Just Identifying Fingerprints through Photographs

Intro [00:00:05] Now this is recording. RTI International Center for Forensic Science presents Just Science. Welcome to Just Science, a podcast for justice professionals and anyone interested in learning more about forensic science, innovative technology, current research, and actionable strategies to improve the criminal justice system. In episode 6 of the case study season, Just Science sat down with Karen Oswald, senior evidence specialist with the Suffolk County Police Department in New York, to discuss methods for identifying fingers and hands captured in evidentiary photos. As cell phone and camera technologies continue to improve, so does the quality of the images they produce. Most people today carry smartphones at all times, therefore more criminals are incriminating themselves with the photos they take. While investigating a case, Karen Oswald saw an opportunity to use pictures from a suspect's cell phone as a tool for identifying his hands and proving his guilt. Listen along as she discusses techniques for identifying prints, captured and evidentiary photos and the challenges associated with the processes in this episode of Just Science. Some content in this podcast may be considered sensitive and may evoke emotional responses or may not be appropriate for younger audiences. This season is funded by the National Institute of Justice's Forensic Technology Center of Excellence. Here is your host, Dr. Mike Planty.

Dr. Mike Planty [00:01:46] Hello, and welcome to Just Science. I'm your host, Dr. Mike Planty, with NIJ's Forensic Technology Center of Excellence, a program of the National Institute of Justice. Here to help us today with a discussion on fingerprints is Karen Oswald. Welcome to the podcast, Karen.

Karen Oswald [00:02:00] Hi, thanks for having me.

Dr. Mike Planty [00:02:01] Karen is the senior evidence specialist with the Suffolk County Police Department in New York. She graduated from Marist College in 2005 with a bachelor's of science degree in criminal justice and has worked as a latent print examiner in the SCPD identification section for the last 15 years. 2012, Karen spent 11 months in Afghanistan serving as a contractor with the Defense Forensic Science Center where she gathered biometric data in support of the operation Enduring Freedom. Her areas of expertise include crime science, processing and photography, and development, analysis, and comparison of friction-rich detail. So before we get started, Karen, what were your interests in fingerprint? Were you just generally interested in criminalistics and just focused on fingerprinting?

Karen Oswald [00:02:48] Honestly, my job, it was luck and good timing is what I always tell people. I was graduating college with a degree in criminal justice, which in hindsight, I wish somebody had told me never to major in criminal justice because it's not the most marketable degree. And I had always wanted to be a police officer. So I kind of had all my eggs in those baskets and I didn't realize how difficult it is to get a job in Suffolk County where I live. So I was unsuccessful in scoring high enough on the police tests that I had taken and when I graduated college, I just ended up taking a bunch of random civil service tests and scoring well enough on them that I just picked which one was most interesting and this is the one that I thought was most interested. So it was luck and good timing and then a lot of on-the-job training and just pushing yourself from there.

Dr. Mike Planty [00:03:39] Yeah, you spent most of your career with Suffolk County, right?

Karen Oswald [00:03:43] Yeah, my whole career pretty much.

Dr. Mike Planty [00:03:44] So our topic today is really an interesting one. It's identifying fingerprints from photographs with the increasing prevalence and quality of smartphone cameras and just the use of social media and other online formats. You can go beyond simply the traditional forms of latent print examination and move into photographs. Tell us a little bit about that whole area and how it's developed over your time.

Karen Oswald [00:04:06] I've only had the experience of processing a handful of cases this way, and it kind of came out of nowhere. It wasn't really something I had thought about until the first case came up. And that was all the credit goes to the computer crimes detectives. They had a child pornography case. They were looking to execute a search warrant on a subject's house. They had him on suspicions of possessing child pornography. And when they see his computer and his cell phone. They did a forensic dump of the information on his electronics and they saw that there were a series of file names like the sequential file names that your photos are automatically called on your cell phone that were missing and it looked like out of that series of photographs some had been removed so then they started looking specifically for these file names within his computer. And buried deep in some folders, they found the file names and they were images of a man's hand and private parts with a little girl. And what made them look more into these images, there were thousands of images of child pornography on his computer, but it was these particular images that looked like they had been taken instead of downloaded. So they focused more on these images and they, you know, when you're a detective, I'm not a detective, but... I assume that when you are trained in a specific area of expertise, your training is to see the crimes against a minor. You're looking at these photographs, seeing the sex act, you're seeing the child, you are seeing a man. I wouldn't expect them to see friction ridge detail on subject's hands, and it blew me away that they... Had the wherewithal to see these images and say hey look you can actually see detail on this guy's hands Why don't we go talk to the identification section and see if they can do something with it? So I was so excited when they came up because it was different and I like Getting involved with things that are different and anything that can advance what we do for other detective commands So really that was my first experience with it and from there there were a couple other cases But then I got talking to my friends and other jurisdictions and started giving some presentations and this is actually something that's being done fairly frequently throughout the country. I have a couple case studies that aren't my own and they're even more cool than the ones that I've done.

Dr. Mike Planty [00:06:29] It's really novel. So it's just, you know, you think fingerprinting has been around for a hundred years, right? And all of a sudden, because of this emerging technology and it must have to do with some of the quality of the iPhone cameras and just the camera technology and digital evidence in general, where you're able to even detect a friction ridge through a photograph. It's almost like an arms game. And I guess the other key here is that you're getting a friction rage pattern from a hand. Is involved with a crime. You can see it. I remember one case I had back in a day, I worked as an intern with the Secret Service Division, Forensic Service Division. And they were always excited when they got someone's fingerprint in the ink making counterfeit bills. And so it was just the, you have your fingerprint on the ink on the belt that's being manufactured. And it's like tying all the pieces together. And this is an opportunity here where you have this child exploitation, where you the digital evidence and you have the crime scene right there in action, if you will. So tell us some of the challenges with that case, that first case you mentioned in terms of. Getting a usable print from that because it's just not, you know,

taking someone's prints and then comparing to known images. Sometimes the hands are a little bit different. You have to look for some usable images right

Karen Oswald [00:07:45] Yeah, so the detectives had submitted me a disk that had seven images where you could see the subject's hand as well as the little girl and his genitals in it. And out of those seven, I went through each one and looked at the ridge detail that was present on his hands to determine whether it was sufficient enough that I could. Make a comparison with it, and five of them were not useful. But there were two where there were several pieces of his hand that the friction ridge detail was clear enough that it could be analyzed, the minutiae could be marked. Looking at the picture, I know that it was a certain finger on a certain hand, I knew that it was a palm. So I wasn't guessing at like where did this latent print come from. I knew it was the left index finger of whoever this man was. So there's actually more context clues often in a photograph, which is nice. There's not as much guesswork as far as location and orientation, anatomical location. But out of those two photographs, there were identifiable features in both of them. And they both had the man, They had his. Um, body in it and they had the little girl in the photograph too. So you're right, you're taking this identifiable evidence and you can see not only this identifiable evidence, but the crime right in front of you.

Dr. Mike Planty [00:09:06] Exactly. I mean, really interesting, I think, application of that technique with these cases. I mean they're terrible cases and, you know, given the emergence of the internet and all of these devices, it's something that we'll probably have to deal with in the future. And so having this ability to identify latent print, I believe it becomes really important. Now, I guess this didn't happen in your case. But this is also not only identifying suspects, potentially also victims, right?

Karen Oswald [00:09:37] Yeah, absolutely. Actually, in this first case that I'm speaking about, the little girl was, she was five years old. And, you know, they had seized the electronics from this suspect. So they knew who the person in the picture should be. So they had a suspect right off the bat. And once I was able to identify the hands in the photograph to a previous arrest card of his, then they started looking into who the victim may be. And in his family, there were. Two little girls, I want to say that he was remarried. So his new wife's side of the family, I think it was her either nieces or grandkids. But there were two that were about that age, had the blonde curly hair, and they weren't sure which one of them to contact first. One lived, I believe, in New Jersey. The other one was in New Hampshire or Maine. So we actually did look at the photographs, not that the kids would have anything on file, but we did look the photographs to see if her hand was in the picture or even her foot, and we could get exemplars at a later date to prove that this was the victim in the photograph. If there wasn't sufficient detail on her hands.

Dr. Mike Planty [00:10:50] Or feet, unfortunately. But the point you're making that the photograph is more than just a prank. It's all this contextual information that could be leading investigators towards other leads, other victims, and pulling together a much larger case. Second case we're going to talk about is one on human trafficking related to sex trafficking. Set up that one for us.

Karen Oswald [00:11:10] So my lieutenant in the identification section is also the commanding officer of our human trafficking unit. So he kind of wears both hats and his detectives were working a case where they ended up coming in contact with the victim of the trafficking and they were talking to her and she gave her cell phone over to them. They gave them permission to search. And within her cell phone they found images of a man holding an Amazon gift card with the back of it facing up and the serial number scratched

off. I don't know anything about kind of how human trafficking works and he kind of gave me an inside view into it but apparently these adult friend finder and back page websites where these girls are advertising. Allow payment through things like bitcoin and amazon gift cards so what they saw what i would have seen going through somebody's phone is like a guy holding an amazon gift card i wouldn't have thought anything about it but because they know that amazon giftcards are used as payment on these sketchy websites they know this is probably their captor or their pimp sending them the key with which to pay for their sex ad. He advised his detectives and said, hey, I know that my office has done a case like this before where they saw a hand in a photograph, why don't you submit this to the ID section and see if there's any usable friction ridge detail because then they can try to figure out who this man is giving this Amazon gift card serial number to the woman that they were speaking to. Now, while I was going through that, analyzing and determining if there was sufficient ridge detail, the detectives were taking the serial number off of the Amazon gift card, and they were able to tie that serial number to specific ads that were posted on these sketchy websites. So, once we identified the hand in the photograph, it quite literally put the payment, the tie between the trafficked woman's sex ads and the person holding the gift card, it tied it all together. That's tough evidence to deny. I never had anything to do with the serial number or your hand is holding the card.

Dr. Mike Planty [00:13:32] Yeah. So that's another really great example where it goes beyond just identification, but it's almost culpability, right? Because you're pulling in the victims, the suspect and a transaction and pulling together a more complete case. And I imagine that, you know, it's just that one victim. Once you start tying phone records off, you can start identifying other victims and other ads. And that social network again, is really important to link with these individuals. What other types of cases? Are you hearing, if you tell exploitation, obviously because of the images, it seems like an obvious one, but are there other types of cases you've heard this type of technique being used on pulling fingerprints off of a photograph?

Karen Oswald [00:14:14] Yeah, so I gave this presentation a couple of years ago, or I guess it was last year, time is no concept of time this year, at the International Association for Identification Conference was about these cases and I said at the end of it that I would love to hear from anybody who has experienced a case like this before, especially those who have testified, because I've worked three cases but I've never testified on it. I'm really curious to see how the court end goes. So I had a couple of people reach out to me from that and then I did another podcast and I got a lot of feedback from that one. I had several women reach out to me and say that their agencies have done similar cases and a couple of them have testified. There was one girl, I have the notes here, I want to make sure I get her the proper read it. Several crimes against children units definitely were involved. So this is So there's a woman, Nova Grilly, from Charleston Police Department, and she conducted a manual comparison of a hand holding the murder weapon in a photograph. The photograph was from a Facebook account that had been deactivated, and investigators obtained a search warrant to get the image, but she had the suspect actually holding the murder weapon, and I thought that that was so cool. Just you don't, how often do you catch the murderer with the weapon in his hand? I thought that was a great case. So it's being done. Um, I've heard of people, uh, with drug cases too, you know, everybody is so proud of their stash and their weapons and they like to brag about it. And they put it up on social media and the resolution of these, these cameras and these websites is, you Know, it's good enough to get you.

Dr. Mike Planty [00:16:01] Yeah, that is amazing, the use of social media, and not only with law enforcement investigations, it's becoming a really significant point where you can

tie things together, and even, like you said, identify where people are, showcasing what they're doing. I guess one of the key things here is, have you talked with folks about the... A standard operating procedure, a process of how, and we can get into that a little bit more about how you go about extracting these or are there are there well accepted processes in place right now.

Karen Oswald [00:16:34] Well, when I first got the first case that came up to me, I'm an over thinker. I overthink everything, which is not the greatest thing in my field. So I wasn't exactly sure how to proceed. I did some research to see if there were any other jurisdictions who had already done this. And there was a jurisdiction down in Florida, and I spoke with the investigators who had done. A case like this before, and they reassured me that it's really not all that different from what we do every day with latent prints. I mean, it's still friction ridge detail that's in front of you in a photograph. When I get a piece of evidence, I dust it or use the chemicals, I develop a latent print, I take a photograph, then I have that ridge detail in a photograph and I should operate pretty much exactly the same way. There's definitely differences that you have to consider. Like I said, there's context clues with a hand and a photograph, which makes it a little bit easier in some aspects. There's also different distortions to consider, so when an object is handled, the condition of your hand, how good your friction ridge skin is, whether you're sweating, how tightly you grip something. There's a lot of different factors that can determine. How clear your fingerprint that you leave behind is. When you're looking at just your raw hand, there's nothing pushing on it. There's nothing, it doesn't matter if you're sweating or not sweating. I can still see your friction ridge details. So it's nice to eliminate those distortions, the pressure, stuff like that. However, there's other distortions that you have to consider and one of them is focal point and lighting. So, especially in the case of the first child pornography case that I worked, the main image that I used was the man's hand holding the little girl's hand in his hand, and he had placed his penis in her hand. So the focal point of the photograph was obviously her hand holding his penis, not his hand behind hers. So by focusing on that top layer, where his hand was, was a little bit out of focus. So when you're taking a picture of a latent print, I'm the one focusing on it. So I know that it's going to be in focus. When I'm looking at an image that's already been taken, I have to deal with whatever focus quality that is provided to me. So in the five images that were not sufficient, that was the reason why the picture was clear as day for what he was trying to capture in it. His hand was just too far away from that particular area that it wasn't in focus enough that I could capture it. The other struggle sometimes with hands and photographs is with a latent print when you touch something you tend to more often than not touch it with the core area of your fingers so pad of your fingers. Which is represented when you are arrested or fingerprinted for a license or a job application and they take your print, that's the area they're capturing in the prints that go into our database. When you're taking a photograph, frequently they're holding an object and turning their hands in a way that you're seeing the side of their hands or the side their palm, and those are areas that may not be captured in. Arrest records, database records, so if you're running the question print through a database, it may not hit only because that area is not reported on.

Dr. Mike Planty [00:20:09] Inked cards. Which you might end up with like a partial, but in your case for the first one you had a subject, so then you could create some comparables related to that and do more direct

Karen Oswald [00:20:21] Right, so with the first case, I think I had four total areas of friction ridge detail that could be compared. But the only area he had one arrest, it was a Dewey from, I think, 1988. So I pulled his card from the 80s and the side of his thumb, I was able to identify to that card. But all the other pieces were a palm and the sides of his

fingers and the second joint of his finger and that wasn't recorded anywhere on the card. So I identified that thumb, that was enough for investigators to arrest him. And when he was brought in and under arrest for the child pornography charges. I took major case prints of him, so I made sure that I got his palms, I made sure that he got his joints, I make sure I got the side of his fingers, and then I was able to complete the rest of the comparisons and identify all of those fingers to him, or all of those areas of friction.

Dr. Mike Planty [00:21:11] The third case you have here deals with child exploitation again in the dark web. Well, tell us about that unique situation.

Karen Oswald [00:21:19] So this was not my case at all. This was a countrywide request that went out from Homeland Security and they had a subject who They had been communicating with undercover on the dark web for quite some time. And he was abusing a little girl. She was three years old and he had contact with her on a weekly basis. So they had been speaking with him and he was very, very careful about The images that he shared, the information that he shared, investigators from Homeland Security said that he only operated on the dark web, and he used encryption and data scrubbing to cover his tracks. The investigator who was speaking with him said that, he was very descript in talking about the acts that he performed. He said that it was his sister-in-law's toddler. And there were posts that were dated earlier where he was talking about his sister-in-law being pregnant. She already had three boys. He was really hoping this one was a girl. So he was planning out this abuse long before the baby was even born. And when she was born, he was so excited about it. He spent time recruiting men to try to impregnate women so that they could abused their babies. Eventually, he slipped up, and he... Posted a photograph that had part of his hand in it, and the investigator jumped on that. He took the sensitive parts of the image out. He gave it to their late print unit or their forensic unit, and they repeated the same process that I had gone through, analyzing the friction ridge detail, determining whether there was enough there to make a comparison in the future. Ran it through all their databases and came up with no hits. So his request was to everybody in the country to run it through their most local database because they're running through federal systems and he was hoping that maybe there was a local database that had either licenses or job background check cards, something that wasn't in the federal databases and maybe we would get local hit where they couldn't get a hit. So I went through the same procedure, ran it through a database, didn't get any hit, ran it to New York State database and then our Suffolk County local database. And unfortunately I didn't a hit and speaking with him and other people throughout the country, nobody came up with anything. He did later tell me that it was just investigation work. They ended up getting the guy down in Florida and once they arrested him, suddenly all these hits started coming in, which was kind of cool seeing that This image had been running through everybody's databases and as soon as he was arrested and went to the system The system worked and everybody got returns on the print that he was hoping to have identified earlier

Dr. Mike Planty [00:24:08] So that's another great example to reiterate in terms of the investigative function, right? Recognizing that hand as potential evidence that could be processed by the identification unit and pull a fingerprint image off that. So that that's fantastic. But maybe we can summarize a little bit about how these fingerprint cases are different than your traditional work. One of the big issues that you have to deal with is calibration, as you mentioned.

Karen Oswald [00:24:35] So when we develop latent prints on an item of evidence, typically it comes up on the item of the item of evidence and like I said, I'm gonna take a photograph of that. So I put the evidence under a camera, but I also include a scale. When

I take that photograph, I can then import the photograph into a program like Photoshop or foray where I can measure that scale and calibrate it so that when a photo. Is printed out of that evidence, it's printed out at one-to-one, meaning that the image I'm looking at is the actual size it is on the subject's finger. When it's entered into databases, it's important to calibrate it correctly so that the search and the computer and the algorithm that is applied to this print is accurate and you're getting the most accurate return. The issue with photographs is that you don't always have something that you can as a measurement tool. So the second case with the Amazon gift card, the human trafficking unit had a suspect that they thought this might be. So the first thing I did was pull his fingerprint card and compare it and it was him. So we didn't have to run that through a database. If I had to run it through a database though, I would have bought an Amazon gift card, I would've measured that Amazon giftcard, and then calibrated that image based on the size that I know an Amazon give card is. So that would have worked out okay. In the first situation, there was nothing where it had a known size. I couldn't measure anything within. That photograph to try to guess at the size that I should calibrate the image. So if I don't have that option you have to kind of guess. There's some literature out there that gives their opinion on typical men's right middle finger first joint size. You could try that. There is a mathematical equation. I was speaking with one of the girls. Who told me about a case that she was working in another jurisdiction and she had sent me a mathematical equation that where you try to figure out the size of the photo and I did do that and I did it with a real scale so that I could test the accuracy of it and I came without within two or three millimeters so it was a pretty good equation. If you have nothing else to go on. I've also been told that the databases have, most of them, I'm not sure if all of them do, but have the option of guessing at calibration based on ridge count. So you select a certain amount of ridges and the computer figures it out for you. So there are options out there, you just have to be aware that it should be calibrated in order to be entered into a database. If you have a suspect to compare it to just manually, then that's not that big a deal.

Dr. Mike Planty [00:27:20] What about the analysis of these prints, any significant differences there?

Karen Oswald [00:27:25] The most important thing to remember when you're looking at a finger in a photograph is that it's going to appear as a mirror image from what it looks like on the inch card. So when you are looking at your hand and you may see your pattern looks like a right slant loop, when you turn your finger over and deposit that finger on a card, what's left on the card is a left slant. So the most important thing to remember before you do any comparisons or any database searches is to invert or to flip that image along the axis that provides the opposite image. You don't want to end up looking for a right-slant loop because that's what it looks like in the photo when actually it would appear as a left-slat loop on your.

Dr. Mike Planty [00:28:07] Talked a little bit about distortion, but again, the lighting, any kind of debris, or any other object that could interfere with that might cause you to get a partial. But those are things that might be a little bit different than a direct, you know, pulling a latent print, and you're actually off something.

Karen Oswald [00:28:25] Right. Like when you're holding an object, the Amazon gift card, it covered all of the main patterns on the guy's hand. And I was left with just really sides of the palm and sides of the fingers to look at. Whereas if he were, you know, grabbing a cup or holding the Amazon gift card and I processed the gift card itself, I would probably come up with more of the pattern area of his fingers rather than the sides.

Dr. Mike Planty [00:28:49] Any other points of consideration between the two, you know, your traditional typical latent print examination and one taken from photographs?

Karen Oswald [00:28:57] As far as the analysis goes, that's pretty much it. Just recognizing the difference in types of distortion that you could see, the fact that you have to flip the photo to get the accurate pattern shape. I also feel that there's less ambiguity when it comes to the characteristics themselves. Like I said, deposition pressure and the object that you're handling, a lot of these factors can influence. How ridges appear on an item versus how they actually look on your hand and you'll see a lot that you have a ridge ending that actually looks like a bifurcation or bifurgation that looks like a ridge-ending and when you're looking at the photograph of a hand i feel like it's more obvious what the characteristic actually is you know if it's a ridge end it's going to look like a rigid, it's a bifurcation, still bifurgation. Because there isn't pressure pushing these ridges together or other factors that may make it appear a little bit differently. So I think that's a little easier sometimes. I also think that when I look at photographs, I've noticed that the ridges tend to appear lighter than the furrows, which is typically the opposite. If you're looking at a fingerprint and you're processing it in black powder, you would typically have white furrows and dark ridges. But when you're looking at a photograph. The furrows are deeper and the ridges are casting shadows within the furrow. So when you're looking at a photograph, I noticed that the furows typically appear darker than the ridgels. And if you have a real clear photograph, you can actually see the sweat pours along the tops of the ridgers and then takes out a little bit of the guesswork. You know, am I looking at black? Am I looking at white? Am i looking at ridges? Am looking at furrows? If you can see the pores right along the ridgs, you know what you're looking at.

Dr. Mike Planty [00:30:42] Wow. So it's kind of flipped the image and then kind of a reversal of what you would expect in terms of the ridge and the furrows, but so those are great insights. It doesn't seem like based on our conversation that this is going away. And in fact, there seems to be a lot of opportunity given again, the proliferation of cameras, the use of cameras social media platforms where we can certainly think about especially child exploitation. But things like drug dealing, identifying gang members, assaults, going through and curating different social media posts, and of course, dumping a phone. What do you see are key areas for specifically in this? Would you like to see more attention in terms of identifying fingerprints from photographs?

Karen Oswald [00:31:27] Well, the whole reason that I started giving this presentation is just to get not even so much to speak with latent print examiners, but the investigators working these cases because like I said before, if I'm an investigator with a certain expertise, I don't expect them to notice friction ridge detail in a photograph. I mean, I've been looking at these things for 15 years. I see ridge detail everywhere on everything in my life, but I don't expect somebody who's not a fingerprint expert to notice that. So, I really wanted to talk about it even more so to investigators in other units just to kind of put the bug in their head and I've received such great responses. Where people say, Hey, I want to bring that back. I'm gonna tell my unit about that. It makes their job a little bit easier if they have this one additional piece of evidence they can lean on on us to support them with. So I think just getting the word out to consider when you do have photographs or your social media accounts or whatever the case may be a cell phone. I mean, there's nothing more powerful today than people's vanity. They love taking pictures of themselves. They'd love taking pictures with all their drugs, their guns, and especially with the child pornography, I mean these... Those photos are the most precious thing to these people. So they're gonna take them, they're going to keep them, and unfortunately their hands.

Dr. Mike Planty [00:32:42] Going to be all over it. You know, when I was reviewing the material you sent, are there different techniques you can use, maybe lighting techniques, to modify the photograph to enhance the fingerprint, or does that maybe introduce other distortions?

Karen Oswald [00:32:56] So similar to latent prints, when we develop a print on an item of evidence, we will bring it into a Photoshop to try to further process the image digitally. And you would do the same thing with the photographs that actually contain the hand. I do find that I don't do as much digital processing with the fingers in photographs that I do with latent prints. Especially where there's a hot spot either caused by a flash or sunlight. Once you start to adjust the brightness and the contrast, you're really bringing out that hotspot. So I actually kind of like taking the image as is and just grayscaling it. I don't mess around too much with any sort of other modifications. You certainly have the option to, but I find that I do less digital processing on hands and photographs than I would do on a leading print.

Dr. Mike Planty [00:33:48] Any other final takeaways you'd like to share?

Karen Oswald [00:33:51] The only other thing that I wanted to mention was that, and it took me a long time and I still get caught up in this, I'm so used to saying latent prints. I mark my prints as L001 on my reports. I'm trained to say latent prints that when you get a hand in a photograph, they're not latent prints, you can see them. So I have to be very conscious of calling them either friction ridge detail or friction ridge skin or finger or palm. And I did mess that up on my first case. My report says, you know, latent prints one through four, but it's easily explainable if you had to. But it's just something to keep in the back of your head when you're writing your reports or speaking in court to try to use different terminology to apply to the situation.

Dr. Mike Planty [00:34:37] Well, great. I'd like to thank our guest today, Karen Oswell, for sitting down with Just Science to discuss the topic of examining fingerprints from photographs. Really important work. Thanks, Karen.

Karen Oswald [00:34:46] Thanks, Mike.

Dr. Mike Planty [00:34:48] If you enjoyed today's conversation, be sure to like and follow Just Science on your podcast platform of choice. For more information on today's topic and resources in the field of forensic science, visit forensicscoe.org. I'm Mike Planty and this has been another episode of Just Science.

Outro [00:35:04] In the next episode of Just Science, we sat down with John Vanderkolk and Marcus Montooth from the Indiana State Police to discuss erroneous identification with the Lana Canen case. Opinions or points of views expressed in this podcast represent a consensus of the authors and do not necessarily represent the official position or policies of its funding.