issue of whether one writes a report or not. I and others I know have been asked by both prosecution and defense counsel to substantively alter reports. That is unacceptable. We report what we find and what we conclude. If you don't like it Mr. Lawyer then I'm sorry. We cannot slant a report or exclude a finding just for the sake of some lawyer's request. I recall a situation in which I met with a highly paid defense attorney. Present in the meeting room were all his legal minions, hovering about him as if he were a king. Just by watching the interactions it was clear that whatever he said became the group's opinion and he was used to always being right. At one point I offered an explanation on a specific subject, to which the lawyer disagreed and "suggested" to me what the right answer was. It was like a Sprint moment when I advised him that his opinion was inaccurate; you literally could have heard a pin drop. No matter what side we are on, we are not paid to tell lawyers what they want to hear; we are paid to tell them what they need to hear.

For the record, my position is that analysts are not advocates of anything but the truth. Granted as humans we never really know truth, thus "truth" may be viewed differently by dif-

ferent well meaning analysts. But in my mind a silent analyst, is a worthless analyst. I make the following statement knowing full well that some prosecutor will use it against me in court in the future; if I ran the world and the justice system, no expert would ever be allowed to testify unless they had prepared and provided a concise report of their findings to all parties in a timely fashion. And that doesn't mean the day before court. Think about it, if you or your loved ones were charged with a crime wouldn't you want to be tried in such an environment.

### *Some Final Thoughts*

I can't set a standard for reporting, nor am I trying to. It simply is impossible given the variety of organizations we work for. I hope in some sense I have refined the way you look at your BPA report format. If you will incorporate the ideas of the four essential elements (observations, references, conclusions and glossary) into your report I feel your ability to explain and support your BPA conclusions will be enhanced. Of course always consider the ethics of reporting and don't get caught up in the gamesmanship exhibited by the legal profession. Nevertheless be realistic, the reports we prepare as bloodstain pattern analysts in effect place us on a razor's edge. If we do not effectively describe what it is we see and what we conclude then the analysis is for naught. But every word we write, every conclusion, is always fodder for court. With that in mind, be confident of what you write.

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