Forensic Document Examination
Fraudulent Documents

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What is a Handwriting Expert?

- **Graphology**
  - Profiling
  - Personnel selection
  - Threat assessment
  - Statement analysis
  - Jury screening
  - State of mind

- **Forensic Document Examination**
  - Handwriting authentication/identification
  - Print process methods
  - Ink/paper analysis
  - Alterations
  - Counterfeiting
FDEs vs. Graphologists

- Graphology assesses personality traits through handwriting analysis.
- FDE uses scientific methodology to identify or eliminate a suspect with a questioned handwriting or signature.
- FDE is accepted in court, Graphology generally is not.
- Graphology DOES have a place in criminal investigations however.
Table 4
Handwriting Signs of Dangerousness (Iannetta et al., 1993)

<table>
<thead>
<tr>
<th>Clubs</th>
<th>Slashes</th>
<th>Tics</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;LISTENER.&quot;</td>
<td>&quot;FESEY.&quot;</td>
<td>&quot;VEXY&quot;</td>
</tr>
<tr>
<td>Dot grinding</td>
<td>Weapon-shaped letters</td>
<td>Intense pressure</td>
</tr>
<tr>
<td>&quot;NEVER.&quot;</td>
<td>&quot;JUST&quot;</td>
<td>&quot;HAVE&quot;</td>
</tr>
<tr>
<td>Muddiness</td>
<td>Disguised letters</td>
<td>Unexpected angles</td>
</tr>
<tr>
<td>&quot;THAT&quot;</td>
<td>&quot;STRONGLY&quot;</td>
<td>&quot;MEND&quot;</td>
</tr>
<tr>
<td>Open-bottom circles</td>
<td>Letters drop below baseline</td>
<td>Distorted d’s</td>
</tr>
<tr>
<td><strong>Arrangement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Wide spacing/small letters</strong>&lt;br&gt;(introverted; observant)</td>
<td><strong>Narrow spacing/large letters</strong>&lt;br&gt;(extroverted; interactive)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Form</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Garland writing</strong>&lt;br&gt;(feeling, social, adaptable, conforming)</td>
<td><strong>Arch writing</strong>&lt;br&gt;(sensing, protective, creative, practical)</td>
</tr>
<tr>
<td><strong>Angle writing</strong>&lt;br&gt;(thinking, analytical, directed, ambitious)</td>
<td><strong>Thread writing</strong>&lt;br&gt;(intuiting, spontaneous, quick, abstract)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Movement</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Slow/leftward movement</strong>&lt;br&gt;(methodical; reflective)</td>
<td><strong>Fast/rightward movement</strong>&lt;br&gt;(quick; progressive)</td>
</tr>
</tbody>
</table>
Table 5
Handwriting Signs of Dishonesty (Saudek, 1978)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>company</strong></td>
<td><strong>shading</strong></td>
<td><strong>crossing</strong></td>
</tr>
<tr>
<td>Slow writing speed</td>
<td>Unnatural writing structure/style</td>
<td>Unstable, thready, formless structures</td>
</tr>
<tr>
<td><strong>saling</strong></td>
<td><strong>penn</strong></td>
<td><strong>with</strong></td>
</tr>
<tr>
<td>Touching up letter formations</td>
<td>Letters written as other letters</td>
<td>Blobbed or punctuated writing</td>
</tr>
<tr>
<td><strong>yam</strong></td>
<td><strong>company</strong></td>
<td><strong>allow</strong></td>
</tr>
<tr>
<td>Pen lifts</td>
<td>Important parts of letters omitted</td>
<td>Oval letters open At the baseline</td>
</tr>
</tbody>
</table>

**The Truth Must Always Be Accurate**

Marked initial emphasis
Handwriting Identification

• Approximately 90% of what document examiners do.
• Basic premise: No two people have identical handwriting characteristics.
• Second most unique human identification method.
• Copybook (class) to Individual Writing.
• Natural Variation in writing.
• Extrinsic and Intrinsic Influences on Writing.
Handwriting Identification Research

• Handwriting is unique and identifiable

• Document examiners are more skilled than laypersons in providing correct conclusions
What FDEs Can and Cannot Do

• CAN authenticate, eliminate or identify writers given enough questioned material is available and sufficient known specimens.
• CAN differentiate between disguise and physical anomaly (essential tremor).
• CANNOT determine sex, race, age or handedness of the writer.
• CANNOT determine the intentions of the writer.
Education in Document Examination

• Two years minimum training
  – Document examination
  – Handwriting identification
• Board certification
• Continuing education
What are Questioned Documents?

• Identifying and/or verifying handwriting and signatures
• Detecting forgeries, altered documents and counterfeit documents and currency
• Identifying print process and/or machines (i.e., copiers and printers)
• Paper and ink identification
• Latent images on documents
Types of Questioned Documents

- Forgeries and Altered Documents
- Suicide notes
- Threat letters and bomb threats
- Incriminating notes and letters
- Ransom notes
- Cartoons or drawings
Questioned Documents

- Contracts
- Medical records
- Probate documents
- Checks
- Consent forms
- Deeds
- Receipts
- Currency

- Graffiti
- Anonymous notes
- Threatening communications
- Suicide notes
- Birth certificates
- Passports
- ID cards
Altered Documents

This statement is signed of my own free will.

Signature of patient
Suicide Notes

To whom it may concern,

I have been thinking a lot lately about things since mom got shot and I realize a body never knows about what might happen, so I am having a will typed up today, so if something happens to me, the stuff I have will go where I want it to. Which is to grandma and papa, and they can let my brothers have some stuff if they want to. This is not meant to worry anybody; it is just something that needs doing.

Donald L Keith Jr.
Bomb Threats

09-11-01

This is next

Take penicillin now

Death to America

Death to Israel

Allah is great
Incriminating Letters

BRENDA,

HERE ARE SOME THINGS YOU MIGHT FIND VERY INTERESTING AND MAYBE NOT ACCORDING TO JACK HE CAN GET BY WITH ANYTHING, OR THATS WHAT HE SAID THE LAST TIME I WAS IN THE OFFICE A FEW WEEKS BACK, I WAS REALLY SURPRISED WITH THE WAY HE WAS TALKING, LILLIAN HAS BEEN NO SECRET BUT XXXX I HAD NEVER HEARD HIM TALK ABOUT HER SO OPENLY. THIS IS A PO BOX NO ONE KNOWS ABOUT EXCEPT LILLIAN AND JACK AND THESE ARE HER PERSONEL ADDRESS LABELS AND NOTICE THE DATE ON THESE ITEMS BUT IM SURE HE HAS ANOTHER PO BOX BY NOW OTHER THAN THIS 1612 YOU SEEM LIKE SUCH A NICE LADY I DONT UNDERSTAND WHY YOU KEEP STANDING BY HIM OVER AND OVER AGAIN I HAVE PHONE RECORDS AS RECENT AS MAY & JUNE WITH LILLIANS # AND IM SURE HE HIS SORRY AT LEAST EVERY TIME HE GETS CAUGHT. NOW IM THINKING YOU ARE WANTING TO KNOW WHY IM SENDING THIS TO YOU BECAUSE IM TIRED OF HIM CHEATING EVERYBODY AND GETTING BY WITH IT HE HAS CHEATED PEOPLE ON THEIR INSURANCE AND PEOPLE HAVING CLAIMS AND THATS NOT EVEN THE BEGINNING. IM TIRED OF HEARING HIM BRAG ABOUT IT IF HE IS CAPABLE OF THIS WITH LILLIAN THINK OF THE POSSIBILITIES HE HIS XXXX CAPABLE OF ANYTHING BUT HE IS GOOD AT FOOLING PEOPLE OR HE HAS BEEN PEOPLE ARE STARTING TO REALIZE WHAT KIND OF SNAKE HE REALLY IS HE HAS BRAGGED ABOUT CHEATING TWO MEN WHO COULDN'T READ OUT OF MONEY AND OLD PEOPLE WHO DONT UNDERSTAND AND NOT TO MENTION THE IRS AND HE REALLY BRAGS ABOUT WHAT HE HAS DONE TO THE KIMERYS BUT HE WILL SOON SEE IT IS GOING TO ALL COME DOWN AROUND HIM IM JUST SORRY HE HAS PEOPLE AROUND HIM WHO HAS TRUSTED HIM LIKE YOU AND HIS BROTHER RONNIE JUST TO NAME A COUPLE.

IM SORRY FOR YOU
Ransom Notes

Mr. Ramsey,

Listen carefully! We are a group of individuals that represent a small foreign faction. We respect your business but not the country that it serves. At this time we have your daughter in our possession. She is safe and unharmed and if you want her to see 1997, you must follow our instructions to the letter.

You will withdraw $118,000.00 from your account. $100,000 will be in $100 bills and the remaining $18,000 in $20 bills. Make sure that you bring an adequate size attache to the bank. When you get home you will put the money in a brown paper bag. I will call you between 8 and 10 am tomorrow to instruct you on delivery. The delivery will be exhausting so I advise you to be rested. If we monitor you getting the money early, we might call you early to arrange an earlier delivery of the
Drawings

I LOSE XX
Unusual “Documents”

• Walls
• Mirrors
• Cars
• Bodies
• Electronic tablets
• Unconventional “ink”
for heaven's sake catch me before I kill more I cannot control myself
Procedures

• Handling
• Testing for fingerprints, indentations, ink
  – destructive
  – non-destructive
• Examining originals v. copies
• Collecting comparison material
  – Normal course of business documents
  – Request exemplars
Handling Documents

- Use white cotton gloves when handling sensitive documents
- Indentations can be important evidence on documents – don’t make more indentations!
- Marking on documents – don’t circle or highlight areas on documents
- Maintain chain of custody
Testing

• Sequence of Testing Methods
  – Document examiner needs to examine the document prior to fingerprint testing

• Destructive Testing
  – Ink
  – paper

• Non-destructive Testing
Originals v. Copies

• Many document cases can be solved examining good quality copies
• Cases that may require originals:
  – Handwriting
  – Alterations
  – Ink comparison/identification/aging
  – Line sequence
  – Paper comparison
  – Print process methods
Comparison Material

- Contemporaneous
- Similar content
- Reliable
- Undisputed
Normal Course of Business Documents

- Driver license
- Passport
- ID cards/badges
- Deeds
- Contracts
- Correspondence
- Affidavits
- Credit cards
- Social security card
- Rental agreements
- Mortgage documents
- Checks
- Power of attorney
- Bank signature cards

- Trust documents
- Wills
- Income tax returns
- W-9 forms
- W-2 forms
- Receipts
- Notary log books
- Insurance forms
- Employee forms
- Sign-in sheets
- Loan documents
- Enrollment applications
- Immigration forms
Request Exemplars

• Request exemplars are frequently used in criminal cases

• Request exemplars are not always ideal for handwriting comparison cases
  – May be disguised
  – May not replicate similar writing environment or content

• Consult a document examiner for procedures on taking request exemplars
Handwriting Features

- Abbreviation
- Alignment
- Arrangement
- Capitalization
- Connectedness
- Cross strokes, dots, diacritics, punctuation
- Stroke direction
- Disguise
- Embellishment
- Formation
- Freedom of execution
- Handedness
- Legibility

- Line quality
- Method of production
- Pen hold/position
- Pressure/pressure pattern
- Proportion
- Simplification
- Size
- Skill
- Slant/slope
- Spacing
- Speed
- Initial, connecting, terminal strokes
- System
- Tremor
- Type
- Range of variation

From: ASTM Standard E2290-07a: Standard Guide for Examination of Handwritten Items
 Forgery Features

• Lifts
• Stops
• Hesitations
• Patching/retouching

• Slow, drawn line quality
• Unnatural tremor
• guidelines

From: ASTM Standard E2290-07a: Standard Guide for Examination of Handwritten Items
Limiting Factors

- Age
- Illness/injury
- Medication, drugs, alcohol
- Awkward writing position
- Cold or heat
- Non-dominant hand

- Fatigue
- Haste/carelessness
- Nervousness
- Nature of the document
- Disguise

From: ASTM Standard E2290-07a: Standard Guide for Examination of Handwritten Items
A signature written on a pebble-like surface (placemat). The backing is producing distorted line quality effects. However, the uniformity of the tremulous effect also suggests that it is caused by surface problems rather than a health or nervous condition on the part of the writer.
Signatures and Health Problems

Forgery v. Motor Disorder Characteristics

• Forged Writing
  – Slow, drawn
  – Penlifts
  – Blunt ends/beginnings
  – Irregularity
  – Tremor
  – Patching
  – Heavy pressure

• Motor Disorder Writing
  – Slow, careful
  – Rigid
  – Micrographic
  – Irregularity
  – Corrections
  – Tremor
  – Irregular pressure pattern
The information above is correct and reflects how I want it.

Mary O. Floersheim
Signature of Owner(s)

Q-1

Mary O'Keefe Floersheim
MARY O'KEEF FLOERSHEIM

K-4a

Mary O'Keefe Floersheim
MARY O'KEEF FLOERSHEIM

K-6a

Simulation from an earlier model signature.
Attempt to simulate tremor.
Range of Variation in Signatures

1969

1974
Minimal variation

High degree of variation
Complexity and Variation

Lack of complexity – easy to forge

Sincerely,

Eliot Spitzer
Governor

ELIOT SPITZER
Illegible Signatures

Both are genuine but so simple it would be easy to forge.

[Signature]

will be provided for your records.

[Signature]
Examination Process

• Analyze
  – Comparison material
  – Questioned material
  – Establish range of variation in comparison and questioned material

• Compare
  – Questioned and comparison material

• Evaluate
  – Similarities
  – Differences
Defining Forgery

• Definition:
  – The creation of a false written document or alteration of a genuine one, with the intent to defraud

• Forensic document examiners do not use the term “forgery” in their reports or testimony as they cannot testify as to “intent”.

• For ease of understanding, the terms “forgery” and “forger” is used in this presentation in its practical (not legal) sense.
Signature Forgery

• Common Types of Forgery
  – Simple spurious
  – Freehand simulation
  – Tracing
  – Transfer
  – Disguise
Simple Spurious

- No model of the signature is available to the forger
- The genuine signatures and the forgery have little pictorial resemblance
Freehand Simulation

• Copying a signature from a model
• The skill of the forgery is dependent on the skill of the writer
Questioned signature is a forgery
Tracing

• Carbon paper
• Indentation
• Pencil rubbing
irregular line quality
blunt ending
lack of smooth pressure change patterns
pencil traces
Transfer

- Cut and paste (copy machine)
- Scanning
Genuine or color scan?
Microscopic examination. Left signature genuine, right is a color scan printed on an inkjet printer.
Disguise

Natural

Attempted disguise

Attempted disguise with non-dominant hand
Anonymous Communications

• Typically, anonymous notes involve disguised writing
• The envelopes should be examined carefully as they may not be disguised
• Typing and print process characteristics can be analyzed when anonymous notes are machine-produced
Anonymous Notes

• Examination of anonymous notes includes:
  – Handwriting characteristics
  – Linguistics
  – Content analysis
  – Behavioral assessment
From hell

Madam. For I send you half the pleasure it afforded to others, and at it was not nice. I may send you the bloody rope that took it out if you only state a while longer.

Signet. Catch me when you can.

Mister Lives.
You though yourself very clever I see when you informed the police But you make a mistake if you though I didn’t see you now I know you know me and I’ll sell your little game and I mean to finish you and send your ears your wife if you show this to the or help them if you do I will find you. It no use your trying to get of my way Because I hate you and I won’t respect it and I keep
This is the Zodiac speaking.
By the way have you cracked the last cipher I sent you?
My name is —

A E N O K O M O N A M

I am mildly curious as to how much money you have on my head now. I hope you do not think that I was the one who wiped out that blue meannie with a bomb at the cop station.
To whom it may concern. The following is to inform that I am responsible for the dead body that was found on Saturday, June 21 @ 1130 in room 143 at Fairfield INN by Marriott off Skibo RD. It was a master piece. I confess, that I have killed many times before in several states, but now I will start using my role-model's signature. There will be many more to come.

Fayetteville law enforcement are very incompetent. I basically sat there and watch while investigators were on site.
Suicide Notes

• Approximately 25-35% of suicides are accompanied by notes
• Suicide notes can be analyzed for
  – Handwriting characteristics
  – Psycholinguistics
I made a notation from experience and personal knowledge. I did not believe it was necessary or standard. My conduct has been reviewed to my knowledge. No one of the White House, to my knowledge, divulged any basis or standard of conduct, making any action to the White House. There was no effort to benefit any individual or group.

The FBI placed in their report to the House the piece of coming up. The alleged basis that they received from the White House. The FBI has been questioned by Congress and many other Congress members. The illegal action placed in number and cost incurred, making advantage of false statements. This subject will never be heard the voice of the Clinton and their legal staff. The last section, the secret engineer.

I was not used for the voice of the spotlight of public life in Washington. That is not a subject I consider important.
Speaking from the tongue of an experienced simpleton who obviously would rather be an uneducable, infantile complainer. This note should be pretty easy to understand. All the warnings from the punk rock Jok waves over the years. Since my first introduction to the, shall we say, this world with independence and the embrace of your community has proven itself rewarding and worthy for two years now. It feels as a personalized mirror that I made for myself, living with independence and the love in the world. I have felt the excitement of listening to music and creating it myself. It feels like a personal joy and a personal joy, but it is also a personal joy that I can share with and entertain a lot of people.

The fact is, I can't feel you, anyone of you. I am not helped by facing the world, perhaps it's doing too much fun. Sometimes I feel I should have a punch in the face before I walk on stage. I've tried buying into my power to appreciate and I try, but I don't know if I can. The fact that I am not capable of entertaining a lot of people. I must be one of those people who only appreciate things when they have to. I'm too sensitive. I need to be a hero. I've had a much better appreciation for all the people I've known personally and as fans of our music. I still can't get to all the people. I need more people to understand that and appreciate the joy and warmth that I've felt. That's what makes me appreciate. I need more people to understand that and appreciate the joy and warmth that I've felt. Thank you all from the heart of my burning heart. Thank you for your letters and concern during the past years. I'm too much of a simpleton, too much for your letters and concern. I'm too much of a simpleton, too much for your letters and concern. I need you to be burned out on me.

Kurt Cobain
Mom

I want you to know how very much I love you. I sincerely apologize for any pain which I have caused you in my lifetime. Additionally, I cannot sufficiently express to you how I feel for the burden I am leaving you with here.

However, I cannot live the next 6-8 years behind bars for what I have done. I have come to regard as this "modern day lynching," only to come out of prison in my later days a broken, helpless, and very much alone woman. I know you will not live long enough to see my possible release. I am aware I will be unable to shoulder the responsibility of a有人说 will be nothing but a mere shell of her former self.

There is a little surprise waiting for you in the box account. Please use the monies for final arrangements. Much love and settlement.

Again, I love you so very much. Dad, I will be waiting for each of you on the other side.

Love always,

Deborah

P.S. Please mail as the executor of mother.
Do Not Revive (DNR)
Do Not Feed Under Any Circumstances.

Deborah Palfrey –
DC Madam
Ink Testing

- Microscopy and infrared are non-destructive visual techniques used for ink examinations
- Thin-layer chromatographic techniques are used for chemical ink comparison testing (destructive test)
- Processes used for ink dating are performed by ink chemists
Chemical Resistance

- Myth: Gel ink is chemically resistant and “fraud proof”
- Reality: Dye-based gel ink can be chemically removed

Sakura Gelly Roll Gelato black: acetone test

Pilot G-2 blue gel pen: acetone test
Popular Check Washing Chemicals
National Check Fraud Center

- Acetone – most widely used (nail polish remover)
- Benzene
- Bleach
- Carbon Tetrachloride (carpet cleaner)
- Chloromice “T” (mild bleach)
- Fox “IT” (stamp collecting)
- Clear correction fluid
- High performance erasers
Chemical-Resistant Pens

- Bic Velocity black/blue
- Pentel Sunburst black/blue
- Sakura Gelly Roll Gelato black/blue
- Sanford uni-ball Gel Impact blue
- Sanford uni-ball Signo RT black
- Zebra Sarasa black/blue
Non-Chemical Resistant Pens

- Pentel EnerGel blue
- Pentech Focus LX blue
- Pilot G-2 blue/red
- Zebra Orbitz blue
- Fountain pen inks
- Roller balls
- Ballpoint
Print Process Methods

• Type of print
  – Ink jet
  – Laser/photocopy
  – Offset
  – Intaglio
  – Typewriter
  – Rubber stamps

• Printer identification
  – Certain color printers produce an identifying yellow dot pattern which can help to identify the printer
Paper Examinations

- Insertions into multi-page documents (wills, contracts)
- Paper comparisons can be performed by visual and infrared (non-destructive) processes
- Paper weight (micrometer measurements)
- Paper wear
- Paper folds/cuts
- Watermarks
- Indentations
- Staples/hole punches
Insertion

- Residential Listing Agreement
- First page shows a 6% commission fee
- Sellers dispute this fee and said it was 3%
- Only signatures that appear are on page 3
RESIDENTIAL LISTING AGREEMENT
(Exclusive Authorization and Right to Sell)

1.) This Listing Contract [hereinafter Agreement], dated October 13, 2008, is a professional service agreement between Big Bob's Realty, LLC [hereinafter Company] and Jon and Mary Hart [hereinafter Seller].

2.) The property to be listed is located at:
Address: 23456 James Avenue
City: Big City State: Big State Zip: 12345
County: Big County [hereinafter Property]

3.) This agreement shall commence on October 13, 2008 and expire on December 19, 2008.

4.) A Listing Price shall be: Two hundred fifty five thousand dollars and zero cents ($255,000.00)

5.) Under this agreement, Seller can sell his/her property himself/herself to any Buyer not procured by a participating Realtor. In this event, no commission is due.

6.) Under this agreement, Company agrees to:

A) List the Property on the Multiple Listing Service [hereinafter MLS].
B) List the Property on Internet sites.
C) If elected by Seller, provide a professional yard sign and lock box where permissible.
D) Upon request, provide Seller a copy of the MLS listing.

7.) Termination: There is no termination fee in the event Seller decides to withdraw their Property from the MLS if Seller gives Company written notice and if there is not currently a contract pending on the Property involving a buyer who was procured by a participating Realtor. A refund will be provided if the Company does not accept this Agreement.

8.) The following personal property will be included in the sale (i.e. appliances):
Refrigerator, Dishwasher, Washing Machine, Dryer

BIG STATE LAW REQUIRE NOTICE TO POTENTIAL BUYER

You should not assume that any real estate licensee in Tennessee is a transaction broker. A real estate licensee, as a transaction broker, can represent either the Buyer or Seller, but cannot represent both. The person who represents the Seller is called a Seller's Agent. Real estate licensees shall disclose their role as either a Seller's Agent or a transaction broker. An active Seller's Agent designation shall be displayed on the license or by a written notice to the Seller. A Seller's Agent designation may not be used to represent the Buyer.

NO BROKER

BIG STATE LAW REQUIRE BROKERAGE RELATION DISCLOSE TO HOMES 4 SALE

As a real estate licensee who has a relationship with a Listing Company, it is required to disclose the information as follows:

1.) Dealing honestly and fairly
2.) Disclosing all known facts that are not readily observable to others
3.) Seller has reviewed and understands the information and the details of the above agreement.
4.) Seller agrees and the date
5.) Seller agrees
6.) Seller agrees and the date

Property Address: 23456 James Avenue

Address: 23456 James Ave, Big City, Big State, Zip: 12345
Phone: (123) 555-8888
Fax: (123) 555-9999

Date: 10/13/08
Date: 10/13/08

EAST TENNESSEE STATE UNIVERSITY
RESIDENTIAL LISTING AGREEMENT

This Listing Agreement [hereinafter Agreement], dated
Property Address: 23456 James Ave, Big City, Big State

Seller agrees that the responsibility for the care and custody of Company’s and Company shall not be liable to Seller for any complications
Property Address: 23456 James Ave, Big City, Big State

Seller agrees that the responsibility for the care and custody of Company’s and Company shall not be liable to Seller for...
UV Unfiltered
UV Filtered
Infrared
Infrared
Infrared

$4000.00

100
Red Stamps
Differentiation & Identification

- Inks
- Pencils
- Crayons
- Toners
- Print Process
- Wax

- Paint
- Dyes
- Papers
- Foreign Materials
- Substrates
- Lipstick
GENERIC BLACK BALL POINT
GENERIC BLACK BALL POINT
GENERIC BLACK BALL POINT
GENERIC BLACK BALL POINT
GENERIC BLACK BALL POINT
GENERIC Black BallPoint
GENERIC Black Ball Point
GENERIC Black Ball Point
GENERIC Black Ball Point
GENERIC Black Ball Point
Leo D. Laird
OF

EIGHTY

OF

EIGHT

Bank of
$800.00

DOLLARS

Security Features Included. Details on Back.
Methods of Altering Documents

• Erasing
• Obliteration
• Insertion
Erasing

- Pencil erasures
- Ink erasures
- Physical cutting
- Chemical means
- Digital erasures
Obliteration

- Blocking out by overwriting
- Correction fluids and tapes
Insertions

• Handwritten insertions
• Paper insertions
• Typed insertions
• “Cut and Paste”
• Computer generated documents
Handwritten Insertions

- Look at use of space
- Size of the writing
- Overlapping strokes
- “Reflex of avoidance”
- Use of same or different ink
9/30/2007  Discussed treatment plan w/ family. Surgical procedure & recovery prospects. Also informed visits associated w/ procedure. Family agreed to proceed.

Reflex of Avoidance

• The intentional effort on the part of a writer to avoid writing across lines already present on a writing substrate.
• The intentional effort on the part of a writer to remain within set boundaries on a writing substrate.
• Commonly seen in written insertions and on forms.
1. T F
   A B C D E F

2. T F
   A B C D E F

3. T F
   A B C D E F

4. T F
   A B C D E F
PLEASE NOTE

- Use only a no. 2 pencil.
- Example: A  C  D
- Erase changes COMPLETELY.

Mark one answer for each question.

1. A  C  D
2. A  B  C  D
3. B  C  D
4. A  C  D
Case Study

• DVM student at UT Knoxville accused of cheating by professor.
• Professor had returned a graded exam and student, two days later, told professor he had made a mistake in grading the exam.
• Professor was adamant that he had not made a mistake since there were only 7 students in the class and he graded them personally.
• Student was charged with cheating and brought before university judicial board.
Acending colon of a foal is lying in the operating field. Dr. Schumacher, asks you the following questions?

Which is the most distal portion of the ascending colon? Right dorsal ascending colon
d. What is 3a analogous to in the sheep? Distal loop
c. What flexure is proximal (oral) to this point (3a) in the foal? Diaphragmatic flexure
d. What portion of ascending colon has the longest mesentry in the foal? Pelvic flexure

4a. During a preumbilical midline approach for bovine abdominal surgery, what is the first structure/organ seen dorsal to the parietal peritoneum? Superficial leaf of great omentum
4b. What does it connect to if you follow it to the right? Dorsal body wall (rt of mesentary)

5. List them from proximal to distal, the synovial structures which protect the DDF tendon?
    Omental bursa, navicular bursa

6a. The metacarpophalangeal (fetlock) joint is stabilized by the tendons and ligaments which pass to the joint or cross it. What ligament stabilizes the proximal aspect of the proximal sesamoid bones? Suspensory ligament
6b. What stabilizes the distal aspect of the proximal sesamoid bones? Straight, oblique, ancicute (ligaments)

7. Which species has/have a preputial diverticulum? Porcine

8. What is unique about the bovine fibula? Short whereas the equine fibula extends about half way down the bone is even shorter and even "nub-like?"

9. A prize mare (fluffy) is returned to you after many bouts of uterine infection and infertility. The owners are tired of the mess but want to keep and maintain a healthy fluffy. A hysterectomy (removal of the uterus) with a unilateral ovariectomy (removal of only one ovary) is decided upon. List all the vessels which must be ligated and transected to accomplish this surgery and leave fluffy with an intact healthy right ovary? Left ovarian a,

Record answers to multiple test questions 1-13 here, from following pages.


Same as Seth's & Grace who got them correct.
Typed Insertions

• Typewritten insertions
• Computer printer insertions
• Font changes
• Margins
• Alignments (horizontal and vertical)
9. I want my son by my first marriage, Jerry Johnson, to have my truck and my Winchester deer rifle.

10. I want my step-son, Arthur Wilcox, to get all my real estate.

Signed: Walter Pendergast
Walter Pendergast

Sworn to and subscribed before me this 15th day of April 2003.

__________________________
Notary Public at Large

Instrument prepared by:

Smith, Smith, Smith & Flabbergas, PC
Attorneys at Law
222 Randolph Street
Erwin, TN
Page 5
Last Will & Testament of Billy Bob Barker

Article 6

I bequeath the remainder of my estate to my nephew, Jimmy Bob Barker. I also void that pre-nuptial agreement between me and my fourth wife, Bunny Lou Booher.

Signed:  

Billy Bob Barker

State of Tennessee  )
County of Washington  )

This document signed by Billy Bob Barker in my presence and with positive identification this 16th day of March 2004. My commission expires 10 January 2006.

Ruth Stout Miller
Notary Public at Large
Cut and Paste

- Traditional methods
- Using the computer (Photo Shop)
- The original has usually “disappeared” and only copies exist
March 16, 2004

This is to certify that David Dimwit paid me $2,500.00 on this day. His promissory note to me has been paid off in full and he is released from debt.

Signed

Roger J. Carmichael
Roger J. Cannon

Questioned

Roger J. Cannon

Known
Computer Generated

• Cut and paste techniques with Photo Shop
• Scanned documents
• Counterfeit documents (currency, identification cards, checks, contracts, change of beneficiary, etc.)
01-25-2008

Part Number: WA-1234567890-2-8

Order Number: P0336789876

Description: One pressure relief valve rated at 75 psi.

Approved for installation: John Doe
01-25-2008

Part Number: WA-1234567890-2-8

Order Number: P0336789876

Description: One pressure relief valve rated at 25 psi.

Approved for installation: John Doe
01-25-2008

Part Number: WA-1234567890-2-8

Order Number: P0336789876

Description: One pressure relief valve rated at 5 psi.

Approved for installation: John Doe
Opinion Scale

- Identification
- Strong probability
- Probable
- Indications
- No conclusion

- Indications not
- Probably not
- Strong probability not
- Elimination

A document examiner’s report should state the reasons for providing a qualified opinion.

Infrared Imaging in Forensic Document Examination
Electromagnetic Spectrum
Spectral Range

- Ultraviolet
- Visible Light
- Near Infrared

Panchromatic film

Extended red-sensitive panchromatic films

Infrared films

Extreme Infrared-sensitive materials

Limit of transmission by glass

Limit of transmission by gelatin
Wavelength
Infrared Photography

- IR Spectrum and Filters
- Ink differentiation
- Charred documents
- Wet or washed documents
- IR luminescence
- IR cameras and limitations
Reflected IR

- Need IR light source (sunlight, electronic flash, LED light, tungsten)
- Place IR filter over lens (most commonly used is the Kodak Wratten 87)
- Digital camera that is IR capable
IR Imaging

- Physical properties (like ink) may absorb or reflect IR radiation.
- Materials that absorb IR will appear dark against IR reflective substrates.
- Materials that reflect IR will appear white against IR absorbing substrates.
IR Luminescence

- IR filter on camera lens
- Blue-Green light source (hot mirror filter, Schott BG-38 filter, ALS set around 530nm)
- Darkened room or use light tight box
IR Luminescence Set-Up

A. 35mm camera
B. Infrared-transmitting filter (absorbs visible)
C. Fluorescent tubes (white light)
D. Blue-green filter glass (absorbs infrared)
E. Document
F. Light-tight box