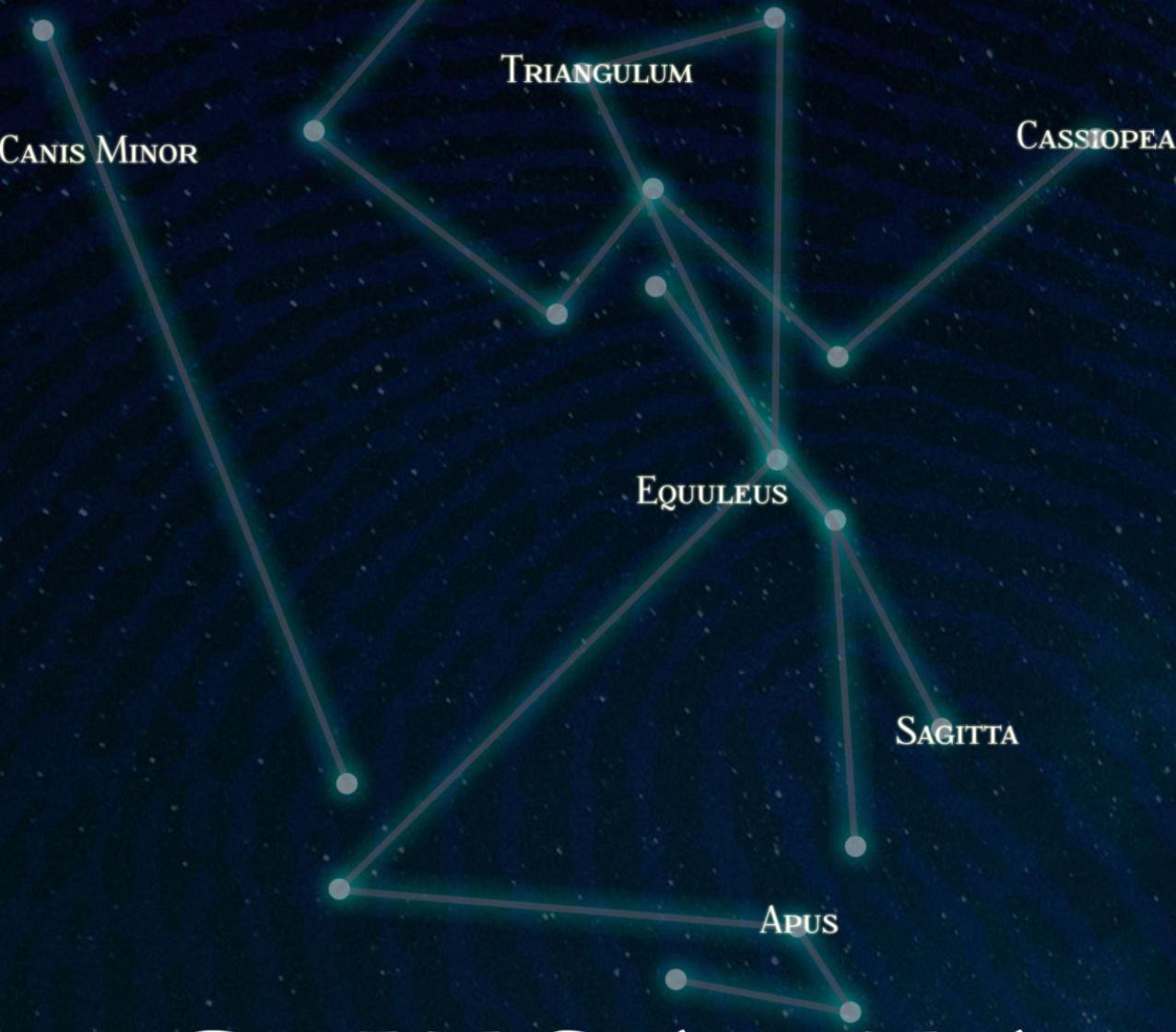


THE OFFICIAL PUBLICATION OF THE CHESAPEAKE
BAY DIVISION OF THE INTERNATIONAL ASSOCIATION
FOR IDENTIFICATION



CHESAPEAKE

EXAMINER

Spring 2019



Vol. 57 / Issue 1

URSA MAJOR

GLS^{can}® SP

High quality imaging of marks on Gellifters made easy

The GLS^{can} SP imaging system is our most versatile imaging system for Gellifters. The system allows for scanning Gellifters as small as 5x5 cm up to full size Gellifters of 18x36 cm intended for lifting of footwear marks. This system is the ideal choice for footwear examiners and imaging departments providing their services to both the fingerprint and trace evidence departments.

New features:

- Auto Exposure
- On screen comparison of images
- Image enhancement and annotation
- 2 LED light sources with variable light intensity
- Instant re-scanning of images increases efficiency
- Third LED light source for near oblique illumination
- Real time adjustment of exposure and illumination settings
- Settings Wizard and Assistant to provide the right image in only one scan



CAMERA

The scanning unit is fitted with a highly sensitive CMOS camera. The camera scans the Gellifters at a resolution of over 1000 ppi. This resolution makes 3rd level detail examination of finger marks possible and clearly shows the even finer detail in footwear marks.

LIGHT SOURCES

For the GLS^{can} FP and SP imaging systems a new light source is developed to illuminate the Gellifter during scanning. This LED light source provides for an even illumination of the entire surface of the Gellifter. The system contains two light sources almost coaxially illuminating the surface. Depending on the kind of mark lifted, this can be a very faint dust mark or a highly reflective fingerprint powder, one or two lamps can be used. In addition the intensity of both lamps is fully adjustable.

The high intensity light enables the camera to work with shorter exposure times while delivering an excellent image within less than a minute.

A third lamp is available providing near to oblique illumination. This lamp is intended to be used when scanning marks on Gellifters of which most of the reflective black gelatin surface is covered with dust.

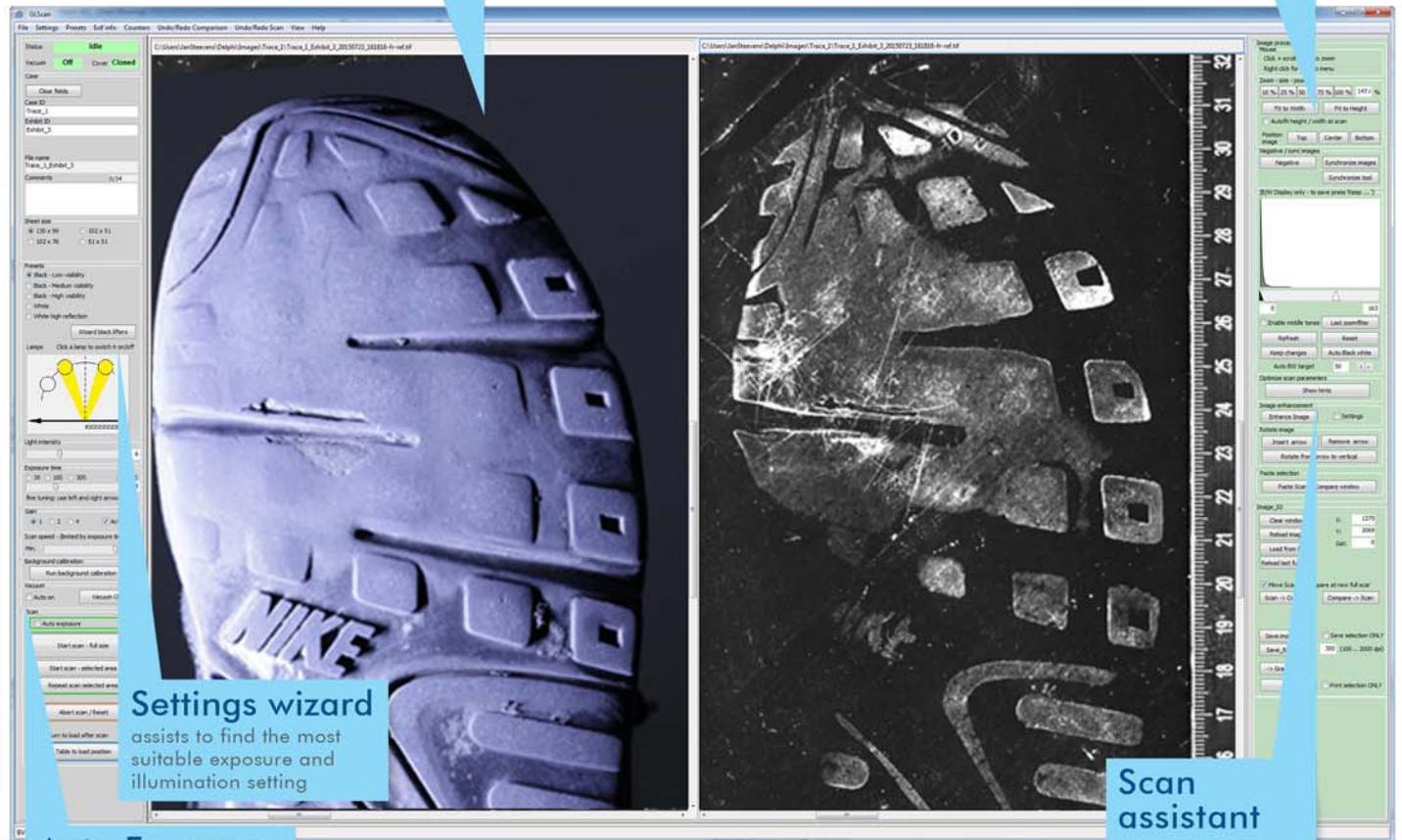
The variable exposure time and adjustable light intensity allows for imaging of nearly invisible to highly contrasting prints on the black Gellifters: from faint dust marks or direct lifts of latent marks, to those developed with cyanoacrylate, to prints developed with silver coloured fingerprint powders.

On-screen comparison

View one or two different images side-by-side

Image enhancement tools

directly available within the GLScan software



Settings wizard

assists to find the most suitable exposure and illumination setting

Auto Exposure

determines the optimum exposure and illumination setting and provides best image

Scan assistant

suggests optimized settings after initial scan

SOFTWARE FEATURES

The control software for the GLScan^{can} SP is still as easy to use as the acclaimed software used to control the original model. The new GLScan^{can} SP software now comes with a boost of new features like:

- Bi-directional scanning for instant re-scanning of the Gellifter at optimal exposure and illumination settings suggested by the system.
- Real time adjustment of illumination and exposure settings. These parameters can be adjusted during scanning while the image builds up on screen. Finding the right settings is made easy in this way, subsequent use of the bi-directional scanning facility shortens the time needed to get the best final image.
- Image enhancement features such as invert, rotate, flip, histogram and brightness and contrast adjustment.
- Image comparison tool which allows the operator to compare two images side by side and to make annotations on the images.

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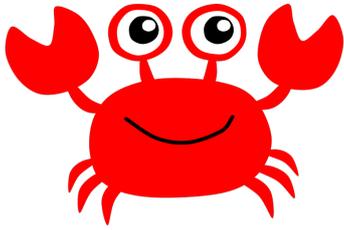


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Message from the Editor



Fellow Members and Friends,

It was a great privilege to continue in my role as the Chesapeake Bay Division IAI's Editor this year. Putting together the Chesapeake Examiner, along with the incredible Editorial Committee, is something I look forward to every year. Thank you to all who submitted articles, quick studies, and cover entries this year; it was amazing to see what everyone had to offer.

As Editor, I will continue the CBD IAI's goal to promote further education, forensic training, encourage research, share recent advancements and developments within the field, and foster growth within the forensic science community. I will continue to do my best to uphold these goals in the upcoming year.

If you are interested in submitting content and/or an advertisement in future editions, please feel free to contact me with any questions you may have. I am here and happy to help!

Thank you once again,
Kelly Peak, Editor

DISCLAIMER: The Chesapeake Examiner is the official publication of the Chesapeake Bay Division of the International Association for Identification. The views and opinions expressed in the articles which are published in the Chesapeake Examiner are exclusively those of the writers and/or publications from which the information was taken and do not necessarily reflect an endorsement or position of the CBD-IAI or its membership. Permission to reprint original material published in this journal may be obtained by contacting the current Editor. An electronic copy of the material will be provided with the understanding that the appropriate authorship, article title, publication, volume, and issue information be included in the reprint. Submitted articles may contain the use of equipment or processes utilizing chemicals or combinations of chemicals which may be hazardous or potentially hazardous to the user's health. It is strongly recommended that all directions for equipment be read and followed and that appropriate precautions be exercised when using hazardous or potentially hazardous chemicals or combinations of chemicals wherein the hazards may not be fully known. The CBD assumes no responsibility for use of equipment, chemicals, or combinations of chemicals as set forth in any article.

Letter from the President

February 24, 2019

As my term of being the 57th President of the CBD-IAI is coming to a close, I feel extremely privileged to have had this opportunity. I would like to thank all the Officers, Board Members and Committee Members who have graciously volunteered their time and for all of their hard work throughout this past year; specifically in regards to the planning of both the 2018 Fall Seminar and our upcoming 2019 Spring Educational Conference. I hope each of you choose to attend the conference and enjoy the excellent group of presenters and events we have planned.

The 2018 Fall Seminar in Baltimore, MD (hosted by Baltimore Police Department) was a great success. A huge thank you to our 1st Vice President, Shelly Brazelle and our 2nd Vice President, Dani O'Neill, who put together such a successful event. Both Shelly and Dani acted on recommendations provided by the membership. They adjusted both the format of the program and avoided holding the event on a weekend. Both of these changes proved to be instrumental in both the attendance and enjoyment of the event.

Other important changes that have occurred throughout this year include: the CBD-IAI now providing a stipend to our Webmaster, an increase in yearly dues and the creation of a brand new secure website. I would like to personally thank our Webmaster, Da-il Kim, for all of his hard work this past year. Da-il has spent countless hours rebuilding our website in order to keep up with the ever changing world of technology and to ensure the CBD-IAI is up-to-date with all security guidelines. The increase in the yearly dues payment is reflective of both recommendation from the parent body, as well as, to offset the increasing amount of yearly operating costs the CBD-IAI is experiencing.

Please do not ever hesitate to contact me with questions and/or suggestions you may have to strengthen our division. Your leadership consists of people who listen and put forth effort in making the CBD-IAI the best it can be. It will be an honor representing the CBD-IAI as the Chairperson of the Board of Director's at the conclusion of the 2019 Spring Educational Conference.

Best Regards,

Chris A. Claytor

57th President, CBD-IAI



Division Officers - & - Board Members

Division Officers

President - Chris Claytor
1st Vice President - Shelly Brazelle
2nd Vice President - Dani O'Neill
3rd Vice President - John Flores
Secretary/Treasurer - Jessica Landi
Editor - Kelly Peak
Sergeant at Arms - Lanette Turner
Historian - Sarah Dwyer
Webmaster - Da-il Kim

Board Members

Chairperson - Kelly Ayers
Francis J. Curran, III
Jessica M. Shaffer
Mallory McCormick
Amanda Lane
Gabrielle Toy



Sourced from clipart

Message from the Treasurer/Secretary

Dear Chesapeake Bay Division Members,

We are a very solid division whose members make up the states of Virginia, West Virginia, Maryland, Washington D.C. and Delaware. The CBD-IAI encourages networking, professional growth and educational opportunities. This year we had to increase our annual dues to \$40.00. This increase will allow our organization to offset increasing operating costs and to progress our efforts in becoming a paperless division.

Our 2019 Spring Educational Conference is approaching quickly. The conference will be held April 4-5 in Richmond, VA. It has been a pleasure working with the officers that have put together an exciting two-day program. We will be holding interviews for officer and board positions at the conference. Serving as an officer or board member is a very rewarding and fulfilling experience. You can view the conference agenda and register online at <https://www.cbd-iai.org/conferences.html>.

As we look to the coming year, please don't hesitate to contact myself or any officer, if you have suggestions regarding the CBD-IAI. We are all here to further the success of our organization. Please help to spread the word of the CBD-IAI and thank you all again for the support of our division.

-Jessica Landi, Secretary/Treasurer



Fall 2018 Seminar

The Fall 2018 Educational Seminar: Forensics Near the Harbor took place in Baltimore, MD. Thank you to all in attendance who made the Seminar an amazing success.

CBD IAI would like to give a special thank you to our Vendors for their time and participation in the Seminar

THANK YOU!

JusticeTrax
FORAY

CBDIAI AND BPD
Fall Seminar
REGISTRATION IS ONLY \$60

STEP 1
SAVE THE DATE

Date: Friday October 12, 2018
Time: 8:00 am to 4:00 pm
Location: Baltimore Police Department Headquarters Building
601 E. Fayette St.
Baltimore, MD 21202

STEP 2
PICK YOUR TRACK
Register for either Track A or Track B

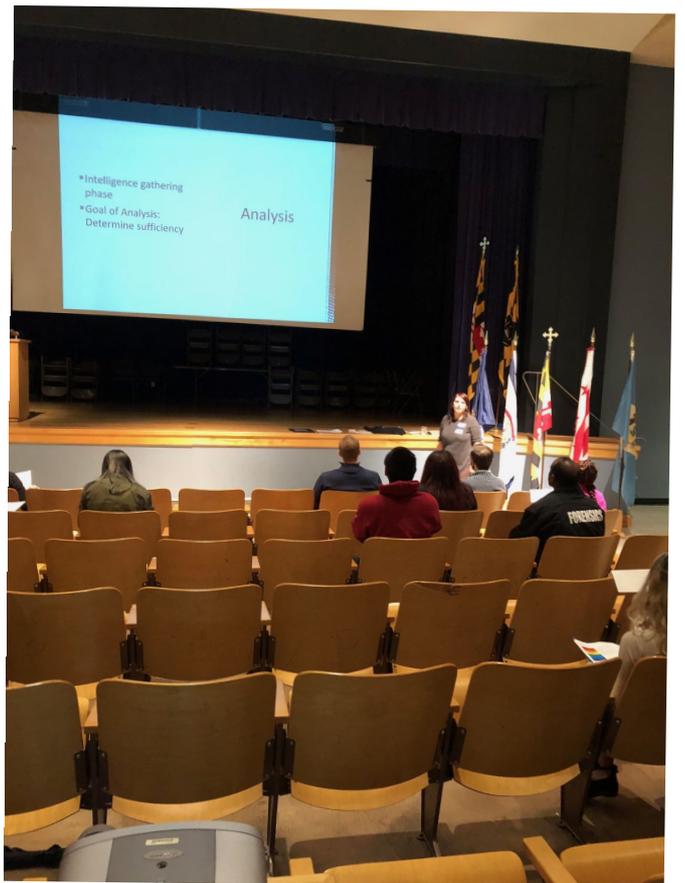
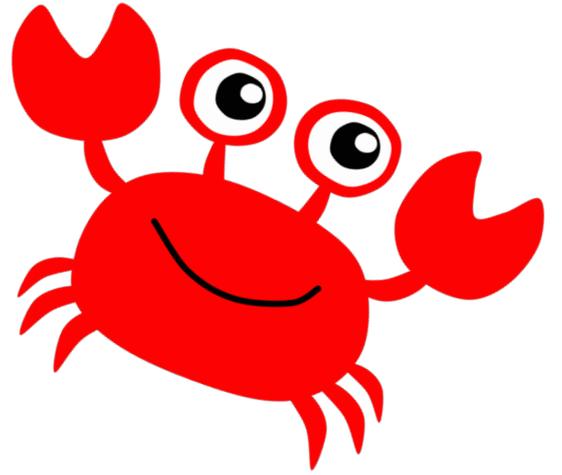
Track A: Forensic Light Sources & Latent Print Processing
Track B: Fingerprint Basics for Crime Scene and Laboratory Practitioners

See CBDIAI Seminar webpage for detailed descriptions: www.cbdi.ai.org

STEP 3
ATTEND & LEARN

The Seminar will be a great chance to learn from industry experts, network and receive continuing education. Track A is recommended for anyone currently processing evidence for latent prints within the field or will be soon. Track B is recommended for all levels, to include forensic students, latent print examiners, tenprint specialists and crime scene technicians.

Fall 2018 Seminar



Board of Directors Meeting

Morgantown, WV

April 25, 2018

Attendees:

Frank Curran, III, Jessica Shaffer, Shelly Brazelle, Rebecca Wood, Kelly Ayers, Jessica Landi, Chris Claytor, Lanette Turner, Mallory McCormick, Les Michel, Amanda Lane, Dani O'Neill, Gabbe Toy

1. Call to Order – Chairperson Rebecca Wood

Rebecca Wood called the meeting to order at 10:20 am at the Marriott Morgantown at Waterfront Place.

2. Roberts Rules of Order

Motion by Jessica Shaffer, seconded by Mallory McCormick, to waive Roberts Rules of Order, no discussion, motion carries.

3. Board Meeting Minutes from Previous Year

Motion made by Mallory McCormick, seconded by Gabbe Toy, to waive the reading and accept the board meeting minutes from 2017, no discussion, motion carries.

4. Secretary/Treasurer Report

Secretary/Treasurer Jessica Landi provided account balance totals (as of March 31, 2018), profit and loss statements from the previous Spring Educational Conference/Fall Seminar, the change in active membership numbers and yearly income/expense reports. All information was reviewed; no additional discussion took place and was accepted by the board. This information will be posted for membership to review throughout the conference.

5. Officer Reports / Committee Reports

President Kelly Ayers

Approximately 145 registrations were received for this conference. There will be a large student turnout, which is great, and approximately 45 – 50 members. The amount charged for

registration (\$200) is right in line with other regional divisions and this amount could increase in the future. The President's Reception will be held in vendor area tonight from 7 pm – 9 pm. All aspects of the conference were discussed and the opening announcements were reviewed. No additional discussion.

It was stated that a 10 % discount will be given if you are wearing your badge at the hotel restaurant.

The possibility of taking the membership dues up to \$40 rather than \$35 was discussed. Additional discussion will take place at a later date.

1st Vice President – Chris Claytor

The proposed registration costs for the 2019 Spring Educational Conference in Richmond, VA will be provided to the board, via email once the site visit is conducted in May.

The electronic app, Guidebook, was described and proposed to the board to be used to upload all of our conference materials for the upcoming 2019 Spring Educational Conference. The potential cost would be \$5 per device and the total cost would be comparable to what the organization is already spending on printing materials and ink. This would eliminate a good amount of the preparation time prior to the conference each year. This proposal will be discussed further as a vendor sponsorship at a later date.

2nd Vice President – Shelly Brazelle

Stated that she had a lot of local speakers approach at the last minute seeking available presentation slots after the agenda was full. These potential speakers will be forwarded to 3rd Vice President, Dani O'Neill, for agenda creation for the upcoming 2018 Fall Seminar and 2019 Spring Conference.

Discussion took place in regards member practitioners receiving preference over students when it comes to filling workshop spots. After no additional discussion, it was determined that member practitioners will receive preference.

Proposed location 2018 Fall Seminar – Baltimore City Police Department.

Host agency prefers to have the event on a weekday rather than weekend. Proposed date 10-12-18. Parking would be approximately \$10/day. Attendees would have to go through security to get to the conference room. Additional discussion will take place via email and other venues will be researched.

Proposed location Spring 2020 – Wyndham Gettysburg.

Contract was reviewed, no room attrition was added to updated contract presented. \$1,000 for meeting space, which would be a one-time fee. Room blocks are consistent with years past. Government rate - \$93/night. Food and beverage minimum \$5,000. Proposed dates March 26 – 27, 2020. Jessica will look into the tax exemption for the state of Pennsylvania. Discussion took place, there were no issues. Contract will be reviewed and voted on via email at a later date.

3rd Vice President – Dani O’Neill

A total of 17 vendors with 19 total tables (two tables given to WVU and Vandalia Works). Discussed the possibility of eliminating vendor tables without electricity, due to vendors only selecting that option. Will be addressed further when planning the 2019 Spring Conference. There were package deals for the vendors to choose from this conference and it was a huge success. Total amount received was \$12,800. Tons of door prizes received and we will limit the donated seats to training classes to practitioners.

Received feedback that vendors are having an issue with being asked twice a year for funds. It was determined that we will cut back the amount of sponsorships asked for during the fall. We will ask for more during the spring sponsorships (speakers, events, workshops, etc.). Sponsoring speakers will be a case by case basis, discussed and voted on each time. Speakers, who request funding, would need to provide a CV and a breakdown of costs for approval by the board.

Historian

Will follow up with Sarah Dwyer in regards to purchasing a new camera for the organization.

Editor

Spread the word about the cover competition for *The Examiner*.

Membership Committee

An announcement will be made during opening ceremonies in regards to the student membership sponsorships. Eligible students (those not sponsored in previous years) will inform Secretary/Treasurer, Jessica Landi, that they wish to be put into the pool. Members can sponsor the students at the registration desk and the drawing will take place at the buffet dinner on Thursday.

Jessica Landi will generate the list of potential students.

Crime Scene Certification Committee

Discussion took place that the organization no longer needs the certification committees only a Point of Contact within each committee. This change to the Constitution and Bylaws will occur when all other areas of change, proposed by Jeff Barnes, are addressed in *The Examiner* and approved by the parent body.

Student Development Committee

There are a total of 14 posters being presented this year. Multiple students per poster, thoughts about increasing the prize amounts were discussed.

Mallory McCormick, motioned that we up the amount to \$200 for first place and \$100 for second place as prizes for the poster contest winners, Frank Curran seconded. Motion passes unanimously. This is a one-time vote due to the amount of posters being presented this year.

The poster contest form will be changed to list a primary Point of Contact for each poster submission and that the prizes will be at least \$150 for first place and at least \$75 for second place.

Continuing Education Committee

Approved for 16 hours of in service credit hours.

6. Constitution and Bylaws

Proposed changes given by Jeff Barnes. Further discussion will take place via email once the new committee members are appointed. We will need seasoned active members in order to review and make the necessary changes.

7. New Business

Discussion took place in regards to the 2018 Fall Seminar profit going directly into the scholarship fund or to be placed into the checking account. After discussion, this will be revisited once the conference profit/loss statement is generated.

A lengthy discussion took place in regards to the bank account balances and funding for conferences.

The Officer's Guide will be removed from the website and provided to all officers and board members upon election into office.

Amazon Smile – If utilized you can select a charity and a percentage of that purchase will go to that charity. Shelly Brazelle will do further research with Les Michel and further discussions will take place via email at a later date.

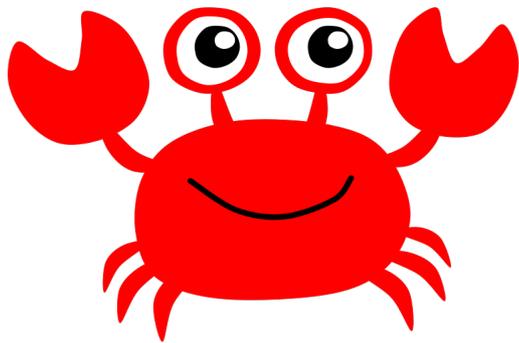
Scholarship winners were announced and will be honored at the banquet.

Tax exemption held in Virginia and Maryland. Les Michel and Jessica Landi will do research into obtaining the tax exemption for the state of Pennsylvania. Should we look into the tax exemption for the other states?

Frank Curran addressed the attendees in regards to students struggling to find employment upon graduation. Can the organization create some sort of training program to aid the students in obtaining the documented training they need? Documented training program – lengthy multi discipline series of workshops/training program. Committee will be generated in reference to this for the next year.

8. Adjournment

Meeting adjournment motion proposed by Jessica Shaffer at 2:00 pm, seconded by Frank Curran, motion passed unanimously.



Coming Soon!

Fall 2019 Seminar - October 12, 2019
Prince George's Community College in Largo, MD

If you're interested in being a Speaker or a Workshop
Presenter, check out the Seminar Page and register
TODAY!

STAY TUNED - MORE INFORMATION TO COME

Minutes from the

2018 Board of Directors Email Correspondence

1. Speaker Gifts for the 2018 Spring Educational Conference

Motion made by Rebecca Wood, Chairperson, on behalf of Kelly Ayers, President, on March 19, 2018 to purchase thirty (30) portable charging devices (@\$16.63 each) with the CBD-IAI logo and a bow tie (@\$24) and plaque (@\$40) for the Keynote Speaker. This will total approximately \$750. Mallory McCormick, Board Member, seconded the motion and discussion took place. Topics of discussion included the amount of funds currently received from attendee and vendor registrations, as well as, all other anticipated expenses. After no further discussion on March 22, 2018, Rebecca Wood called for a vote, passed unanimously.

2. Contract for the 2020 Spring Educational Conference

The proposed contract for the 2020 Spring Educational Conference was provided to the Board of Directors on May 22, 2018. Kelly Ayers, Chairperson, made a motion to accept the date(s) and contract on May 24, 2018. Francis Curran III, Board Member, seconded the motion and discussion took place. Topics of discussion included room block, AV equipment cost(s), meeting room charge(s), vendor table cost(s), and the 50% deposit of food cost(s) due six months prior. All questions were answered and the date(s) of March 24 – 27, 2020 will be finalized. After no additional discussion on May 25, 2018, Kelly Ayers called for a vote, passed unanimously.

3. Venue for the 2018 Fall One-Day Seminar

Motion made by Kelly Ayers, Chairperson, on June 6, 2018 to have the 2018 Fall One-Day Seminar at the Baltimore Police Department. The Seminar will take place on Friday October 12, 2018. The Memorandum of Understanding will be generated once the location and date are finalized. Jessica Shaffer, Board Member, seconded the motion on June 6, 2018 and discussion took place. The discussion mostly revolved around the difference between having a university host the event versus a police agency. After no additional discussion on June 16, 2018, Kelly Ayers called for a vote, passed unanimously.

4. Memorandum of Understanding Approval for the 2018 Fall One-Day Seminar

The Memorandum of Understanding between the CBD-IAI and Baltimore Police Department was provided to the Board of Directors on July 23, 2018. Motion made by Chris Claytor, President, on July 24, 2018 to accept the Memorandum of Understanding for the 2018 Fall Seminar. Jessica Shaffer, Board Member, seconded the motion on June 6, 2018 and discussion took place. A short discussion in regards to whether the approval by CBD-IAI Legal had been received. The Board of Directors was informed that CBD-IAI Legal had previously approved the Memorandum of Understanding. After no further discussion Kelly Ayers, Chairperson, called for a vote on July 24, 2018, vote passed unanimously.

5. Registration costs for the 2018 Fall One-Day Seminar

Motion made by Jessica Shaffer, Board Member, on July 26, 2018, on behalf of Shelly Brazelle, 1st Vice President, to accept the registration costs for the 2018 Fall One-Day Seminar at \$60 for all attendees. Gabrielle Toy, Board Member, seconded the motion on July 30, 2018 and discussion took place. The pros and cons of the proposed registration cost were discussed and compared to previous seminars. After no further discussion Kelly Ayers, Chairperson, called for a vote on August 8, 2018, vote passed unanimously.

6. Webmaster Stipend

Motion made by Kelly Ayers, Chairperson, on June 29, 2018, on behalf of Da-il Kim, Webmaster, to provide a monthly stipend of \$650 to the Webmaster for services rendered throughout the year. Amanda Lane, Board Member, seconded the motion on July 3, 2018 and discussion took place. Lengthy discussion followed in regards to the amount requested by Da-il Kim. Also, the parent body was contacted in regards to how much their Webmaster is compensated on a yearly basis, as well as, research into professional companies who offer these services. The original motion was altered on August 11, 2018, to state that the CBD-IAI will provide a stipend of \$5,000 on a yearly basis, along with a signed contract outlining the expectations and obligations of the position. This contract will be reviewed and voted on each year by the Board of Directors. Mallory McCormick, Board Member, seconded the motion on August 12, 2018 and additional discussion took place. After no further discussion Kelly Ayers called for a vote on August 14, 2018, vote passed by majority.

7. Distribution of Profits Generated by the 2018 Fall One-Day Seminar

Motion made by Kelly Ayers, Chairperson, on September 3, 2018, to keep the profit generated by the 2018 Fall One-Day Seminar in the operating checking account rather than placing these funds in the scholarship savings account due to sufficient funding in this account. Amanda Lane, Board Member, seconded the motion on September 4, 2018 and discussion took place. After no further discussion Kelly Ayers called for a vote on September 7, 2018, vote passed unanimously.

8. CBD-IAI Dues Increase

Motion made by Kelly Ayers, Chairperson, on September 14, 2018, to increase the yearly membership dues from \$35 to \$40. This will also increase the new membership application(s) from \$40 to \$45 and sustaining life membership from \$350 to \$400. Jessica Shaffer, Board Member, seconded the motion on September 14, 2018 and discussion took place. A short discussion took place in regards to the increase in operating cost(s) and the recommendation received from the parent body of the IAI. After no further discussion Kelly Ayers called for a vote on September 17, 2018, vote passed unanimously.

9. Financial Support for Speaker – 2018 Spring Educational Conference

Motion made by Kelly Ayers, Chairperson, on November 6, 2018, on behalf of Dani O'Neill, 2nd Vice President, to reimburse the gas expense (\$240) for John Black who will be presenting at the 2019 Spring Educational Conference. Francis Curran III, seconded the motion on November 6, 2018 and discussion took place. After additional information was provided the original motion was altered and proposed by Kelly Ayers on November 9, 2018, to state that both the gas expense (\$240), as well as, one night of hotel (\$94) will be reimbursed to John Black, presenter at the 2019 Spring Educational Conference. Jessica Shaffer, Board Member, seconded the motion on November 9, 2018 and additional discussion took place. After no further discussion Kelly Ayers called for a vote on November 12, 2018, vote passed unanimously.

Business Meeting Minutes

Morgantown Marriott at Waterfront Place

Morgantown, WV

April 27, 2018

The meeting was called to order by President Kelly Ayers.

President Kelly Ayers asked the Secretary/Treasurer, Jessica Landi, to read the minutes of the last board and business meeting. Jess Shaffer made a motion to waive the reading of the minutes as they were published in the Chesapeake Examiner, seconded by Gabbe Toy, motion passed unanimously.

Reports from Officers

Secretary/Treasurer

Jessica Landi was to read the Treasurer's Report dated April 1, 2017, however, Rebecca Wood made a motion to accept the Treasurer's Report as it was published in the Chesapeake Examiner, seconded by Jess Shaffer, motion passed unanimously.

President

Kelly Ayers thanked everyone for coming and that the conference was a great success with exception to a few minor problems that were resolved. Kelly thanked all the officers and board members for all their hard work throughout the year. Vendors provided good feedback on their needs at future conferences and their support was amazing despite the Western States Conference. There were approximately 144 attendees with 70 being students, hopefully once the students begin their careers they will continue to support the organization. There were 14 poster submission, however, only 11 attended and presented. Vendor open house was not a huge success, however, recommend continuing this event at future conferences. Every agency in West Virginia was contacted prior to the event to spread the word, however, it was not taken advantage of. The approximate amount of funds generated from the conference was \$35,000; with the estimated expenses being around \$32,000. The final funds generated from the conference will be about even. Please inform me if there are any complaints in reference to the venue prior to the final meeting with them next week

First Vice President

Chris Claytor announced that the 2019 Spring Educational Conference will be hosted in Richmond, VA on April 4 – 5, 2019. Registration information will be posted in the near future.

Second Vice President

Shelly Brazelle announced that there were a total of 27 speakers who presented at the conference on a wide variety of topics. The CBD-IAI may need to restructure the agenda in order to ensure the general session and workshops are evenly distributed. There were many speakers who had an almost empty

meeting space throughout his/her presentation. Fall Seminar: Anticipating that it will be in the Baltimore, MD area but more information will be released at a later date. 2020 Conference: Working with a hotel in Gettysburg, PA. Again, more information will be released at a later date.

Third Vice President/Vendor Coordinator

Dani O'Neill stated that the vendor turnout at the conference was great. Gave some guidance to the membership that she had success with sending personal emails to the vendors, on a once per month basis. The vendors provided feedback that they wish to have more practitioners in attendance. Also, that it may be beneficial to mail a flyer, in addition to the email blasts, to both the vendors and the membership. The vendors liked the weekday format rather than the weekend format.

Historian

Sarah Dwyer stated that she really likes the point and shoot camera her agency provided her to use for photography throughout the conference, rather than a bigger camera she used last year. Will make recommendation at a later date once the images from the conference were uploaded and reviewed.

Sergeant in Arms

Laneatte Turner - Nothing to report.

Committee Reports

Crime Scene Certification Committee

President Kelly Ayers informed the membership in attendance that the committee(s) may not be needed in the future, we would just need to appoint a point of contact for each committee. This topic was also addressed at the Board of Directors meeting and will be addressed at a later date. Additional questions were brought up in regards to the proctor requirements of certification exams and all questions were answered accordingly.

Audit/Finance Committee

Les Michel noted that the financials are in good working order. There was a discussion that took place at the conclusion of the audit in regards to the equipment Jessica has access to. The CBD-IAI has a printer that utilizes high quality ink and needs to be repaired. Pricing of the both the repairs and a new laser printer will be researched and provided to the Board at a later date.

Scholarship Committee

President Kelly Ayers reported on behalf of Sylvia Buffington-Lester that the CBD-IAI has awarded two scholarship winners of the George H. Robinson Scholarship, and they will be announced at the Banquet Dinner tonight. Jessica Landi reported that Evident donated \$1,000 and Past President Mark Neal donated \$100 earlier today. Kelly Ayers reported that the WVU Forensic Club will be making a donation at the Banquet Dinner.

Student Development Committee

Mallory McCormick reported that the student turnout was great. Student lunch and poster presentation (11 total posters) participation also was successful. Recommendation for next year's conference is to limit the amount of time the students have to present, if this many posters submit next year. Also, to set up posters early for a pre-screen rather than having the person there to present.

Membership Committee

Gabbe Toy reported the membership is currently at 598 members, there were 33 new members (29 active, 3 associate and 1 honorary year). There are also still 63 members who have yet to pay dues this year so the membership number would be 535 members if those 63 members are considered dropped. The student raffle that occurred during last year's Buffet Dinner, there were 40 students that were sponsored and only 10 renewed their dues this year. This is why the student raffle was altered/adjusted this year.

Latent Print Certification Committee

Nothing to report.

Motion made by Frank Curran to accept committee reports as stated, Jeff Barnes seconded, motion passed unanimously.

Unfinished business

None

New Business

None

Election of Officers

Nominating Committee Recommendations

President – Chris Claytor

1st Vice President – Shelly Brazelle

2nd Vice President – Danielle O'Neill

3rd Vice President – John Flores

Secretary/Treasurer – Jessica Landi

Editor – Kelly Peak

Sargent in Arms – Lanette Turner

Historian – Sarah Dwyer

Hearing no nominations from the floor for any of the officer positions, Rebecca Wood made a single vote of acclimation to accept the nominations, Gabbe Toy seconded, motion passed unanimously.

Election to the Board of Directors

Nomination Committee Recommendations

Frank Curran, III

Jessica Shaffer

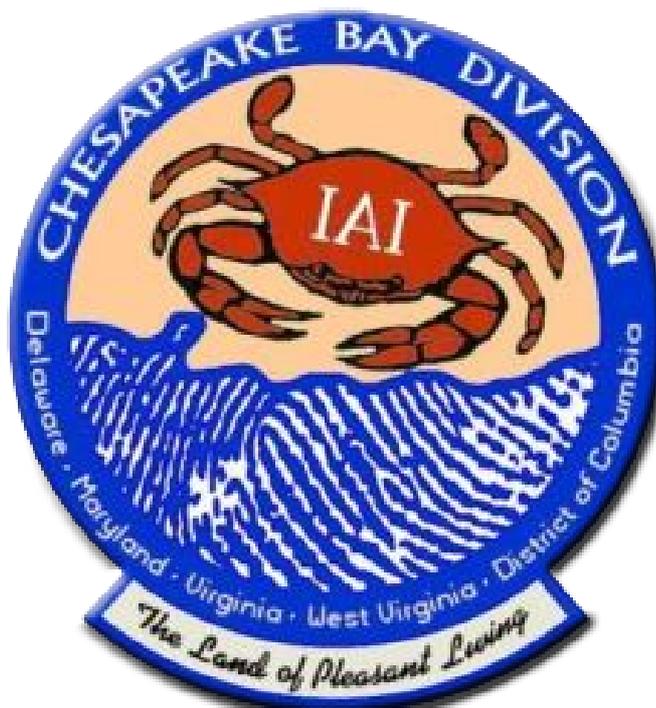
Gabrielle Toy

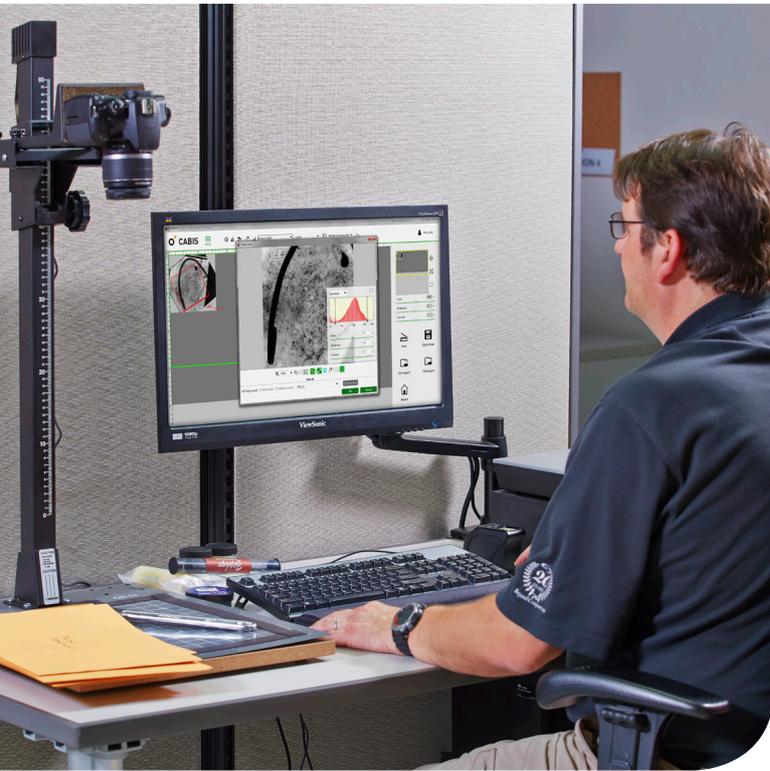
Amanda Lane

Mallory McCormick

Hearing no nominations from the floor for the Board of Directors positions, Rebecca Wood made a single vote of acclimation to accept the nominations, Jess Shaffer seconded, motion passed unanimously.

Kelly Ayers made a motion to adjourn, Jeff Barnes seconded, motion passed unanimously.





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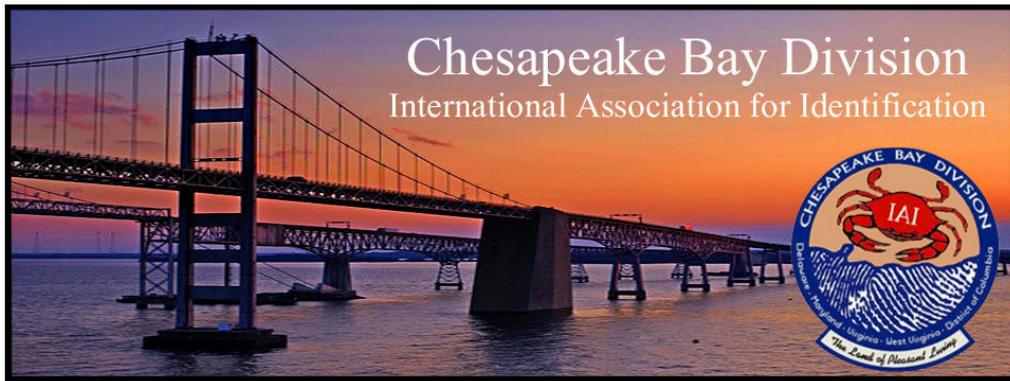
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[GEMALTO.COM](#)

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No amendments have been made
to the Constitution and/or Bylaw

Spring 2019 / Volume 57 / Issue 1

From the Office of the Secretary/Treasurer

Operating Accounts

| | |
|---|------------------------|
| Total balance in Operating Account as of April 1, 2017 | \$53,210.94 |
| Deposits from income | \$47,739.51 |
| Interest Received on Operating Savings Account | \$16.44 |
| Transfer to Scholarship Savings (contributions received for Scholarship Fund) | \$1,510.25 |
| Total Amount Received 04/01/17 through 03/31/18 | \$46,245.70 |
| Total Disbursements | \$32,567.78 |
| Net Balance in Operating Accounts | \$66,888.86 |
| Balance in Checking Account | \$43,082.81 |
| Balance in Operating Savings | \$23,556.50 |
| Balance in Petty Cash | \$249.55 |

Scholarship Account

| | |
|--|-------------------------|
| Balance in the Scholarship Savings as of April 1, 2017 | \$37,059.17 |
| Direct Contributions to Scholarship Fund | \$1,710.25 |
| Interest Received on Scholarship Savings Account | \$37.00 |
| Transfer to Checking Account for Scholarship Recipient | \$2,000.00 |
| Net Balance in Scholarship Account | \$36,806.42 |
| Total Balance All CBD Accounts | \$103,695.28 |

Respectfully Submitted,
Jessica Landi-Secretary/Treasurer





Forensic SERIES

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Profit and Loss Statement

Spring 2018 Conference - Morgantown, WV
April 26-27, 2018

INCOME:

| | |
|---|--------------------|
| Conference Registration..... | \$22,419.00 |
| Vendor Registration, Sponsorships and Flyers..... | \$12,800.00 |
| 50/50 April 27, 2018 | \$315.00 |
| Total Income..... | \$35,534.00 |

EXPENSES:

| | |
|--|--------------------|
| Hotel Fees..... (Food, meeting rooms, AV fees, hotel rooms for President, Secretary/Treasurer and BOD approved presenter, etc.on master bill) | \$32,887.30 |
| Keynote Gift, Speaker's Gifts and President's Palque..... | \$757.97 |
| Vendor's Gifts..... | \$142.32 |
| Hospitality and Miscellaneous..... (Napkins and cups for events, workshop instructor supplies, etc.) | \$654.37 |
| Poster Presentation Winners..... | \$300.00 |
| BOD approved presenter costs..... (Mileage and printed handouts) | \$568.90 |
| Registration Packet Supplies..... (Certificate Paper, Meal Tickets, envelopes, etc.) | \$307.11 |
| * Program Guide | \$0.00 |
| Total Expenses..... | \$35,617.97 |
| * Programs printed in house with existing supplies | |

| | |
|---------------|-----------------|
| INCOME..... | \$35,534.00 |
| EXPENSES..... | \$35,617.97 |
| LOSS..... | -\$83.97 |

Respectfully Submitted, Jessica Landi-Secretary/Treasurer

Profit and Loss Statement

Fall 2018 Seminar - Baltimore, MD
October 12, 2018

INCOME:

| | |
|------------------------------|-------------------|
| Seminar Registration..... | \$3,540.00 |
| Vendor Sponsorship..... | \$1,100.00 |
| Total Income..... | \$4,640.00 |

EXPENSES:

| | |
|----------------------------|-----------------|
| Breakfast and Break | \$230.35 |
| Potbelly (Lunch) | \$469.05 |
| Total Expenses..... | \$699.40 |

* Programs printed in house with existing supplies and speaker gifts donated

| | |
|----------------------|-------------------|
| INCOME..... | \$4,640.00 |
| EXPENSES..... | \$699.40 |
| PROFIT..... | \$3,940.60 |

Respectfully Submitted,
Jessica Landi-Secretary/Treasurer

CHESAPEAKE BAY DIVISION-IAI 2014 TAX YEAR

INCOME

Amount deposited into bank

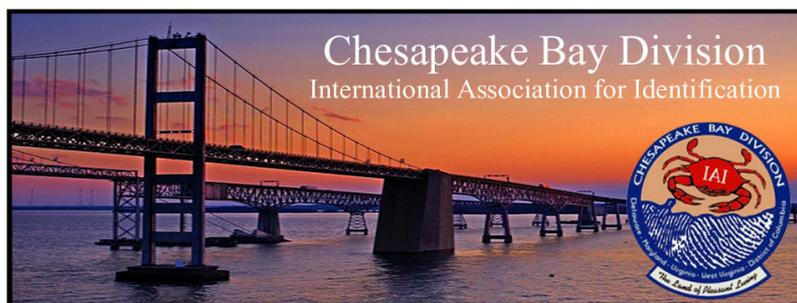
| | |
|---|-------------|
| Dues Collected..... | \$17,355.00 |
| Direct Scholarship Donations..... | \$530.00 |
| Gross Conference Registration Fees Collected..... | \$12,290.00 |
| New Member Application Fees..... | \$355.00 |
| Vendor Registration..... | \$1,345.00 |
| Vendor Ads..... | \$300.00 |
| Vendor Sponsored Activities..... | \$1,150.00 |
| Certification Fees..... | \$2,800.00 |

Miscellaneous Income

| | |
|---|----------|
| Half & Half Drawings at Conferences..... | \$97.00 |
| Merchandise (Lapel Pins) Sold..... | \$45.00 |
| Quilt Raffle Ticket Sales..... | \$955.00 |
| Less Overpayment from 2013 applied in 2014..... | (\$5.00) |

TOTAL INCOME

\$37,217.00



EXPENSES

EXPENSES

| | |
|--|-------------|
| Telephone..... | \$478.07 |
| Postage..... | \$458.92 |
| Credit Card Processing Fees..... | \$927.61 |
| Internet..... | \$453.98 |
| Office Supplies..... | \$799.51 |
| Hotel Fees for Conference..... | \$5,672.19 |
| Secretary/Treasurer Stipend..... | \$10,553.27 |
| Kenneth O. Smith, Jr. | \$8,794.39 |
| Jessica B. Landi | \$1,758.88 |
| Hospitality Suites CBD Conference..... | \$332.46 |
| Seminar (Drinks, Food, & Parking)..... | \$867.57 |
| Fidelity Bond &Liability Insurance..... | \$415.00 |
| Website Hosting for 1 Year..... | \$102.00 |
| Speaker Gift's..... | \$1,053.00 |
| Tax Prep/Services (Forbes Accounting)..... | \$425.00 |

MISCELLANEOUS EXPENSES

| | |
|---|------------|
| Poster Contest Prizes..... | \$225.00 |
| Domain Name Renewal for Website..... | \$249.90 |
| Survey Monkey..... | \$78.00 |
| Quilt Raffle Material/Machine Fee..... | \$241.52 |
| CPA Retainer (Kenneth Prager)..... | \$500.00 |
| PNC Points Discount, Hotel Fees for Conference..... | (\$100.00) |

TOTAL EXPENSES

\$23,733.00

2014 Beginning Balances

| | |
|----------------------------------|--------------------|
| Checking | \$7,519.14 |
| Operating Savings | \$8,509.89 |
| Petty Cash | \$249.55 |
| Scholarship Fund | \$34,977.20 |
| Total Ending Balance 2013 | \$51,255.78 |

2014 Income and Expenses

| | |
|----------------------------|--------------------|
| Income | \$37,217.00 |
| Interest | \$32.34 |
| Expenses | \$23,733.00 |
| Ending Balance 2014 | \$13,516.34 |

2014 Ending Balances of Accounts

| | |
|----------------------------------|--------------------|
| Checking | \$10,473.14 |
| Operating Savings | \$18,513.97 |
| Petty Cash | \$249.55 |
| Scholarship Fund | \$35,535.46 |
| Total Ending Balance 2014 | \$64,772.12 |

CHESAPEAKE BAY DIVISION-IAI 2015 TAX YEAR

INCOME

Amount deposited into bank

| | |
|--|-------------|
| Dues Collected..... | \$10,670.00 |
| Direct Scholarship Donations..... | \$180.00 |
| Gross Conference/Seminar Registration Fees Collected.. | \$13,780.00 |
| New Member Application Fees..... | \$160.00 |
| Vendor Registration..... | \$1,945.00 |
| Vendor Ads..... | \$400.00 |
| Vendor Sponsored Activities..... | \$1650.00 |
| Certification Fees..... | \$950.00 |

Miscellaneous Income

| | |
|---|----------|
| Half & Half Drawings at Conferences..... | \$232.00 |
| Testing for electronic payments on website..... | \$00.01 |

TOTAL INCOME

\$29,967.01



EXPENSES

EXPENSES

| | |
|---|-------------|
| Postage..... | \$49.00 |
| P.O. Box..... | \$78.00 |
| Credit Card Processing Fees..... | \$1,409.69 |
| Office Supplies..... | \$476.20 |
| Hotel Fees for Conference..... | \$8,518.04 |
| Hospitality Suite for Conference..... | \$116.08 |
| Secretary/Treasurer, Jessica B. Landi Stipend..... | \$10,157.51 |
| Seminar (Drinks & Food) | \$813.39 |
| Fidelity Bond &Liability Insurance..... | \$415.00 |
| Website Hosting for 1 Year..... | \$102.00 |
| Tax Prep/Services (Kenneth Prager, 2014)..... | \$400.00 |
| Tax Prep/Services Deposit (Kenneth Prager, 2015) | \$250.00 |

MISCELLANEOUS EXPENSES

| | |
|---|----------|
| Scholarship Recipient..... | \$500.00 |
| Poster Contest Prizes..... | \$175.00 |
| President's Plaque..... | \$72.61 |
| Sympathy Gift for member..... | \$52.77 |
| Mileage for Legal Counsel to meet CPA..... | \$207.50 |
| Conference Signage/Vendor Gifts for Conference..... | \$261.90 |

TOTAL EXPENSES

\$24,054.69

2015 Beginning Balances

| | |
|----------------------------------|--------------------|
| Checking | \$10,473.14 |
| Operating Savings | \$18,513.97 |
| Petty Cash | \$249.55 |
| Scholarship Fund | \$35,535.46 |
| Total Ending Balance 2014 | \$64,772.12 |

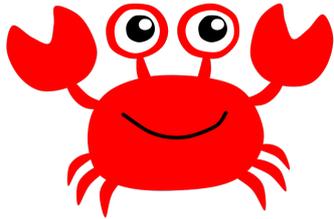
2015 Income and Expenses

| | |
|----------------------------|-------------------|
| Income | \$29,967.01 |
| Interest | \$30.40 |
| Expenses | \$24,054.69 |
| Ending Balance 2015 | \$5,942.72 |

2015 Ending Balances of Accounts

| | |
|----------------------------------|--------------------|
| Checking | \$6,589.46 |
| Operating Savings | \$28,525.26 |
| Petty Cash | \$249.55 |
| Scholarship Fund | \$35,350.57 |
| Total Ending Balance 2015 | \$70,714.84 |

CHESAPEAKE BAY DIVISION-IAI 2016 TAX YEAR



INCOME

Amount deposited into bank

| | |
|--|-------------|
| Dues Collected..... | \$12,675.00 |
| New Member Application Fees..... | \$150.00 |
| Direct Scholarship Donations..... | \$105.00 |
| Scholarship Donations not yet transferred to Scholarship Fund | \$305.00 |
| Gross Conference Registration Fees..... | \$16,717.50 |
| Gross Seminar Registration Fees..... | \$1,505.00 |
| Vendor Registrations..... | \$3,890.00 |
| Vendor Ads..... | \$725.00 |
| Vendor Sponsored Activities..... | \$1,050.00 |
| Certification Fees..... | \$800.00 |

Miscellaneous Income

| | |
|--|----------|
| Half & Half Drawings at Conferences..... | \$223.00 |
| Credit from Banquet Equipment..... | \$22.92 |

TOTAL INCOME **\$38,168.42**

EXPENSES

EXPENSES

| | |
|---|-------------|
| Postage..... | \$142.20 |
| P.O. Box..... | \$173.00 |
| Credit Card Processing Fees..... | \$2,079.27 |
| Office Supplies/Printing..... | \$1,197.55 |
| Hotel Fees for Conference..... | \$15,146.18 |
| Hotel Deposit for 2017 Conference..... | \$500.00 |
| Secretary/Treasurer, Jessica B. Landi Stipend..... | \$11,588.79 |
| President's IAI Conference Fees..... | \$1,167.45 |
| Seminar (Food, Drinks & Speaker Gifts)..... | \$445.89 |
| Fidelity Bond & Liability Insurance..... | \$460.00 |
| Website Hosting for 1 Year..... | \$102.00 |
| Remaining Balance/Tax Services (Kenneth Prager, 2015) | \$750.00 |
| Tax Prep/Services Deposit (Kenneth Prager, 2016) | \$250.00 |

MISCELLANEOUS EXPENSES

| | |
|--|------------|
| Scholarship Recipients..... | \$1,000.00 |
| Poster Contest Prizes..... | \$225.00 |
| President's Plaque..... | \$74.05 |
| Appreciation Plaque for previous Secretary/Treasurer | \$78.71 |
| Microsoft Office Subscription..... | \$69.99 |
| Conference Signage/Vendor Gifts for Conference..... | \$207.77 |
| Conference Banquet Equipment/Decorations..... | \$381.61 |
| Conference Gift Basket for IAI President..... | \$47.75 |
| CBD-IAI Sponsorship of Student Membership for IAI | \$45.00 |

TOTAL EXPENSES

\$36,132.21

2016 Beginning Balances

| | |
|----------------------------------|--------------------|
| Checking | \$6,589.46 |
| Operating Savings | \$28,525.26 |
| Petty Cash | \$249.55 |
| Scholarship Fund | \$35,350.57 |
| Total Ending Balance 2015 | \$70,714.84 |

2016 Income and Expenses

| | |
|----------------------------|-------------------|
| Income | \$38,168.42 |
| Interest | \$30.30 |
| Expenses | \$36,132.21 |
| Ending Balance 2016 | \$2,066.51 |

2016 Ending Balances of Accounts

| | |
|----------------------------------|--------------------|
| Checking | \$11,938.56 |
| Operating Savings | \$23,538.50 |
| Petty Cash | \$249.55 |
| Scholarship Fund | \$37,054.74 |
| Total Ending Balance 2016 | \$72,781.35 |

CHESAPEAKE BAY DIVISION-IAI 2017 TAX YEAR

INCOME

Amount deposited into bank

| | |
|--|-------------|
| Dues Collected..... | \$13,940.00 |
| New Member Application Fees..... | \$360.00 |
| Scholarship Donations not yet transferred to Scholarship Fund | \$1,035.00 |
| Gross Conference Registration Fees..... | \$14,377.50 |
| Gross Seminar Registration Fees..... | \$1,175.00 |
| Vendor Registrations..... | \$3,500.00 |
| Vendor Ads..... | \$1,650.00 |
| Vendor Sponsored Activities..... | \$9,975.00 |

Miscellaneous Income

| | |
|--|----------|
| Half & Half Drawings at Conferences..... | \$200.00 |
| Website Testing..... | \$.01 |

TOTAL INCOME

\$46,212.51



EXPENSES

EXPENSES

| | |
|---|-------------|
| Postage..... | \$343.00 |
| P.O. Box for 1 Year..... | \$116.00 |
| Credit Card Processing Fees..... | \$1,834.43 |
| Office Supplies/Printer..... | \$1066.80 |
| Hotel Fees for Conference..... | \$11,034.18 |
| Hospitality Suite for Conference..... | \$602.63 |
| Secretary/Treasurer, Jessica B. Landi Stipend..... | \$12,168.44 |
| President's IAI Conference Fees..... | \$1,072.92 |
| Seminar (Food, Drinks & Speaker Gifts)..... | \$890.12 |
| Fidelity Bond & Liability Insurance..... | \$453.00 |
| Website Hosting for 1 Year..... | \$102.00 |
| Remaining Balance/Tax Services (Kenneth Prager, 2016) | \$750.00 |
| Tax Prep/Services Deposit (Kenneth Prager, 2017) | \$275.00 |

MISCELLANEOUS EXPENSES

| | |
|---|------------|
| Scholarship Recipients..... | \$2,000.00 |
| Poster Contest Prizes..... | \$225.00 |
| President's Plaque..... | \$74.05 |
| PNC Deposit Slips..... | \$57.00 |
| Domain name renewal for 5 Years..... | \$185.40 |
| Microsoft Office Subscription for 1 Year..... | \$136.32 |
| Vendor Gifts for IAI Parent Body Conference..... | \$236.62 |
| Vendor Gifts for Conference..... | \$180.30 |
| Conference Decorations (Historian photos and frames, cups, foamboard and M&M's)..... | \$112.39 |
| Difference in reimbursement dated 04/15/17..... | \$5.00 |

TOTAL EXPENSES **\$33,920.60**

2017 Beginning Balances

| | |
|----------------------------------|--------------------|
| Checking | \$11,938.56 |
| Operating Savings | \$23,538.50 |
| Petty Cash | \$249.55 |
| Scholarship Fund | \$37,054.74 |
| Total Ending Balance 2016 | \$72,781.35 |

2017 Income and Expenses

| | |
|----------------------------|--------------------|
| Income | \$46,212.51 |
| Interest | \$46.14 |
| Expenses | \$33,920.60 |
| Ending Balance 2017 | \$12,338.05 |

2017 Ending Balances of Accounts

| | |
|----------------------------------|--------------------|
| Checking | \$24,520.22 |
| Operating Savings | \$23,552.39 |
| Petty Cash | \$249.55 |
| Scholarship Fund | \$36,797.24 |
| Total Ending Balance 2017 | \$85,119.40 |

2018 Scholarship Donors

Designated “Sponsor”

(Donations total over \$1,500.00)

Evident, Inc.

Designated “Friend”

(Donations total over \$500.00)

Robert Otero
WVU Students/Forensics Club

Patrons

(Donations of \$10.00-\$500.00)

Shelly Brazelle
Anthony Clay
Sonja G. Davis-Black
Vici Inlow
David Klug
Mallory McCormick
Mark Neal
Kenneth Phillips
Myeshia Roberts
Clytrice Watson

Twenty - Five Year Life Members

Joyce E. Baker
LaShern T. Dennis
Judy Grimm
Max L. Jarrell
Catherine E. Johnson
Patricia V. Rogers
Rosalyn Sensabaugh

2018 Scholarship Winners

Samantha Alexis Mehnert, West Virginia University
Rebecca Elizabeth Millard, Boston University — School of Medicine
Lauren Cecile Brooks, Syracuse University
Lexes Sierra Reiss, Arizona State University
Aubrie Morgan Sanchez, Boston University — School of Medicine



CBD-IAI

www.cbdi.ai.org

Chesapeake Bay Division International Association for Identification

Spring 2019 Educational Conference

April 4–5, 2019

Four Points by Sheraton Richmond

Richmond, VA

9901 Midlothian Turnpike
Richmond, VA 23235
Phone: 804-323-1144
866-716-8133



OUR MISSION

To facilitate opportunities for networking, collaboration and exchange of ideas with practitioners in forensic identification, investigation and scientific examination of physical evidence.

To keep its members informed of the latest research and development.

Identify future needs in order to provide growth and improvement to the science of forensic identification and crime detection.

Support and motivate the next generation of practitioners by establishing professional relationships, providing opportunities to present research and promoting organization involvement.

Strengthening Our Future

Any additional inquiries please contact:

Jessica Landi

cbdiasec@gmail.com

WEDNESDAY, APRIL 3, 2019

6:30 PM to 9:00 PM

President's Welcome Reception with Traveling Escape Rooms provided by Laser Quest Richmond

Sponsored By:



THURSDAY, APRIL 4, 2019

7:00 AM

Registration opens

7:00 AM to 8:00 AM

Hot Breakfast Buffet

8:00 AM to 8:30 AM

Opening Ceremonies

Presentation of Colors by Richmond Police Dept.

Invocation by Sylvia Buffington-Lester

President's Welcome by Chris Claytor

Vendor Recognition

Welcome Address by Richmond Region of Tourism

8:30 AM to 9:45 AM

Keynote Speaker: "The Code of Trust - An American Counterintelligence Expert's Five Rules to Lead and Succeed" – Robin Dreeke

9:45 AM to 10:00 AM

Break

LECTURES

10:00 AM to 10:30 AM

"What's in Your Wallet?" – Shelly Brazelle, Document Analyst - US Secret Service

10:30 AM to 12:00 PM

"Sciometrics LatentSleuth - Validation for Accuracy & Evaluation of Efficiency In Casework and Statistical Error Estimation for an Objective Measure of Similarity to a Latent Image" - Jessica J. Davis, Forensic Scientist Supervisor DFS, Mary Hood Latent Print Examiner DFS, Richard Smith, VP Products and Services, Dr. Doanald Gantz, Professor Emeritus of Statistics

12:00 PM to 1:00 PM

LUNCH ON YOUR OWN

*12:00 PM to 1:00 PM

Retirement seminar, Les Michel, Location at hotel, lunch available for purchase

WORKSHOPS/BREAKOUT SESSIONS (Groups A-D)

(A) 1:00 PM to 5:00 PM

"Detect More Evidence: Extend Your Search Beyond the Visible" – Rebecca Walls, Sales Support Specialist, Foster and Freeman

(B) 1:00 PM to 5:00 PM

"Best Practices at the Intersection of Crime Scene and Death Investigations" - Kelly Ayers West Virginia University & Rebecca Wood Lead Forensic Investigator DC Office of the chief Medical Examiner

(C) 1:00 PM to 2:00 PM

"Interview Room to Court Room: The Basics You Need to Succeed" – Mallory McCormick, CLPE US Secret Service Fingerprint Specialist

- (C) 2:00 PM to 2:30 PM “Bloody Surfaces: The Effects of Fabrics on the Surface of Wounds and Their Bloodstain Patterns” – Carlie Hayes, Graduate Student GWU
- (D) 1:00 PM to 2:30PM “Experience a New Technology in Latent Print Detection” - Normann Kreuter, CEO - German eForensics GmbH
- 2:30 PM to 3:00 PM **Afternoon Break**
- (C) 3:00 PM to 5:00 PM “Working for the “Other Side”: Thoughts from a Defense Expert” -John P. Black, Forensic Consultant (25 Max)
- (D) 3:00 PM to 5:00 PM Case Study Presentation, Footwear/Tire Track – Michael S. Lamper Sr., Fairfax County Police Department
- 6:00 PM to 7:00 PM **Vendor Meet and Greet Reception**
- 7:00 PM to 9:00 PM **Buffet Dinner Featuring Forensic Themed Photo Booth provided by Jedi Prints**



Sponsored By:

FRIDAY, APRIL 5, 2019

- 7:00 AM **Registration opens**
- 7:00 AM to 8:00 AM **Hot Breakfast Buffet**
- LECTURES**
- 8:00 AM to 9:00 AM “To Microburst or not to Microburst: An Evaluation of Cyanoacrylate Fuming Procedures and Glue Optimization” - Victoria Ann Stegle – Physical Scientist/Forensic Examiner Federal Bureau of Investigation
- 9:00 AM to 9:45 AM “Latent Print Heat Application method for Indanedione” - Sabrina Tishko Physical Scientist/Forensic Examiner Trainee in the Latent Print Operations Unit For the Federal Bureau of Investigation
- 9:45 AM to 10:00 AM **Break**
- 10:00 AM to 10:30AM Case Study: “The Use of Spherical Photography in a Greece, NY Murder Case” Andrew McNeill, MFS - Director of Training L-Tron

10:30 AM to 12:00 PM “Not Guilty” – A Fingerprint Case Review” - John P. Black, Forensic Consultant & Maggie Pitts, Senior Trial Attorney

12:00 PM to 1:00 PM **LUNCH ON YOUR OWN**

*12:00 PM to 1:00 PM Student Lunch Session – Please ensure you sign up on your registration. “Technology through the Ages: How Yesterday’s Equipment led to Breakthrough’s Today” – Rebecca Walls, Sales Support Specialist, Foster And Freeman

WORKSHOPS/BREAKOUT SESSIONS (Groups A-D)

(A) 8:00 AM to 12:00 PM “Crease and 3rd Level Details” – John Vanderkolk, Indiana State Police Laboratory, Unique Forensics, LLC (30 Max) - **\$15**

(A) 1:00 PM to 5:00 PM “Making Optimal Decisions in Latent Print Examination” – John Vanderkolk, Indiana State Police Laboratory, Unique Forensics, LLC (30 Max) - **\$15**

(B) 1:00 PM to 5:00 PM “Certified Crime Scene Investigator Test Prep: The Abridged Version” – Kelly Ayers, MS, CSCSA, Investigator

(C) 1:00 PM to 1:30 PM “Digital & Multimedia Evidence: What it is, capabilities, and limitations”, John B. Hirt II, Forensic Scientist, Virginia Department of Forensic Science

(C) 1:30 PM to 2:30 PM “Advancements in Technology for Latent Print Examiners” – Henry Pietrewicz, Product Manager, IDEMIA (50 Max)

(D) 1:00 PM to 5:00 PM “Case Study, Nicole Lovell Murder (2016)” – Michael P. Czernicki, Detective, Blacksburg Police Department

2:30 PM to 3:00 PM **Afternoon Break and Poster Contest**

(C) 3:00 PM to 5:00 PM Firearm and Toolmark Identification, Bronwyn McMaster Forensic Scientist, Virginia Department of Forensic Science

5:00 PM – 5:30 PM Business Meeting (CBD-IAI Members ONLY)

6:00 PM to 7:00 PM **Cocktail Hour**

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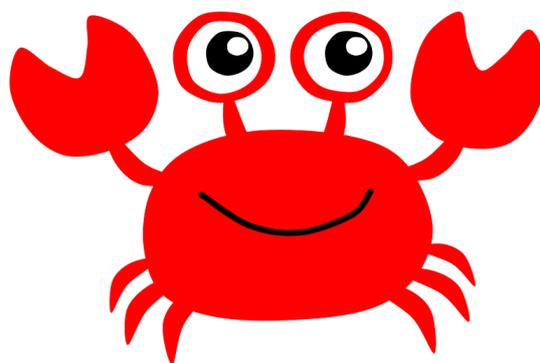
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In One Word

By
Hillary Daluz, MSFS
Instructor, Tri Tech Forensics

Describe yourself with a single word. Just one. Got it? Now think about the word you chose. Does that single word describe everything that makes you, you? In the past decade, fingerprint examiners have endeavored to identify one word to describe what has historically been referred to as an “identification” conclusion. There have been discussions, presentations, panels, and articles addressing the intricacies of “matches”, “individualizations” and, more recently, “associations”. What if, just as there is no single word that can describe you, there is no single word to describe an identification conclusion?

A discussion about nomenclature is important as we seek to utilize our collective knowledge in order to standardize documentation, methodologies and processes. Standardization in any discipline generates quality and consistency and decreases ambiguity. Unlike many laboratory scientists or academics, our conclusions must not only be read and understood by colleagues, but must also be comprehended by the layperson. Forensic Scientists submit data, results, and conclusions to criminal justice professionals. We testify in a court of law. We have a responsibility to communicate our science effectively to the layperson, in context, in as many words as are necessary to teach the layperson about the foundations of the

science, the processes and methods used, the significance of our conclusions and resulting opinions.

In an NPR podcast interview, self-described author, futurist, and scientist Eric Haseltine was asked about his prediction as to the next “big” scientific discovery on the horizon. In response, he issued the following challenge: “Imagine a color that you've never seen before. And you can't do it because our brains construct things from building blocks of what we've experienced. If you've never experienced it, you can't imagine it.”¹ Many jurors have little or no knowledge of the forensic sciences. In this sense, the intricacies of our science are a color jurors have never seen before.

In my courtroom testimony courses, colleagues often ask which words they are “supposed to” use. There is general confusion about nomenclature and what is currently acceptable in the discipline. In most scientific disciplines, it is acceptable to state or imply that a claim is supported by evidence and is likely to be true. We should not be hesitant to assert a claim as “likely”, regardless of the fact that we cannot currently state *how* likely it is. Here are some acceptable statements that can be used to describe an identification conclusion:

- *There is sufficient correspondence of quality, quantity and rarity of features to be confident that no other conclusion is supported by the evidence.*
- *I am of the opinion that the questioned/unknown and exemplar/known prints likely originated from the same source.*

- *Given the specificity of the features and the size of the population considered, I would not expect to see this configuration of features repeated by random chance in another individual.²*
- *An identification is effected when sufficient unique identifying characteristics are present in both the known and questioned impressions without any unexplained differences.³*

There is no magic proviso for the science. It is up to the scientist to learn how to explain to the layperson why our conclusions are reliable. Like all human knowledge, forensic science is a living and constantly evolving body of knowledge. As we await the latest consensus from OSAC, we must still utilize sound scientific principles and think critically about the words we use. Because one word is not enough.

References:

1. TED Radio Hour. 2017. Eric Haseltine: Can the Past Guide Us to Future Scientific Breakthroughs? National Public Radio (NPR).
<https://www.npr.org/templates/transcript/transcript.php?storyId=516727050> (accessed 7 January 2019).
2. Langenburg, G. 2012. *A Critical Analysis and Study of the ACE-V Process*. PhD thesis, Ecole des Sciences Criminelles / Institut de Police Scientifique, Université de Lausanne. Lausanne, Switzerland.

https://www.unil.ch/esc/files/live/sites/esc/files/shared/Langenburg_The_sis_Critical_Analysis_of_ACE-V_2012.pdf (accessed 26 January 2018).

3. Latent Technical Leader. North Carolina Department of Justice. 2016. *Technical Procedure for Friction Ridge Analysis and Comparison, Latent Print Evidence, Version 1. Section 7.1.1.3.* Effective Date: 07/01/2016.

<http://www.ncdoj.gov/getdoc/57466a78-7967-4d9e-905c->

[b90e432597ff/Friction-Ridge-Analysis-and-Comparison-07-01-2016.aspx](http://www.ncdoj.gov/getdoc/57466a78-7967-4d9e-905c-b90e432597ff/Friction-Ridge-Analysis-and-Comparison-07-01-2016.aspx)

(accessed 16 April 2018).

Latent Print Development Techniques on Wet Non-porous Surfaces

Preliminary Research Comparing Wet Powder, Crystal Violet, & Small Particle Reagent

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August 2018

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Disclaimer: The views expressed in this article are those of the author and do not represent the views of the Suffolk Police Department. References to a specific manufacturer or product are for information purposes only and do not imply endorsement by the author or their employer.

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ABSTRACT

Various known latent print processing techniques were utilized to determine the most efficient technique for visualizing and lifting latent prints from the exterior surface of a wet vehicle in a field-work environment, specifically after rain showers. This preliminary research was inspired from unsatisfactory field experience with the use of Small Particle Reagent (Dark). It was hypothesized that an existing latent print processing technique would produce equal, or superior, results to that of Small Particle Reagent (Dark). More directly, it was hypothesized that Wet Powder (also referred to as Sticky-side Powder and Alternative Black Powder [22]), a known technique used on sticky-side/adhesive, non-porous substrates, would produce results that exceeded Small Particle Reagent (Dark) in both field efficacy / efficiency and latent examination effectiveness. This hypothesis was based on the similarities of chemical solution composition between Small Particle Reagent (Dark) and Wet Powder (Black), and further considering that Wet Powder solution is thicker (effectiveness) and has an indefinite shelf life. Based on presently existing research, one additional processing technique was also evaluated—Crystal Violet Solution. Research indicated that when used for substrates with varying colors, Crystal Violet Solution produced fair results when added to a Small Particle Reagent Solution; therefore, Crystal Violet Solution was also used as one of the processing methods in this study. Fingerprints were deposited in known locations on vehicles' guard areas and a control test was conducted on the dry, exterior surface of the guard portion to establish a quality baseline. Established processing guides, literature, and research suggest that cyanoacrylate fuming followed by the application of powders produces optimal results in a majority of (dry) non-porous substrate latent processing [14, 22]. Based on this, a control was established by processing a guard (dry) with cyanoacrylate fuming (GlueShot) and then applying dual powder

with a feather brush. Subsequent to determining which processes were most efficient on the exterior surface of a dry vehicle, fingerprints were again deposited on the guard area, and the three most efficient processes were repeated in a three-stage process—when the guard was wet, when the guard with the applied processing technique was semi-dry, and after the processed guard had dried. The same three-stage process was also completed for a second trial to evaluate reproducibility. Images of the processed guard from trials one and two, and corresponding lifts (trial two only), were examined by two certified latent print examiners to determine their relevancy and effectiveness for use in the field.

Factoring in both equipment concerns and value rating score results, Wet Powder (Black) was found to be the most efficient and effective processing technique for developing and recovering latent print lifts from the wet exterior surface of vehicles in field work environments. Crystal Violet Solution slightly exceeded control scores, but there was difficulty in recovering a lift with this solution. Small Particle Reagent (Dark) received the lowest scores of the three techniques studied and did not lend well to comparison or identification.

INTRODUCTION

A precarious scenario that forensic practitioners often encounter in field work is the need to develop latent fingerprints on wet non-porous and wet semi-porous surfaces. In relation to wet non-porous and wet semi-porous surfaces, few forensic development processing techniques are researched extensively. When restricting research to wet non-porous and wet semi-porous surfaces in a field-type environment, the research lessens even more. Existing research is again narrowed by wet non-porous and wet semi-porous items being dried prior to attempting lifts [13]. Of the remaining research, which fully encompasses wet non-porous and/or wet semi-porous surfaces that remain wet for the lifting process, the focus is homed on Small Particle Reagent and its variants.

While the consistency of both SPR and Wet Print are similar, and both can be sprayed onto a vertical surface with a standard spray bottle, only SPR has a pronounced presence in research on wet non-porous surfaces. Wet Powder is a thicker solution that is applied by slowing pouring over a vertical surface or by “painting” the solution onto the surface with fiber-rich brush, such as a camel hair brush; and while there are scant research articles on the use of SPR suspensions in comparison with Wet Print solutions on wet surfaces, Wet Powder has widely been reserved to use on adhesive surfaces, such as masking, electrical, packaging, and other tapes [14]. See Appendix A for chemical compositions.

Although, there are a few exceptions where various wet powder suspensions have proven to produce usable results on other substrates [1,6]. Review of existing research literature would suggest that the usage, efficiency, and effectiveness of Small Particle Reagent on wet non-porous and wet semi-porous surfaces is seemingly uncontested in the realm of forensic practitioners.

Latent fingerprints are complex and delicate evidentiary findings, and the individualization of fingerprints makes the successful recovery of fingerprint evidence highly desirable when processing crime scenes. Forensic bodies, such as the International Association for Identification (IAI), the Organization of Scientific Area Committees (OSAC) Friction Ridge Subcommittee (FRS), and the AFIS Interoperability Working Group are pointed resources for detailed information on fingerprint formation, processing guides, and much more. The IAI website is host to a Selection and Sequencing Guide for Latent Fingerprint Processing Techniques, and The Federal Bureau of Investigation's Laboratory Division has published a Processing Guide for Developing Latent Prints [22]. The publications from these agencies and organizations, and others, are as described—guides. Processing guides list verified processing sequences and techniques for numerous substrates and potential variables (i.e. porous v. non-porous, wet v. dry, textured v. smooth, and so on) [18].

When researching processing techniques for viability and effectiveness, it is imperative that the results of the research be assessed. With fingerprint assessment, several factors must be evaluated and current standards of evaluation must be implemented in the review [4, 7, 8, 10, 23]. Various definitions can be found regarding fingerprint quality, but it can generally be defined by the assessment of the valley and ridge clarity, and the apparentness of identifiable features such as the core, delta(s), and other minutia—images with good quality include the smooth flow of ridges and valleys in a consistent direction [10].

Having chosen a common situation faced by field technicians, affordability and shelf life of materials were also factored into this study.

METHODOLOGY

Established processing guides, literature, and research suggest that cyanoacrylate fuming followed by the application of powders produces optimal results in a majority of (dry) non-porous substrate latent processing [14, 22]. Based on this, a control was established by depositing fingerprints in known locations and conducting a control test on the dry, exterior surface of the guard portion of a vehicle to establish a quality baseline. For control testing, a field cyanoacrylate chamber was built utilizing a trash bag and securing the trash bag loosely over the guard with duct tape, assuring no leaks were present along the taped edges. A cyanoacrylate “GlueShot” was applied within the field chamber, and dual powder was used to process the (dry) guard with a feather brush. A dry lift was obtained with 2-inch lift tape and placed on a white backing card.

Several processing techniques were then evaluated to determine which would be used for this research. Subsequent to determining which processes were most efficient, fingerprints were again deposited on the guard area, and the three most efficient processes were repeated in a three-stage process—when the guard was wet, when the guard with the applied processing technique was semi-dry, and after the processed guard had dried. The same three-stage process was also completed for a second trail to evaluate reproducibility.

Fingerprints were deposited in known locations and Crystal Violet Solution was applied to the wet, exterior surface of a vehicle with a spray bottle by spraying the solution above a known latent print area from a clean, 32oz spray bottle and allowed solution to gently flow over surface. This step was photographed and then rinsed with distilled water from an unused water bottle by pouring slowly above known latent print area from the bottle, while moving slowly from side-to-side for even distribution. This was again photographed after the rinse. A lift was attempted of

the visualized latent prints processed with Crystal Violet Solution while wet, with 2-inch lifting tape. The lift was then photographed. This methodology was repeated for both the semi-dry, and dry attempts—the stepped drying process was implemented after the rinse and before photographing and lifting.

Fingerprints were deposited in known locations and Wet Powder (Black) was applied to the wet, exterior surface of a vehicle with a five-inch camel hair brush by gently brushing Wet Powder over a known latent print area with the clean camel hair brush. This step was photographed and then rinsed with distilled water from an unused water bottle by pouring slowly above known latent print area from the bottle, while moving slowly from side-to-side for even distribution. This was again photographed after the rinse. A lift was attempted of the visualized latent prints processed with Wet Powder while wet, with 2-inch lifting tape. The lift was then photographed. This methodology was repeated for both the semi-dry, and dry attempts—the stepped drying process was implemented after the rinse and before photographing and lifting.

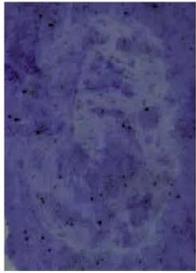
Fingerprints were deposited in known locations and Small Particle Reagent (Dark) was applied to the wet, exterior surface of a vehicle with a spray bottle by spraying the solution above a known latent print area from a clean, 32oz spray bottle and allowed solution to gently flow over surface. This step was photographed and then rinsed with distilled water from an unused water bottle by pouring slowly above known latent print area from the bottle, while moving slowly from side-to-side for even distribution. This was again photographed after the rinse. A lift was attempted of the visualized latent prints processed with Small Particle Reagent (Dark) while wet, with 2-inch lifting tape. The lift was then photographed. This methodology was repeated for both the semi-dry, and dry attempts—the stepped drying process was implemented after the rinse and before photographing and lifting.

A Nikon D5200 SLR camera (SD card inserted) with a Nikkor AF-S DX 18-105mm lens, Nikon Flash Clicker ML-L3, and a Monfrotto Tripod with a 3-way head were used to take photographs for documentation. A strip of adhesive continuous ruler roll tape or a bureau scale was placed in photographs for the future calibration of images. The camera was set to manual mode at ISO 100 with RAW/NEF + JPEG Fine for image capture and lossless compression. The F-Stop and Focal Lengths were toggled for optimal image capture [16]. These settings were used for both outdoor photographs and lift photographs. Photographs were taken at each stage of processing to include set-up before processing, during processing, when sprayed, when rinsed, and of each lift (wet lift, semi-dry lift, and dry lift as appropriate).

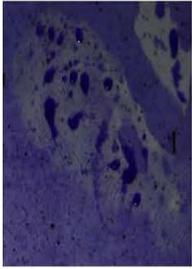
Photographs were uploaded from the SD card to a computer file folder, and a copy of each photograph was placed in a secondary folder. The “copy” version of each photograph was opened in Adobe Photoshop with History Recorder on and set to “detail” level. The copy version of each photograph was calibrated 1:1 for analysis [16] and cropped to include only relevant areas (areas with evidence of developed latent print). The calibrated images were digitally processed by utilizing only accepted techniques in forensic digital processing [16] for optimal viewing by a latent examiner.

Two certified latent print examiners reviewed processing photographs, as well as photographs of latent print lifts. The examiners assessed each image and assigned a value rating score based on an adapted scale [3, 18]. The value rating scores were based on a zero-to-five scale with the following criteria assigned to the numerical rating: 0 = no print visible; 1 = poor quality, 1 or 2 ridges visible, no possibility of identification; 2 = poor quality, some ridge detail visible or partial print with limited characteristics; 3 = reasonable quality, ridge detail & some characteristics visible, possible identification; 4 = good quality print, ridge detail &

characteristics visible, probable identification; 5 = excellent quality, full print very clear & visible, probably identification. Examples of images with associated ratings are below:

| CRYSTAL VIOLET SOLUTION | WET POWDER (BLACK) | SMALL PARTICLE REAGENT (DARK) |
|---|---|---|
|  |  |  |
| Examples of Value Rating Score of Zero / One | | |

| CRYSTAL VIOLET SOLUTION | WET POWDER (BLACK) | SMALL PARTICLE REAGENT (DARK) |
|--|--|--|
|  |  |  |
| Examples of Value Rating Score of Two / Three | | |

| CRYSTAL VIOLET SOLUTION | WET POWDER (BLACK) | SMALL PARTICLE REAGENT (DARK) |
|---|---|-------------------------------|
|  |  | None Available |
| Examples of Value Rating Score of Four / Five | | |

RESULTS & DISCUSSION

Factoring in both equipment concerns and value rating score results, Wet Powder (Black) is the most efficient and effective processing technique for developing and recovering latent print lifts from the wet exterior surface of vehicles in field work environments (see table on page 9).

Crystal Violet Solution scored closely with the control, slightly exceeding control scores. While images from processing with Crystal Violet Solution received high value scores, the difficulties

in recovering lifts poses a hindrance to the efficiency of its usage in a field environment—especially when adding the necessary precautions for equipment protection in rainy weather (i.e. heavy rain and winds with camera on tripod). While Crystal Violet Solution did produce adequate visual enhancement of latent prints, there was difficulty in recovering a lift with this solution. The semi-dry lift was deemed to have some value. When viewing the actual latent print lift card one month after collecting the lift, and then viewing the documentary photograph of the lift (taken within an hour of lifting), there was apparent fading of the Crystal Violet Solution lift. It should be noted that the lift was stored in a temperature-controlled environment, on a backing card and inside of a manila envelope away from direct light. The latent print lift card, after one-month, was rated at half the value of the initial lift photograph by Examiner No. 1.

While Crystal Violet Solution would appear to be one of the optimal processing techniques, the ease of implementing the technique in the field must be considered. Since the most desirable results of Crystal Violet Solution are exam quality photographs, and because it is difficult to recover lifts in any state other than dry, the usage of this technique in a rainy environment is limited—and precaution must be used for equipment preservation. The time needed to allow the surface to fully dry for a successful lift and the fading of latent print lift cards over time further eliminates this option as the most efficient. As such, Wet Powder (Black) becomes the most effective for field use. Not only does Wet Powder (Black) have an indefinite shelf life, but also lends to semi-dry lifts. Semi-dry lifts can be accomplished by blocking rainfall from directly hitting the surface for several minutes and then lifting the developed latent print with 2-inch lifting tape. Wet Print (Black) latent print lift cards were stored in the same conditions as the Crystal Violet Solution latent print lift cards, but had no obvious fading over the month

timeframe, and were rated with the same value scores as their initial lift photographs by Examiner No. 1.

Small Particle Reagent (Dark) received the lowest scores and average of the three techniques studied. In the first trial, the semi-dry images resulted in the highest scores for this technique. Yet, the Small Particle Reagent (Dark) scores were still low. The semi-dry lift attempt was the only attempt to receive scores, which were also significantly low and would not lend to possible comparison or identification. The Small Particle Reagent (Dark) latent print lift cards were stored in the same conditions as the Crystal Violet Solution latent print lift cards, but had no obvious fading over the month timeframe, and were rated with the same value scores as their initial lift photographs by Examiner No. 1.

Although it was hypothesized that Wet Powder (Black) would produce results that met or exceeded Small Particle Reagent (Dark), it was unexpected that Small Particle Reagent would have such low scores overall. Based on Small Particle Reagent being a uniformly accepted processing technique for wet non-porous items, the expectation was that the processing technique would have results that equaled the control. The high scores of Crystal Violet Solution processing were unanticipated. Dye stain would be expected to have high-levels of contrast and have produced viable results on porous items that have been wet (such as paper); however, it was not expected to achieve such high marks on a wet non-porous surface. The latent print lift card associated with Crystal Violet Solution was also surprising, as a lift of the dye stain was not expected to be successful.

The latent examination value rating score averages are shown on the next page. For individual value rating scores and scoring charts, see Appendices B & C.

| Technique | Average Value Rating Score |
|-----------------------------|-----------------------------------|
| Control (CA + Black Powder) | 2 |
| Crystal Violet Solution | 2.05 |
| SPR (Dark) | 0.68 |
| Wet Powder (Black) | 3.11 |

Several problems were encountered during the study. The most prominent concern was weather stability and suitability. As expected, weather dependent research is as variable as environmental conditions dictate. This created complications with recreating the study, and the ability to conduct multiple trials to show repeatability in results. When working with a time constraint, weather inconsistency posed the most significant issue. Potential solutions to this would include rain collection (as laws allow) and utilization of the collected rain to simulate rainfall for the trails. This would mitigate weather inconsistencies and the need to perform trails when the weather conditions are met. Alternatively, water from a hose could be used with an attachment to simulate rain; however, notation of this and the understanding of chemical composition discrepancies, and how these factors might produce results that vary from actual environmental elements would be necessary.

Another difficulty encountered was tape slippage when attempting wet lifts of the processed latent prints. One suggestion would be to place an umbrella, tarp, or other cover over the processed area to allow for drier conditions in which to lift. It would also be beneficial to explore the results of assorted lifting tapes, as well as gel or adhesive lifters, to compare with the 2-inch lifting tape.

Fading of latent print lift cards also presented concern in this study—specifically, the Crystal Violet Solution latent print lifts. While Crystal Violet Solution produced well-received images of the developed latent prints, recovery of the latent prints utilizing 2-inch lifting tape was largely

unsuccessful. Additionally, over the course of one month, the recovered latent print lift showed significant fading (decreasing the value rating score by half)—a problem not encountered with Small Particle Reagent (Dark) nor Wet Powder (Black) when stored in the same conditions as the Crystal Violet Solution latent print lift cards. All lifts were stored inside of a closed manila envelope without being exposed to sunlight, and within a climate-controlled, indoor environment. This is a problem worth assessing when selecting processing methods, as many latent print recovery submissions will be stored in similar environments prior to review by an examiner, and then again before court proceedings.

Due to the practical nature of this study, further research in this area could vastly improve latent recovery results obtained by forensic practitioners in field work. The implementation of various lifting methods would be useful in establishing the ideal lifting technique for processed latent prints on a wet non-porous surface, and for comparing differing techniques with various processing methods. The incorporation of different lifting mediums such as DiffLift, Poly-Stretch, Gellifter, etc. would be useful in determining if other lifting options produce similar or differential lift results on wet, semi-dry, and dry lift attempts from the exterior surface of a vehicle.

Standard deviation and p-values of the sample/control sets were not calculated for this preliminary research. Future research should aim to incorporate standard deviation and p-values, with a larger sample sizes, to ascertain if the improvement is statistically significant.

It would be beneficial to expound these trials by utilizing a wider array of development processing techniques, such as Gentian Violet, Oil Red O, and/or variants of other techniques used in previous research on the development of latent prints on wet non-porous/wet semi-

porous surfaces—and assuring consideration is taken for the preservation of equipment in adverse weather conditions. Widening the research to incorporate other latent processing techniques would either reaffirm Wet Powder (Black) as the more viable technique for processing wet non-porous surfaces or produce evidence of techniques with stronger results.

Another suggestion for future research would be to conduct the same trials, or variations listed above, in a controlled environment utilizing collected rain water and rain dispersion simulator (again protecting the equipment). This would allow for more consistent trials without relying on weather conditions to be met. This could also lend to incorporating more variables in a shorter testing timeframe.

APPENDIX A: Chemical Compositions

SPR Suspension Formula:

Pre-made solution used

General composition

0.4 ml Tergitol (detergent)

5 g Molybdenum disulfide

50 ml distilled water

Wet Powder Formula:

Pre-made solution used

General composition

1:1 Aqueous Detergent and Distilled Water

Crystal Violet Solution:

Pre-made solution used

General composition:

2 g Leucocrystal violet (dye content $\geq 90\%$)

20 g 5-Sulfosalicylic acid (purity $\geq 99\%$)

1000 mL Hydrogen peroxide 3% solution

7.4 g Sodium acetate

APPENDIX B: Value Rating by Description & Examiner

Value Rating

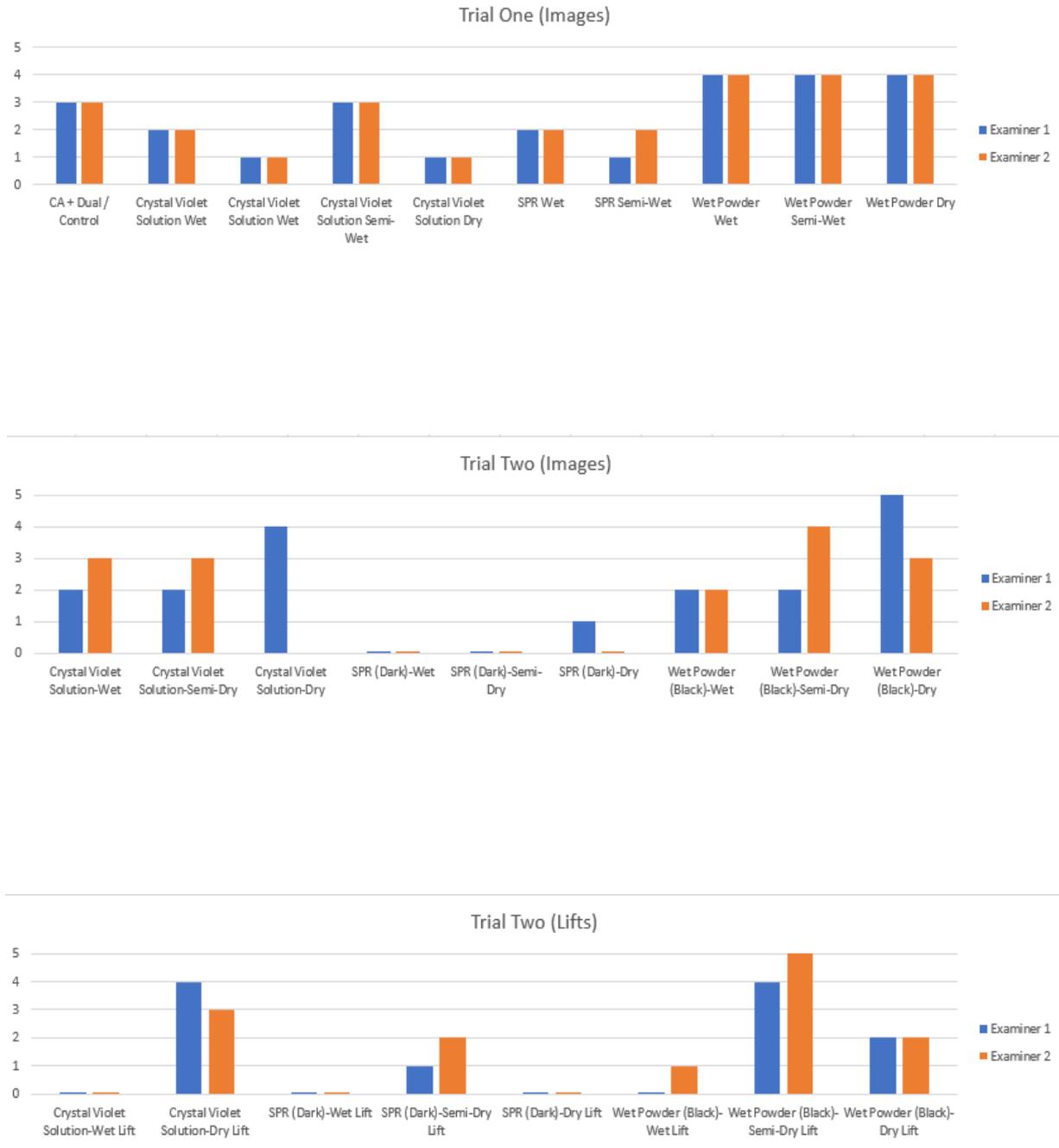
| Image Description | Examiner 1 | Examiner 2 |
|----------------------------------|------------|------------|
| CA + Dual / Control | 3 | 3 |
| Crystal Violet Solution-Wet | 2 | 2 |
| Crystal Violet Solution-Semi-Dry | 1 | 1 |
| Crystal Violet Solution-Dry | 3 | 3 |
| SPR (Dark)-Wet | 1 | 1 |
| SPR (Dark)-Semi-Dry | 2 | 2 |
| SPR (Dark)-Dry | 1 | 2 |
| Wet Powder (Black)-Wet | 4 | 4 |
| Wet Powder (Black)-Semi-Dry | 4 | 4 |
| Wet Powder (Black)-Dry | 4 | 4 |

| Image Description | Examiner 1 | Examiner 2 |
|----------------------------------|------------|------------|
| Crystal Violet Solution-Wet | 2 | 3 |
| Crystal Violet Solution-Semi-Dry | 2 | 3 |
| Crystal Violet Solution-Dry | 4 | N/A |
| SPR (Dark)-Wet | 0 | 0 |
| SPR (Dark)-Semi-Dry | 0 | 0 |
| SPR (Dark)-Dry | 1 | 0 |
| Wet Powder (Black)-Wet | 2 | 2 |
| Wet Powder (Black)-Semi-Dry | 2 | 4 |
| Wet Powder (Black)-Dry | 5 | 3 |

| Lift Description | Examiner 1 | Examiner 2 |
|---------------------------------------|------------|------------|
| Crystal Violet Solution-Wet Lift | 0 | 0 |
| Crystal Violet Solution-Semi-Dry Lift | N/A | N/A |
| Crystal Violet Solution-Dry Lift | 4 | 3 |
| SPR (Dark)-Wet Lift | 0 | 0 |
| SPR (Dark)-Semi-Dry Lift | 1 | 2 |
| SPR (Dark)-Dry Lift | 0 | 0 |
| Wet Powder (Black)-Wet Lift | 0 | 1 |
| Wet Powder (Black)-Semi-Dry Lift | 4 | 5 |
| Wet Powder (Black)-Dry Lift | 2 | 2 |

| Value Rating Criteria (*Scale of 0-5) |
|--|
| 0 = No print visible |
| 1 = Poor quality, 1 or 2 ridges visible, no possibility of identification |
| 2 = Poor quality, some ridge detail visible or partial print with limited characteristics |
| 3 = Reasonable quality; ridge detail & some characteristics visible, possible identification |
| 4 = Good quality print, ridge detail & characteristics visible, probable identification |
| 5 = Excellent quality; full print very clear & visible, probable identification |

APPENDIX C: Scoring Charts



CITATIONS

1. Au, C., Jackson-Smith, H., Quinones, I., Jones, B. J., & Daniel, B. (2011). *Wet powder suspensions as an additional technique for the enhancement of bloodied marks*. doi:<https://doi.org/10.1016/j.forsciint.2010.04.044>
2. Bumbrah, Gurvinder. (2016). Small particle reagent (SPR) method for detection of latent fingermarks: A review. *Egyptian Journal of Forensic Sciences*. 6. 328-332. 10.1016/j.ejfs.2016.09.001.
3. Castello, Ana & Francés, Francesc & Verdú, Fernando. (2013). Solving underwater crimes: Development of latent prints made on submerged objects. *Science & justice: Journal of the Forensic Science Society*. 53. 328-31. 10.1016/j.scijus.2013.04.002.
4. Fritz, P., A. A. Frick, W. van Bronswijk, S. W. Lewis, A. Beaudoin, S. Bleay, and C. Lennard. 2015. Variability and subjectivity in the grading process for evaluating the performance of latent fingerprint detection techniques. *Journal of Forensic Identification* 65, (5) (Sep): 851-867, <http://proxygw.wrlc.org/login?url=https://search-proquest-com.proxygw.wrlc.org/docview/1717287135?accountid=11243>.
5. Garg, R. K., Kumari, H., & Kaur, R. (2011). A new technique for visualization of latent fingerprints on various surfaces using powder from turmeric: A rhizomatous herbaceous plant (*curcuma longa*). doi:<https://doi.org/10.1016/j.ejfs.2011.04.011>
6. Guidelines for the assessment of fingerprint detection techniques. 2014. *Journal of Forensic Identification*. 64, (2) (Mar): 174-200, <http://proxygw.wrlc.org/login?url=https://search-proquest-com.proxygw.wrlc.org/docview/1511419336?accountid=11243>.
7. Haan, P. V. (2006). Physics and fingerprints. *Contemporary Physics*, 47(4), 209-230. doi:10.1080/00107510600893986
8. Hicklin, R. A., Buscaglia, J., & Roberts, M. A. (2013). *Assessing the clarity of friction ridge impressions* doi:<https://doi-org.proxygw.wrlc.org/10.1016/j.forsciint.2012.12.015>
9. Jasuja, O. P. (2015). Development of latent fingerprints on surfaces submerged in water: Optimization studies for phase transfer catalyst (PTC) based reagents. *Science & Justice*, 55(5), 335; 335-342; 342.
10. Juan Xie, Shan & Yang, Jucheng & Sun Park, Dong & Yoon, Sook & Shin, Jinwook. (2011). Fingerprint Quality Analysis and Estimation Approach for Fingerprint Matching. 10.5772/20474.

11. Kaur Dhall, Jasmine & Kapoor, A.K.. (2016). Development of latent prints exposed to destructive crime scene conditions using wet powder suspensions. *Egyptian Journal of Forensic Sciences*. 10.1016/j.ejfs.2016.06.003.
12. Li, Yan & Xu, Linru & Su, Bin. (2012). Aggregation induced emission for the recognition of latent fingerprints. *Chemical communications (Cambridge, England)*. 48. 4109-11. 10.1039/c2cc30553d.
13. Madkour, Somaya & sheta, Abeer & Badr El Dine, Fatma & Elwakeel, Yasser & AbdAllah, Nermine. (2017). Development of latent fingerprints on non-porous surfaces recovered from fresh and sea water. *Egyptian Journal of Forensic Sciences*. 7. 10.1186/s41935-017-0008-8.
14. National Institute of Justice (U.S.). (2011). *Fingerprint sourcebook*. Washington, DC: U.S. Dept. of Justice, Office of Justice Programs, National Institute of Justice.
15. Ramotowski, Robert S. & Cantu, Antonio & A. Leben, Deborah & Joullié, Madeleine & C. Saunders, George. (1997). Recent advances in latent print visualization techniques at the U.S. Secret Service. *Proceedings of SPIE - The International Society for Optical Engineering*. 10.1117/12.266299.
16. Robinson, E. M.,. (2016). *Crime scene photography, 3rd Edition*. London: Academic Press.
17. Rohatgi, Richa & Sodhi, G.S. & Kapoor, A.K.. (2014). Small particle reagent based on crystal violet dye for developing latent fingerprints on non-porous wet surfaces. *Egyptian Journal of Forensic Sciences*. 34. 10.1016/j.ejfs.2014.08.005.
18. Sears, V. G., Bleay, S. M., Bandey, H. L., & Bowman, V. J. (2012). *A methodology for finger mark research* doi: <https://doi.org/10.1016/j.scijus.2011.10.006>
19. Sodhi, Gurbinder S., and Jasjeet Kaur. 1999. Chemical methods for developing latent fingerprints. *Journal of chemical education* 76, (4) (04): 488A-488B, <http://proxygw.wrlc.org/login?url=https://search-proquest-com.proxygw.wrlc.org/docview/211960394?accountid=11243>.
20. Stow, K. M., & McGurry, J. (2006). *The recovery of finger marks from soot-covered glass fire debris* doi:[https://doi-org.proxygw.wrlc.org/10.1016/S1355-0306\(06\)71562-3](https://doi-org.proxygw.wrlc.org/10.1016/S1355-0306(06)71562-3)
21. Sutton, Raul, Claudio Greci, and Lucie Hrubesova. 2014. A comparison on the longevity of submerged marks in field and laboratory conditions. *Journal of Forensic Identification* 64, (2) (Mar): 143-156, <http://proxygw.wrlc.org/login?url=https://search-proquest-com.proxygw.wrlc.org/docview/1511419362?accountid=11243>.

22. Trozzi, T.A. & Schwartz, R.L. & Hollars, M.L.. (2001). Processing guide for developing latent prints, U.S. Department of Justice, FBI, Laboratory Division. Forensic Science Communication. 3.
23. Ulery, B., Hicklin, R., Buscaglia, J., Roberts, M., & Fienberg, S. (2011). Accuracy and reliability of forensic latent fingerprint decisions. *Proceedings of the National Academy of Sciences of the United States of America*, 108(19), 7733-7738. Retrieved from <http://www.jstor.org.proxygw.wrlc.org/stable/41242255>.
24. Wood, M. A., & James, T. (2009). *ORO. the physical developer replacement?* doi:<https://doi-org.proxygw.wrlc.org/10.1016/j.scijus.2009.02.006>
25. Zhang, Meiqin & Girault, Hubert. (2009). SECM for imaging and detection of latent fingerprints. *The Analyst*. 134. 25-30. 10.1039/b815336a.

The Recognition of Latent Impressions for the Recording of Corresponding Exemplar Detail

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Abstract

Often when processing a crime scene, vehicle, or physical evidence, analysts will develop friction ridge detail suitable for further examination. Another key aspect of the examination process is the acquisition of the corresponding area of ridge detail from the known record in order for a complete examination to be performed. By recognizing the features present, the analyst or crime scene responder may be able to capture the appropriate areas of the exemplar impressions while recording elimination or other known exemplar records, thus reducing the amount of inconclusive conclusions and increasing overall efficiency.

Introduction

Traditionally, exemplar records taken from subjects from a crime scene include a set of 10-print cards, perhaps also a recording of palm print detail. The purpose of these records is to provide a latent print examiner with a set of known recordings to compare to recovered latent impressions. These examinations may eliminate latents as originating from an individual, or may be found consistent with being identified as originating from an individual. Crime scene responders also often examine both the scene itself, and physical items of evidence at the scene for the possible presence of latent impressions. Upon development, when deemed suitable for capture, the analyst may be able to determine some areas of possible origin, allowing them to capture the corresponding areas of detail through elimination or other exemplar records. This recognition of potential anatomical origin of the friction ridge detail may assist the subsequent latent print examiner in determining a more definitive conclusion, through the ability to compare the recovered impression to the recorded exemplar detail, thus allowing the examiners to issue conclusions in terms of identification or exclusion, rather than inconclusive based upon missing corresponding exemplar detail. This practice will not only increase the effectiveness of the examination process, it will increase efficiency by allowing the examiners to conduct only one examination to reach a conclusion.

The overall shape of the latent impression developed, and the recognition of some of the general features found within specific aspects of the friction ridge detail found in the fingers and palms contain information vital to the capture of corresponding exemplar detail. Analysts must be

cognizant of the features present, allowing for a proper examination to be performed, based upon the detail collected. By examining the developed impression for general characteristics such as: pattern type, ridge flow directionality, anchor points, creases, and other general features, a determination may be made regarding the possible source of the latent impression.

The importance of clear and complete exemplars can also benefit units whom may use these records for either AFIS repository upload, or for those units whom may perform closed searches within the system. The AFIS search tools require corresponding detail in order to fully search the latent and the exemplar records, and the ability to recognize and capture the appropriate exemplar detail is key for the benefit of this functionality.

When recording the exemplar friction ridge detail, it is also important to understand the various types of exemplar records which can be used to record the known impressions. Analysts may utilize a traditional 10-print record, Palm records, or record Major Case impressions. According to SWGFAST, these records can be defined as:

Tenprint: A controlled recording of an individual's available (friction ridge skin) fingers using ink, electronic imaging, or other medium.

Palmprint: An impression of the friction ridges of all or any part of the palmar surface of the hand.

Major Case Prints: A systematic recording of the entire friction ridge detail appearing on the palmar sides of the hands, this includes the extreme sides of the palms, and joints, tips and sides of the fingers (also known as complete friction ridge exemplars).

The recognition of the area(s) of friction ridge detail developed, and an understanding of the methods in which the corresponding area(s) of exemplar detail may be captured, are vital aspects of the examination process. Analysts must be able to capture the required exemplar detail, and may do so utilizing a variety of methods.

Materials and Methods

During the course of this study, a number of latent print impression samples were made by a single donor, focusing on the deposition of various parts of the fingers, joints and palms. Natural matrix latent impressions were deposited by a single touch of the source to the forehead and deposited onto a black 3"x5" backing card from SIRCHIE[®]. The utilization of black backing cards allowed for the optimal contrast upon further sequential development processing. The samples were then processed with cyanoacrylate fuming, utilizing a Foster + Freeman MVC3000 fuming chamber, under manufacturer guidelines. All samples were visually inspected for sufficient development of the donor impressions. The impressions were then photographed using a Nikon D810 and Nikkor 60mm macro lens under laboratory conditions.

The known exemplar impressions of the donor were also recorded in a number of systems and record formats. The following recordings were taken from the donor utilizing template cards from SIRCHIE[®]: traditional 10-print applicant card, left and right hand palm cards, and major

case impressions. In addition, the following were taken utilizing post-mortem record strips from SIRCHIE[®] as an alternative method for exemplar recording: rolled impressions, plain impressions, sides of fingers, tips of fingers, joints of fingers, and palm recordings.

Upon completion, the resulting exemplar impressions were visually inspected for clarity and scanned into a digital format as a JPG at 600ppi resolution format.

Results and Discussion

The deposition of latent impressions from the distal joint of the fingers may result in the impression originating from the pattern area, side or tip areas depending on the direction in which the finger comes into contact with the surface. Recognition of the basic overall features of the developed latent impression, as deposited by the finger, will assist the Analyst in obtaining the corresponding exemplars.

The main pattern area will tend to have: an overall oval shape, have a recognizable overall ridge flow, and may contain the core of the pattern, and if applicable, delta formations (Figure 1). The core and delta may be referred to as the anchor points within the impression, and understanding the main features within the various pattern types, will assist the Analyst in recognizing this latent as possibly originating from the pattern area, allowing for a corresponding capture to be obtained through rolled (Figure 2) or plain 10-print exemplar records, to include capture via post mortem record strips (figures 3 and 4).



Figure 1: Pattern Area

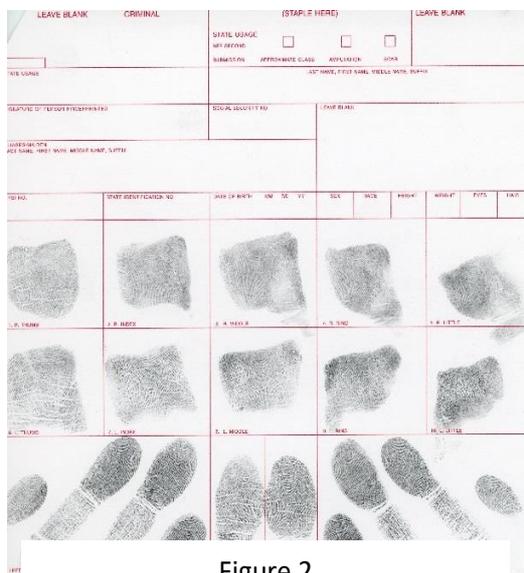


Figure 2



Figure 3

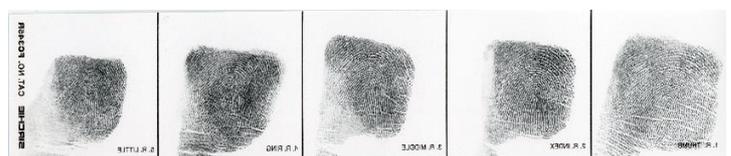


Figure 4

The sides of the fingers tend to leave a distinct shape, due to the formation of the volar pads, and the directionality of contact with the surface area (Figure 5). Depending on the area captured within the latent impression, and the originating pattern type, a delta formation may be present within the impression as well. The overall shape of these latents tends to have an oblong shape that resembles a “wing”. If developed, the sides of the fingers should be included within the exemplar impressions taken, and care will have to be given to ensure capture of the extreme sides of the fingers. This can be obtained by rolling the finger from the side of the nail bed to the core area, as the core will be captured through the traditional 10-print record. One method that can be used, is the utilization of the post-mortem record strips, where the sides are rolled within a single finger location, allowing for an anatomical reference (Figures 6 and 7).



Figure 5: Sides of fingers



Figure 6



Figure 7

Tips of fingers tend to leave a smaller, circular shaped impression (Figure 8). The tips may also be present if the impression appears to have an elongated shape, with an extreme extension of friction ridges present distal to the core area. This shape is a result of the finger rolling towards the tip after contact with the surface. Tips may include a large amount of qualitative features, and should be captured when developed. The tips of the fingers may be captured by rolling the tips in a crescent motion on either a major case impression card, or by using the post-mortem record strips (Figure 9). The tips may also be captured by intentionally rolling the finger distally from the core to the tip of the finger nail (Figure 10). This capture method will allow for an anatomical orientation from the core to the friction ridge detail present in the tip area.

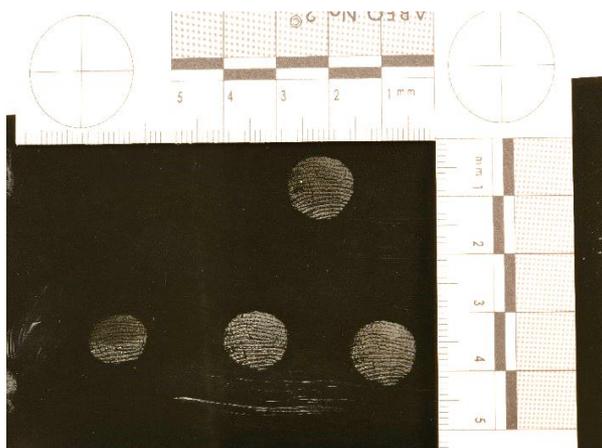


Figure 8: Tips of fingers

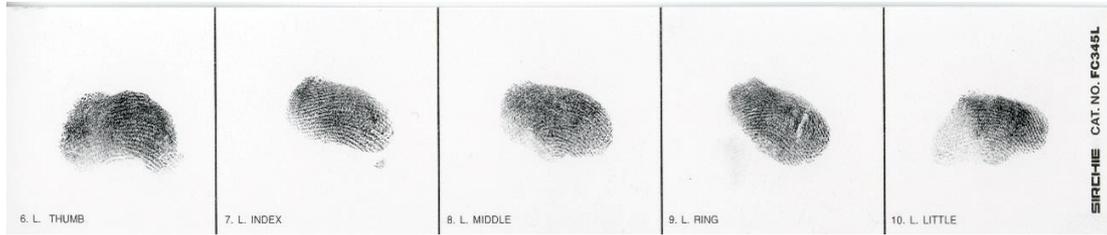


Figure 9: Crescent Roll



Figure 10: Distal Roll

Latent impressions deposited by the medial and proximal joints of the fingers may appear rectangular in shape and may have creases present showing the separation between joints (Figure 11). Analysts may also be able to observe the overall ridge flow as well to determine orientation. The exemplar capture of the joints may be performed through the use of a palm card, or through the use of the post-mortem record strips as well. The strips may be beneficial due to their size and the ability to fit the strips to the contour of the finger in its entirety (Figures 12 and 13). The recording of two separate fingers can be used per record by adjusting the orientation of the strip.

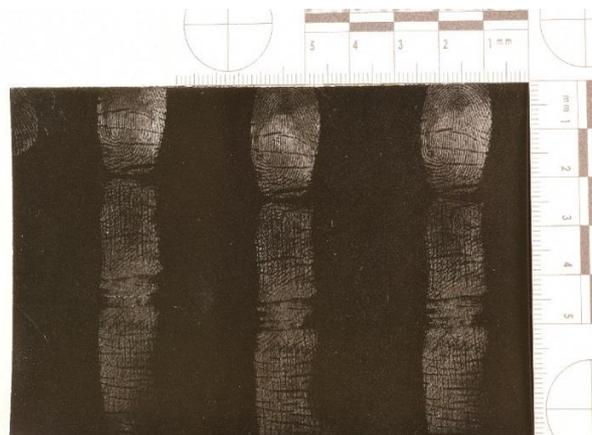


Figure 11: Finger joints



Figure 12: Example of finger joints

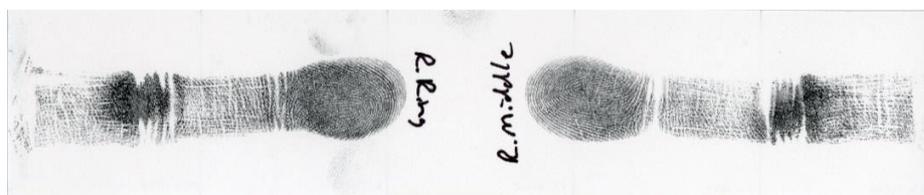


Figure 13: Example of finger joints

Latent impressions originating from the palm may also exhibit certain overall characteristics that can assist the analyst in determining a possible anatomical origin. The separation of the palm into its three main areas: Interdigital, Thenar and Hypothenar, in addition to the natural movements of the hand, can lead to the deposition of any portion of the palm, which will have some discriminating features. Each portion of the palm has certain morphological aspects contained therein that assist the latent print examiner with determining orientation and aspect. Generally, latent impressions deposited by the thenar will be rounded (Figure 14), and within the ridge flow there may be an overall curve resembling a crescent moon. In addition there may be a cross-hatching of small creases indicative to this portion of the palm.

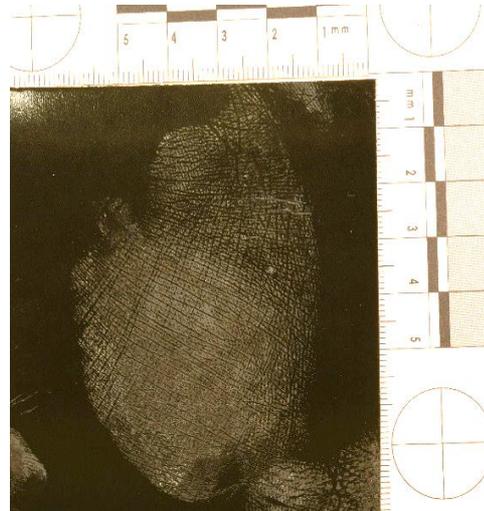


Figure 14: Thenar Impression

The overall shape of the hypothenar is an oblong one, with an overall ridge flow directionality of down and away towards the outer surface of the palm (Figure 15), which may also include a “handle” formation, which is a portion of the interdigital area that has also been recorded through deposition. There may also be major creases present and smaller creases on the side closest to the edge of the hand. The “writer’s palm” portion of the hypothenar is often described as “egg-shaped” and is deposited when the outside of the palm on the ulnar aspect of the hand comes into contact with a surface area (Figure 16).

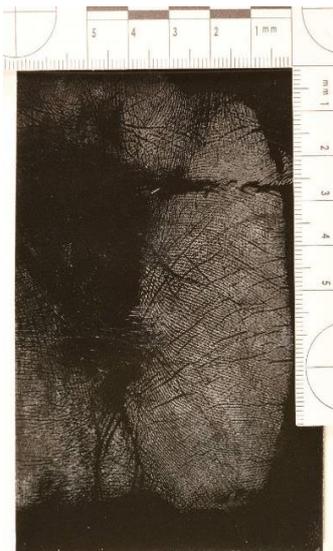


Figure 15: Hypothenar Impression



Figure 16: Writer's Palm Impression

The final portion of the palm is the interdigital area, proximal to the bases of the fingers (Figure 17). This portion of the palm often leaves an oblong shape as well, however the portion of the impressions which is distal, towards the fingers, often has a curved or scalloped edge, indicative of the presence of the volar pads and finger joint areas. The overall ridge flow has been described as a “waterfall” formation leading down and away from the base of the index finger towards the hypothenar. When these aspects of the palm are developed, the analyst must be able to recognize their value, and corresponding exemplar detail. A fully captured palm impression may be captured by placing the palm flat onto a palm card (Figure 18). The “writer’s edge” should be captured separately, in order to achieve a clear and complete impression, by pressing the side of the hand on the exemplar card and slightly rolling inwards (Figure 19).



Figure 17: Interdigital Impression

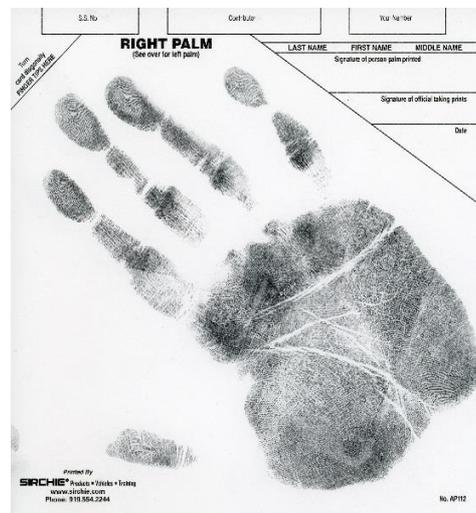
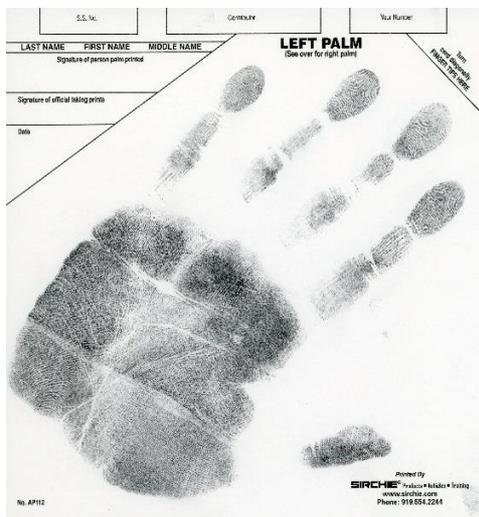


Figure 18: Plain captured palm exemplar records

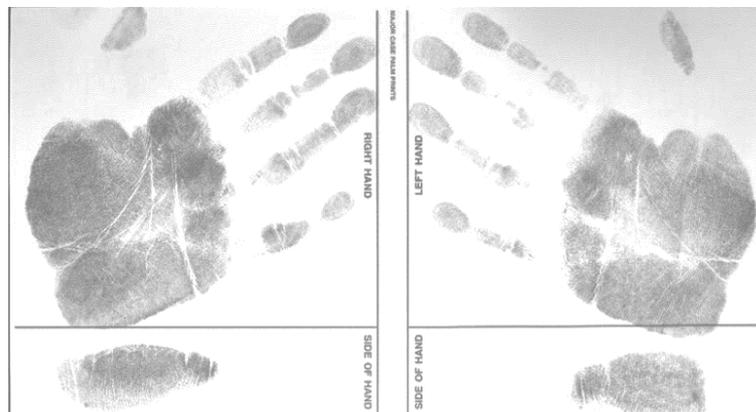


Figure 19: Plain captured palm exemplar records, including “writer’s palms”

An alternative method to capturing the palms is also using the post-mortem record strips (Figure 20). The friction ridge detail of the palm may be captured through a series of plain, overlapping impressions. By overlapping the area captured by the exemplar record, we may ensure continuity of the exemplar detail between the various physical records. The analyst taking the exemplar impressions, must be sure to label each strip within the series appropriately, and indicate anatomical orientation.

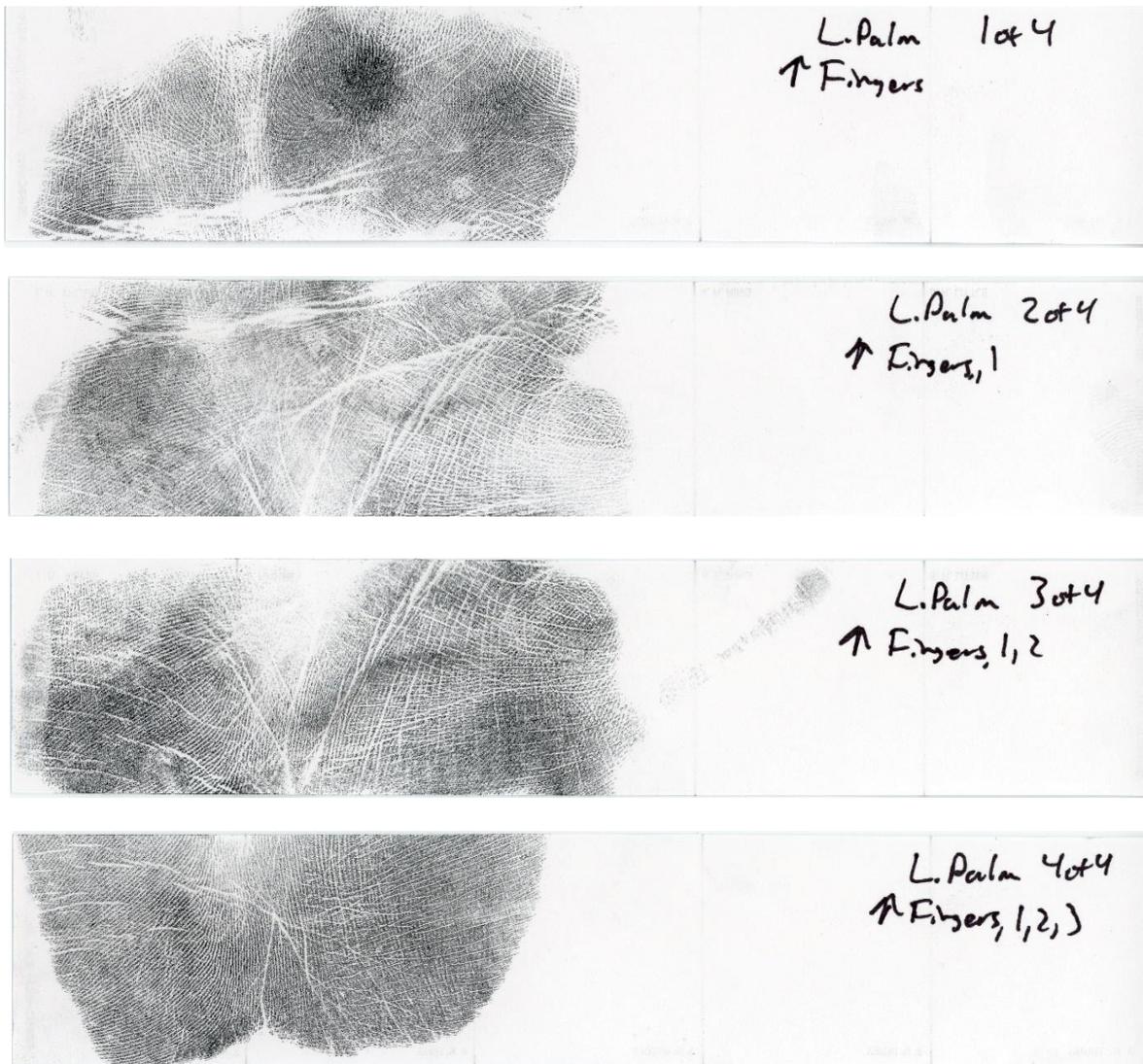


Figure 20: Plain captured palm exemplar records using post mortem record strips

If a delta formation is developed within a latent impression, the analyst must recognize the probative nature of the evidence, and from what parts of the fingers and palms delta formations may appear. In these instances, when a true anatomical source may be in debate, a full set of palm exemplar impressions must be taken to ensure a full examination may be done, as deltas may be present within the palms as well as the fingers.

Conclusion

Within the scope of forensic examinations, analysts often develop latent impressions either at a crime scene or on physical evidence. In order for an effective and complete examination to be performed by a latent print examiner, through to a definitive conclusion, the corresponding exemplar friction ridge exemplar detail will be required. In an effort to increase efficiency of the examination process, analyst should be able to interpret their recovered impressions, in order to take known exemplar impressions from victims, complainants, and/or suspects in order to conduct a complete examination initially.

Through the recognition of the evidence and the importance of obtaining clear, complete and corresponding known exemplar impressions, the recording analyst may be tasked with the effectiveness of the subsequent examination. The understanding of the methods in which various portions of the hand may be recorded, in addition to the best practices of the collection process, are of paramount concern for the initial analyst in order to ensure that the best records possible for the examination process have been obtained.

References

Cowger, James F. "Friction Ridge Skin: Comparison and Identification of Fingerprints". CRC Press. 1993.

Smith, R. 2006. Advanced Palm Print Comparison Techniques. Workshop presented by Ron Smith and Associates, Inc.

SWGFAST Document #19, "Standard Terminology of Friction Ridge Examination".
http://clpex.com/swgfast/documents/terminology/121124_Standard-Terminology_4.0.pdf

Triplett, Michelle. "Fingerprint Dictionary". Two Rings Publishing. 2006.

“How old are they?”

A Fingerprint White Line Case Study

By: Meredith Coon, BS, MFS, CLPE

In the latent print discipline, features of the friction ridge skin are our specialty and we are commonly called upon to understand and explain what we observe. One of those features which may be subconscious during a standard day can become a crucial piece of evidence are white lines, commonly referred to as creases. While it is clear that creases are not always identical in every recording of an individual, their presence and changes with time should be explored more thoroughly. The common mantra of a Latent Print Examiner is that environment and age are the primary factors involved in the development and severity of creases. This article will demonstrate evidence to the contrary.

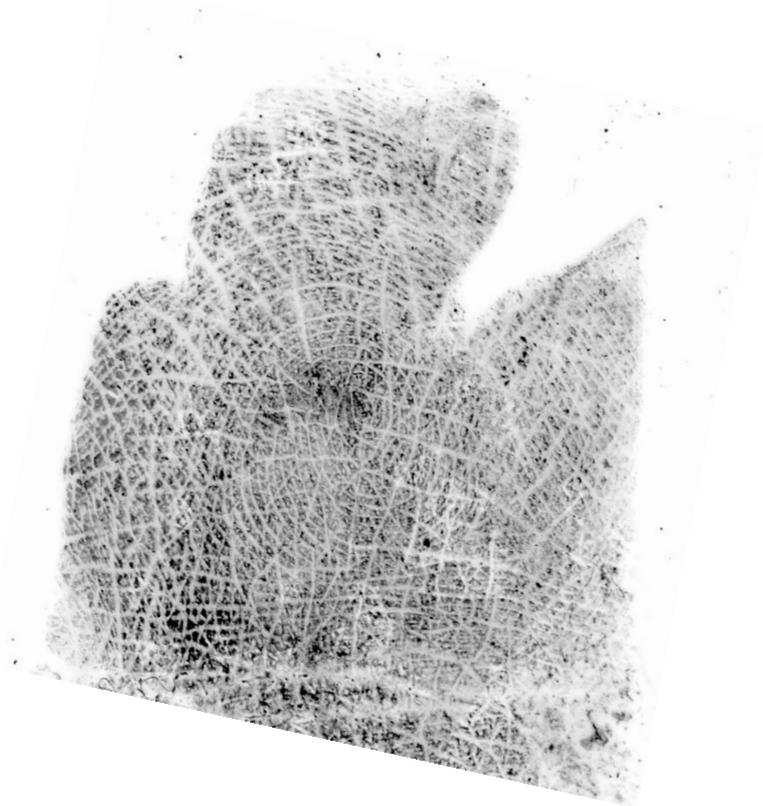


Figure 1. Right index finger recorded with black powder and lifting tape.

The fingerprint in Figure 1 is a high-quality recording of an individual’s skin using black powder and lifting tape. While the fingerprint contains extensive 3rd level detail, such as pores and ridge shapes, it also contains extensive creasing. The dogma of our discipline would assume this fingerprint is from an

older individual or a person who works with corrosive or abrasive materials. The fingerprint in Figure 1, is from a 2 year-old female.

Figures 2, 3 and 4, are images of the author's fingerprints recorded at various points in time, between the ages 20 and 30 years.



Figure 2. Right simultaneous finger impressions recorded with LiveScan March 9, 2017.



Figure 3. Right simultaneous finger impressions recorded with black ink on September 7, 2017.

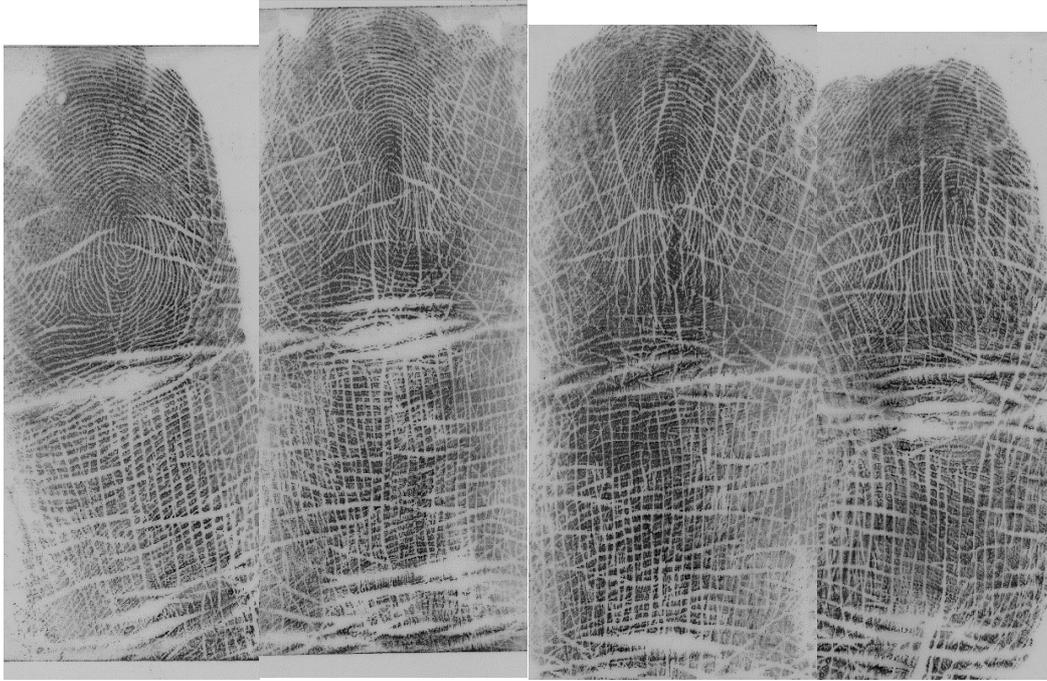


Figure 4. Right little finger impression recorded with LiveScan.

The ink impressions in Figure 3, are the lowest quality, the width of the creases result in large white voids in the ink, and the friction ridges do not make sufficient contact with the paper surface. In Figure 5, the photograph of the inked friction ridge skin also demonstrates the white voids, due to creasing. While the friction ridges are clearly visible in the photograph of the washed skin, the ink does not absorb into the deeper parts of the creases. Ridges which flow through the creases under that area are not recorded.

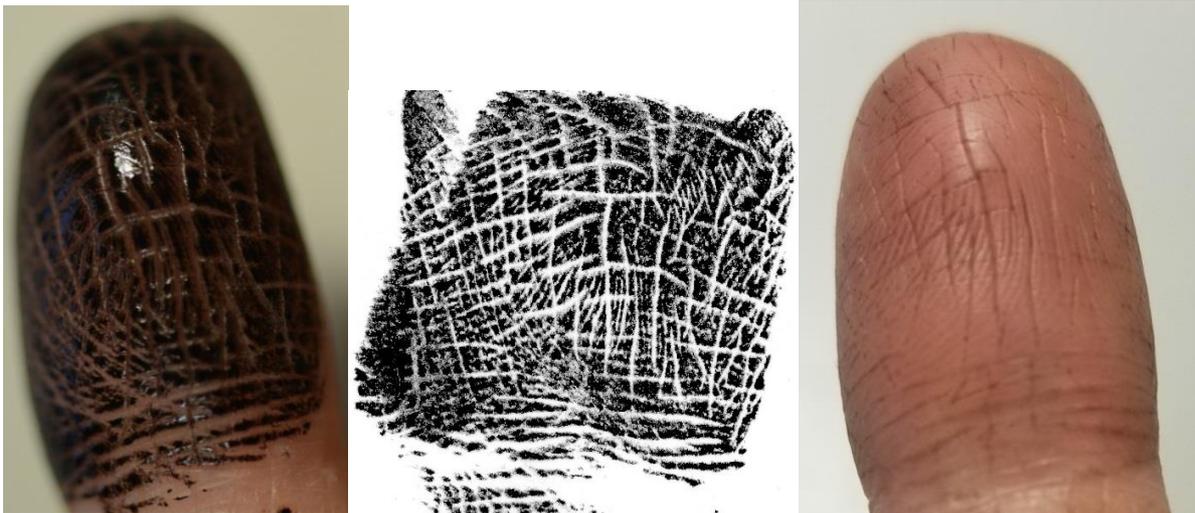


Figure 5. Friction ridge skin on right little finger inked (left), recording collected by the finger (middle) and washed after inking (right) on December 12, 2017.

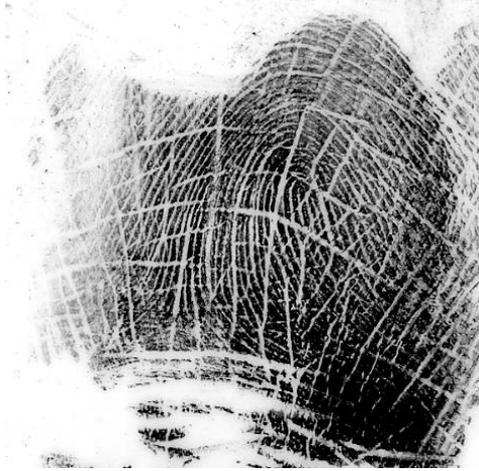


Figure 6. An additional method of recording using black powder application and tape lift from the skin shows significantly improved quality over the black ink recording or photography.

Visual observation of the friction ridge skin under varying pressure illustrates that when the tissue is pushed down, the creases become shallower and much less pronounced. Techniques for recording that allow for heavier deposition pressure result in a greater amount of ridge recording and minimizes the appearance of the creases. The author recommends recording friction ridge detail using black powder and tape, since it allows the tape to stick to the skin while allowing for significant downward pressure during the recording. This techniques minimizes the depth of the creases within the recorded impression and reduces the distortion and smearing that occurs with ink recordings. Livescan recording also allows for additional pressure to be applied, but caution should be used to prevent the sliding motion which frequently results in digital artifacts.

Using the black powder and tape methodology described above, the author examined their own finger impressions to observe if creases are consistent over time or if they change with time. Multiple samples were recorded and observed from a limited time frame of approximately seven years, still significant changes can be seen between recordings. One consistency is that the thumb experiences the least amount of creasing consistently. The complexity and frequency of creasing increases with each sequential finger, the little fingers are the most affected. This was observed in both right and left hands. While the right little finger experiences the greatest amount of creasing, (figures 5 and 6) the lack of reliable ridge details makes the certainty of crease tracing more difficult, and comparing a crease to itself at a later date becomes questionable. For this reason, a finger that is moderately but not severely affected, the right middle finger, was chosen to track with time and repeated recordings as is documented in Figure 7.

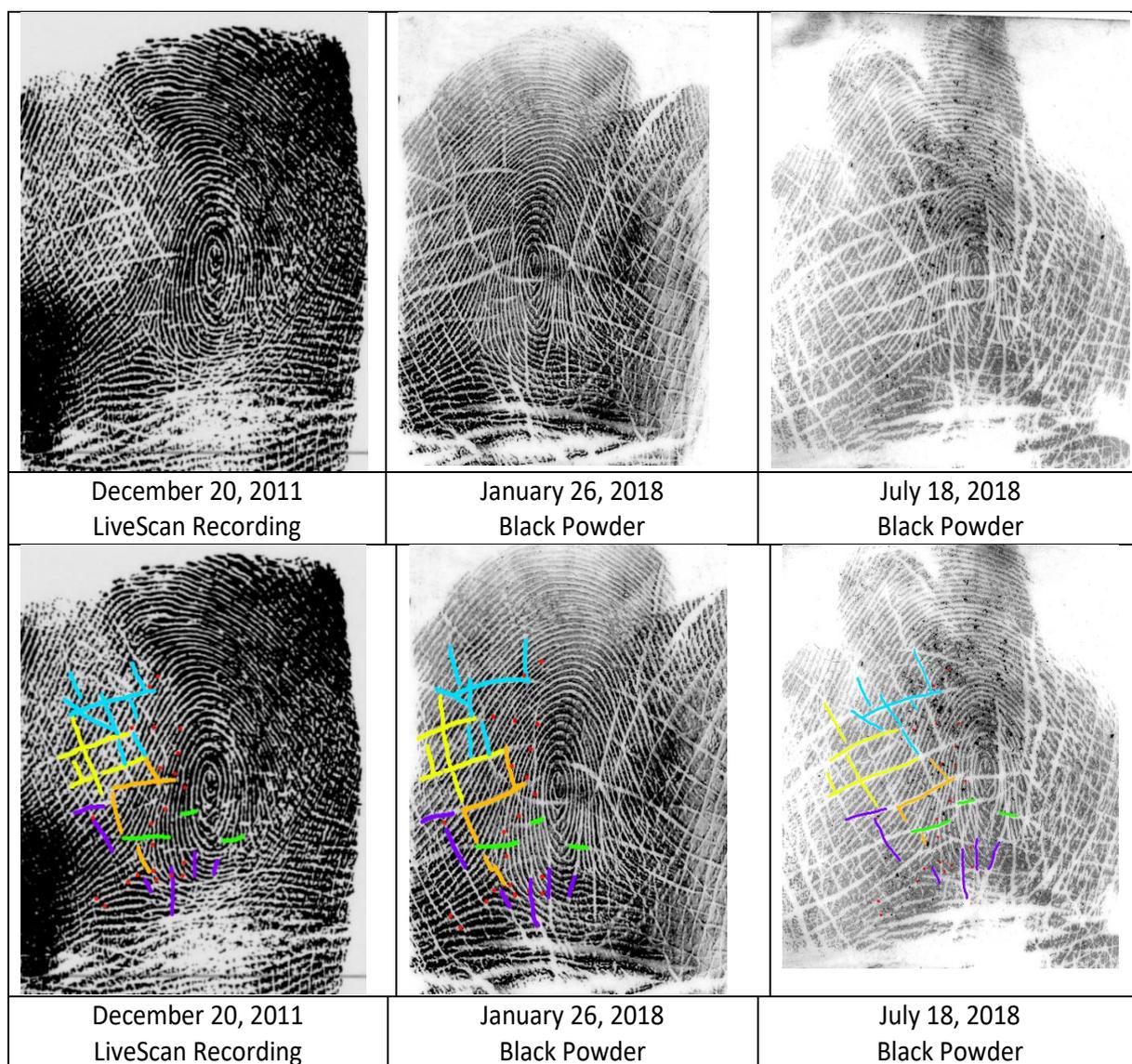


Figure 7. A time progression of the author's right middle finger. The top images are without tracings. The bottom images include marked minutiae (red) and traced creases (yellow, blue, orange and purple). Only features which were consistent in all 3 recordings were documented to the length and position they were noted in 2011.

It was found that when comparing recorded impressions of the author's right middle finger from 2011 and January 2018, significant changes to the right side of the finger were present. While the right side of the image originally contained small and very thin creases, thick intense creases developed in the time frame recorded. From January to July, within a period of 6 months, additional creases have appeared around the right side of the print. A six-month time frame is very short to observe this dramatic change in the creasing of a finger and may caution an examiner from coming to quick conclusions when a subject with creasing is involved. The width of the creases and lengths are noted to be increasing, as demonstrated by the yellow creases extending beyond their original placement in 2011 both horizontally and vertically. The relative position of these creases is consistent but they are lengthening and joining together with existing creases to move across the skin.

The significant changes observed between the friction ridge recordings by the author could be explained by physical conditions such as Dermatitis, Celiac disease, Marfan's Syndrome, Psoriasis, and Eczema which can degrade the quality of the friction ridge skin and result in creasing. Damage due to immune

response or collagen disorders may also play a role and result in increases creasing over time. Environmental conditions such as excessive hand washing, chemical exposure, manual labor and chemotherapy can also increase the amount of creasing seen in friction ridge skin. While physical and environmental conditions may explain some observations in subjects, none of these conditions contribute significantly to the above examples, and the author is not personally afflicted by any of the conditions.

Tenprint and Latent Print Examiners who witness friction ridge skin with heavy creasing should be cautious in assuming the age or environment that a subject could be exposed to. The examiners must understand that while these creases are useful features to support identification, they will not be duplicated precisely even among short periods of time. If multiple recordings of a person's friction ridge skin are available, a known print card should be chosen which is closest to the time of the suspected latent print's deposition, or multiple recordings of this person's skin may be needed to support conclusions of identity.

Al-Ahwal, M. S. (2012). Chemotherapy and Fingerprint Loss: Beyond Cosmetic. *The Oncologist*, 17(2), 291-293. doi:10.1634/theoncologist.2011-0243

Badawi, Ahmed & Mahfouz, Mohamed & Tadross, Rimon & Jantz, Richard. (2006). Fingerprint-Based Gender Classification. Proceedings of the 2006 International Conference on Image Processing, Computer Vision, and Pattern Recognition, IPCV'06. 1. 41-46.

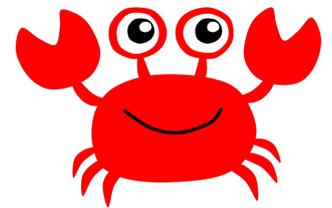
David, T. J., Ajdukiewicz, A. B., & Read, A. E. (1970). Fingerprint Changes in Coeliac Disease. *British Medical Journal*, 4(5735), 594–596.

Drahansky, et al. "Fingerprint Recognition Influenced by Skin Diseases." *International Journal of Bio-Science and Bio-Technology*, vol. 2, no. 4, Dec. 2010, pp. 11-22.

Lee, Chew Kek, et al. "Fingerprint Changes and Verification Failure Among Patients With Hand Dermatitis." *JAMA Dermatology*, vol. 149, no. 3, 1 Mar. 2013, pp. 294–299., doi:10.1001/jamadermatol.2013.1425.

Shuster, Sam, et al. "The influence of age and sex on skin thickness, skin collagen and density." *British Journal of Dermatology*, vol. 93, no. 6, 1975, pp. 639–643., doi:10.1111/j.1365-2133.1975.tb05113.x.

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Recommended By: Jessica Landi #2282(SL)

Jessica Cofflin #2596
Virginia Beach Police Department
Recommended By: Dade L. Chisler #1932

Daisy J. Menendez Totten #2597(A)
University of Maryland, University College
Recommended By: Andrew Reitnauer #2519

Abigail T. Reade #2598
VA Department of Health, Northern Office of
the Chief Medical Examiner
Recommended By: Katie Adolf #2277

Adam Beck-Budovec #2599
US Army
Recommended By: Charlene Fincher #2429(SL)

Jeanine Hotchkin #2600
Carroll County Sheriff's Office
Recommended By: Brittaney Soto #2537

Khaila Hardy #2601
US Army
Recommended By: Charlene Fincher #2429(SL)

Megan Levey #2602
Maryland State Police
Recommended By: Mitchell Dinterman #1689

Melissa Harvey #2603
Maryland State Police
Recommended By: Mitchell Dinterman #1689

Allison C. Whitler #2604
Missouri State Highway Patrol Crime Laboratory
Recommended By: Kelly Ayers #2310(L)

Janine Childress-Sodano #2605(A)
Virginia Commonwealth University
Recommended By: Jessica Landi #2282(SL)

Taylor Lentz #2606
Maryland State Police
Recommended By: Stephanie Roberg #2288

Megan M. Korneke #2607
VA Department of Forensic Science
Recommended By: Jami Dizon #2401

Amanda Hedden #2608
Anne Arundel County Police Department
Recommended By: Gabrielle Toy #2325

Derrick Hwang #2609
Anne Arundel County Police Department
Recommended By: Gabrielle Toy #2325

Ashley Newsome #2610
Anne Arundel County Police Department
Recommended By: Gabrielle Toy #2325

Kelly Timms #2611
Carroll County Sheriff's Office
Recommended By: Jessica Landi #2282(SL)

Raymond A. Jorz #2612(HY)
Lake County Crime Laboratory
Recommended By: Jessica Landi #2282(SL)

Rachel McGranaghan #2613
Naval Criminal Investigative Service
Recommended By: Rebecca Wood #2184(L)

Johnetta F. Walker #2614
Hampton Police Division
Recommended By: Melissa Wright Kelly #2105

Deanna M. Groves #2615
Hampton Police Division
Recommended By: Karyn Lawrence #1441

Scott Miller #2616
Naval Criminal Investigative Service
Recommended By: Rachel McGranaghan #2613

Joy Wolfe #2617
Virginia Beach Police Department
Recommended By: David Totten #1176

Erin Armstrong #2618
Treasury Inspector General for Tax
Administration
Recommended By: Danielle O'Neill #2553

Donald C. Stahl III #2619
Charles County Sheriff's Office
Recommended By: Jessica Landi #2282(SL)

Erica Budd #2620
Charles County Sheriff's Office
Recommended By: Jessica Landi #2282(SL)

Dana Mifsud #2621
Naval Criminal Investigative Service
Recommended By: Rachel McGranaghan #2613

Chelsey Simonds #2622
Prince Georges County Police Department
Recommended By: Kelly Ayers #2310(L)

Michael Wallize #2623
Loudoun County Sheriff's Office
Recommended By: Brian Jones #1967

Steven N. Richards #2624
CACI
Recommended By: Jason Method #2340

Edward L. Shymansky Jr. #2625
DC Department of Forensic Sciences
Recommended By: Andrew Reitnauer #2519

Stephanie Fox #2626
DHS-ICE
Recommended By: Dawn Strohmeier #2514

Shannon Drexel #2627(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Kristin Schug #2628(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Macy Stalnaker #2629(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Kristian Brash #2630(A)
West Virginia University Tech
Recommended By: Kelly Ayers #2310(L)

Samantha Perrine #2631(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Brian Stephenson #2632(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Jessica Tondreau #2633(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Ian Fleming #2634(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Cierra Coen #2635(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Emily Discerni #2636(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Meghan Prusinowski #2637(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Ashley Beighley #2638(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Jordan Edgell #2639(A)
George Washington University
Recommended By: Kelly Ayers #2310(L)

Katrina Rupert #2640(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Maura Cook #2641(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Abby Hall #2642(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Kaelyn Stafford #2643(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Brinna Scanlan #2644(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

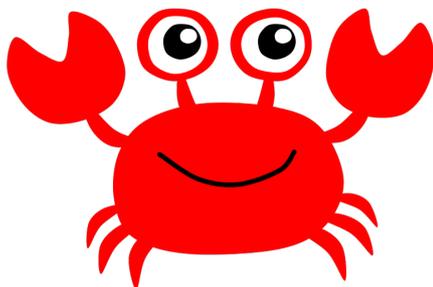
Paige Alexander #2645(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Jennifer Ho #2646(A)
West Virginia University
Recommended By: Kelly Ayers #2310(L)

Hannah Gaskill #2647
VA State Police
Recommended By: Jessica Landi #2282(SL)

Susan E. Fox #2648
CACI
Recommended By: William R. Piazza #2469

Division Statistics



Active — 270
Associate — 53
Life Associate — 2
Honorary Life — 6
Sustaining Life Active — 63
Life Active — 178
Sustaining Life Associate — 10
Total Membership — 582

Chesapeake Examiner Cover Competition

Congratulations to our winner!

Julissa Armstrong

with a special thanks to Jessi Cofflin with VBPD

The CBD IAI is now accepting photographs or graphics to be featured on the next edition of the Chesapeake Examiner.

The winner of the competition will not only have their entry featured on the front cover, but will also win a one year membership to the CBD IAI.

Please submit all entries to our Editor, Kelly Peak.

We at CBD IAI look forward to seeing what everyone has to offer!

Spring 2019 / Volume 57 / Issue 1

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EXAMINER



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