



OFFICE OF THE UNDER SECRETARY OF DEFENSE
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PERSONNEL AND
READINESS

The Honorable Duncan L. Hunter
Chairman
Committee on Armed Services
U.S. House of Representatives
Washington, D.C. 20515-0552

SEP 25 2006

Dear Mr. Chairman:

This letter responds to your request for further investigation into the death of Colonel James. E. Sabow, USMC, to supplement the investigation performed as required by P.L. 108-136. The National Defense Authorization Act for Fiscal Year 2004, Section 584. The follow-on investigation has been completed and an addendum report of investigation is enclosed. Like the earlier investigations of the cause of death of Colonel Sabow, the addendum report concludes that Colonel Sabow's death was a suicide:

"The scientific analysis of the items as received 02-02-06 and the result of efforts to secure additional factual data relevant to this case neither suggest nor support any conclusion other than that Col. Sabow's death resulted from a self-inflicted intraoral shotgun wound. These findings support the conclusions reached and established by each of the prior official investigations into Col. Sabow's death."

(Report at page 27.)

As you requested, the follow-on investigation included examination of the original weapon; testing on Colonel Sabow's clothing; and review of obtainable findings from Doctors Remley, Fackler, Rubinstein, and Feldman. Jon Nordby, Ph.D., who performed the previous investigation, headed the follow-on investigation.

You also requested that the follow-on investigation include a review and analysis of Mr. Bryan Burnett's test findings. Mr. Burnett declined an invitation to either participate in or observe the follow-on testing and analysis. During the follow-on investigation, Dr. Nordby employed the services of two outside experts, Mr Michael J. Van Stratton, Director, Kansas Bureau of Investigations, State Laboratory, and Mr. James O. Pex, Director (Retired), Oregon State Police Crime Laboratory, to review and analyze



Mr. Burnett's results. They concluded that Mr. Burnett's reports offered no news, compelling data, or added scientific opinions.

Sincerely,



Michael L. Dominguez
Principal Deputy

Enclosure:

As stated

Cc:

Senator John W. Warner

Final Analysis Forensics

*Death Investigation**Criminalistics**Forensic Analysis*

August 26, 2006

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Mr. John Awtrey
Director, Law Enforcement Policy and Support
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***Prepared for: Principle Deputy Undersecretary of Defense for Personnel and Readiness
Mr. Michael L. Dominguez, The Honorable Duncan Hunter, Chairman, The House
Armed Services Committee, & the Distinguished Members of The House Armed Services
Committee***

Reference: Shotgun Death of Col. James E. Sabow
Final Analysis Forensics Case #04-0514: Addendum #05-1012
Federal Contract #HQ0034-05-R-1014

Dear Mr. Awtrey, Deputy Undersecretary Dominguez, Chairman Hunter, and Members of the House Armed Services Committee:

The following represents a supplement or addendum to my initial report on the above-referenced case [Sabow 7 Nov 04 ROI (Federal Contract #HQ0095-04-C-0022)] and is based upon the weapon and clothing items provided to me as listed in Appendix I per terms of Federal Contract #HQ0034-05-R-1014. As with any scientific endeavor, should additional information be provided to me beyond what I have listed as the information reviewed in Appendix I, I reserve the right to revise my report, reassess these opinions, and reevaluate their scientific bases upon completing my review of this or any new data.

Appendix II, Parts 1 through 7 provides the data from this work including laboratory drawings with notes, photographs, photomicrographs, and XRF spectra as part of my scientific investigations of these received items.

Please refer to my current CV, attached as Appendix III, for relevant training and experience. For easy reference, I also supply the relevant details of my past courtroom and deposition appearances current to the date of this report. Contributors are also listed at the end of Appendix III as described below.

In my independent practice of forensic science and forensic medicine, I present scientific results based upon the available evidence. The results are developed through the application of sound scientific and medical methods applied to all the relevant data according to the best of my ability completely without regard for their potential adversarial consequences.

Organization of Supplement to Sabow Nov 7 04 ROI:

1. New Data Received: Weapon & Clothing
2. Assessment of New Data – Weapon & Clothing
3. Appendices: Assessment Details
4. Contributors

1. New Data Received: Weapon & Clothing

Two boxes received 02-02-06 via FED EX

No item list, no chain-of-custody documentation provided with items

[See Appendix I & Final Analysis Forensics Evidence Log, laboratory notes Appendix II]

1 box - Ithaca Shotgun R137911 – safety “on” and stuck

1 box - “Original packing paper for weapon”

1 bag - pair men’s boxer shorts

1 bag - pair men’s socks

1 bag - man’s T-shirt

1 bag – man’s pajama bottoms

1 bag – bathrobe

1 bag – two slippers

I was asked to contact several individuals reportedly familiar with the case in the hope that they could provide additional factual data for scientific consideration. The following contacts were made and the results are summarized below.

Name	Reply?	New Data Sources?	Scientific Opinions?
Martin Fackler, MD	via email	offers no new or compelling data	offers no added opinion
Jack Feldman, Ph.D.	via telephone	offers no new or compelling data	offers no added opinion
Kent Remley, MD	NO REPLY	- - - -	- - -
David Rubinstein, MD	via letter	offers no new or compelling data	offers no added opinion
	Proffered		
Bryan Burnett, MS	two reports ¹	offers no new or compelling data ²	offers no added opinion

¹

Reviews of Burnett’s proffered reports were provided by Kansas Bureau of Investigation, State Laboratory Director Michael J. Van Stratton and James O. Pex, MS, D-ABC, Oregon State Police Crime Laboratory Director, Coos Bay, Oregon (retired).

²

The BSR or back-spatter residues referred to in these reports were discussed by Bryan Burnett, MS, in the *Journal of Forensic Sciences*, 1991 36 (6): 1745-1752. They are described as being composed of bone particles and bullet fragments resulting from the impact of a lead bullet with bone which travel back toward the muzzle of the gun firing the bullet. The article does not discuss intraoral gunshot wounds. It should be noted that no bullets struck Col. Sabow – and that therefore no mechanisms for BSR as described in the article apply to this shotgun case. Further, since the injury is an intraoral shotgun wound, one would be unlikely to see such a phenomenon even if the intraoral injury were the result of direct impact on solid bone with a rifled lead bullet.

2. Assessment of New Data – Weapon & Clothing

The details of each assessment appear in Appendix II. The following summarizes the results of these analyses.

The Sabow Ithaca Shotgun & Prior Shotgun Testing

The Ithaca shotgun model 200E #R137911 as received is currently inoperable. The safety remains in the "on" position and will not release, which prevents test firing the weapon.

Our examination protocols for "collector" shotguns involve first examining the barrel(s) and then testing the firing mechanism(s) by inserting dummy shell(s) which prevent potential damage to the firing pin(s). Dry-firing such a shotgun, or any gun for that matter, should always be avoided. Testing of the firing mechanism with dummy shells cannot be done in this case since the safety fails to release.

My examination of this Ithaca shotgun [Sabow Ithaca] included analyzing both barrels from muzzle to breech as well as measuring their thickness, choke, and bore. It also included measuring the breech block gap, overall length, stock, and other relevant properties such as weight.

In all relevant functional respects for our testing purposes, the American Arms Gentry shotgun #504614 used in the original experiments as documented in my initial ROI [hereafter *test* Gentry] is identical to this Ithaca model 200E - the thickness, choke, bore, breech block gap, overall length, stock, and weight are identical. [The two weapons even have an identical shape and configuration - when seen in a side-by-side comparison, they appear identical]. The comparisons are summarized below and detailed in Appendix II.

Shotgun	Weight	Boot	Chamber Size	Forcing Cone	Barrel	Choke
Sabow Ithaca	6lbs 13oz	5 oz	0.813"R/L	0.723"R/ 0.705"L	26"	IMP/R MOD/L
<i>Test</i> Gentry	6lbs 13oz	none	0.813"R/L	0.724"R/ 0.704"L	26"	IMP/R MOD/L

The *Sabow* Ithaca is a much higher quality shotgun with finer engraving and a better stock than the *test* American Arms Gentry. The *test* Gentry is a cheaper "knock-off" of the more valuable *Sabow* Ithaca. However, for assessing an intraoral shotgun wound, these finer differences in detail remain totally irrelevant - a shotgun is basically an unrifled pipe - the most relevant feature for assessing damage to a close-range target is the shotshell used and the configuration of the "pipe." For firing tests performed in Sabow 7 Nov 04 ROI, the two weapons are functionally identical. The results remain. The important issue of GSR is addressed (with the issue of bloodstain patterns) below.¹

¹ Issues of breech-block and trigger mechanism leakage and gunshot residue deposition, as individual characteristics of any weapon, can be addressed through a detailed examination of the actual clothing worn by the decedent. [The same applies to the bloodstain patterns in this case]. The previous tests have already demonstrated the types of bloodstain patterns which would result from various shooting scenarios - now given the actual clothing, a meaningful comparison can be investigated, along with an assessment of the gunshot residue issues on the clothing and the results of prior GSR testing on samples taken from the decedent's left and right hands as documented in both scene photos and original laboratory reports.

Bloodstain Patterns and Gunshot Residues

The bloodstains on his clothing and those on his hands, visible in scene photos, help shed light on the manner of Col. Sabow's death. The deposition of gunshot primer residues¹ from the left barrel's breech block and from the trigger also shed similar light. The following summarizes the bloodstain and gunshot residue analyses and their relationships in this case.

Right hand

Impact bloodstains on the lateral and ventral surfaces of the wrist, lateral palm, and third finger

No GSR detected on the right hand via swabs in 1991 – swabs not preserved so retesting is impossible

No individual close-up photos of the right hand are available

Left hand

Soot deposition on lateral aspect, on thumb and on first finger

Projected bloodstains on ventral surfaces

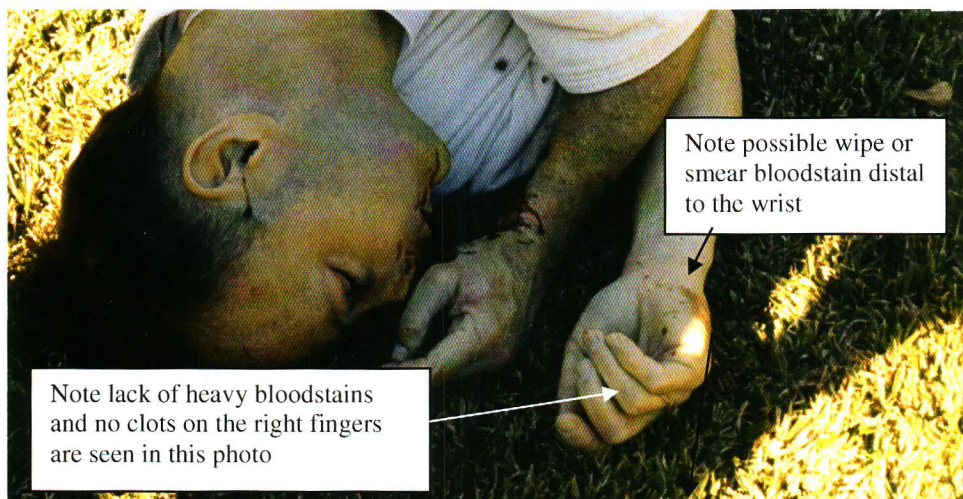
Projected bloodstains with voids, left palm & parts of dorsal & lateral fingers

GSR is detected on the left hand via swabs collected and tested in 1991 - [again, swabs not preserved]

Hand and thumb photographed – one photo shows SEM tape collection stub

Sabow Ithaca Shotgun

According to testing reports, the Ithaca shotgun "leaks GSR from both breech and trigger." As is typical for such weapons, more GSR leaks from the breech than leaks from the trigger.

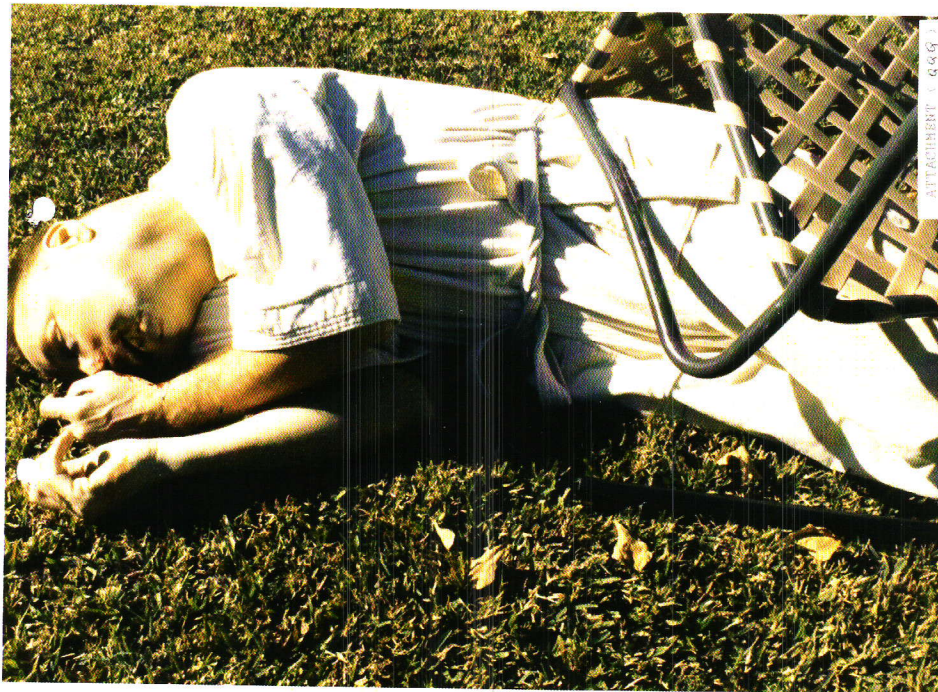


Note the orientation of the decedent's hands with the left arm and left hand above the right arm and right hand. Also note the character of the bloodstain patterns on the left wrist and left hand as well as those on the right hand – the right hand appears to lack significant bloodstains on the fingers in this photo. However this is not the case in other photos, as seen and discussed below. This may contribute to our understanding of the failure to detect shotgun shell primer residues on the decedent's right hand.

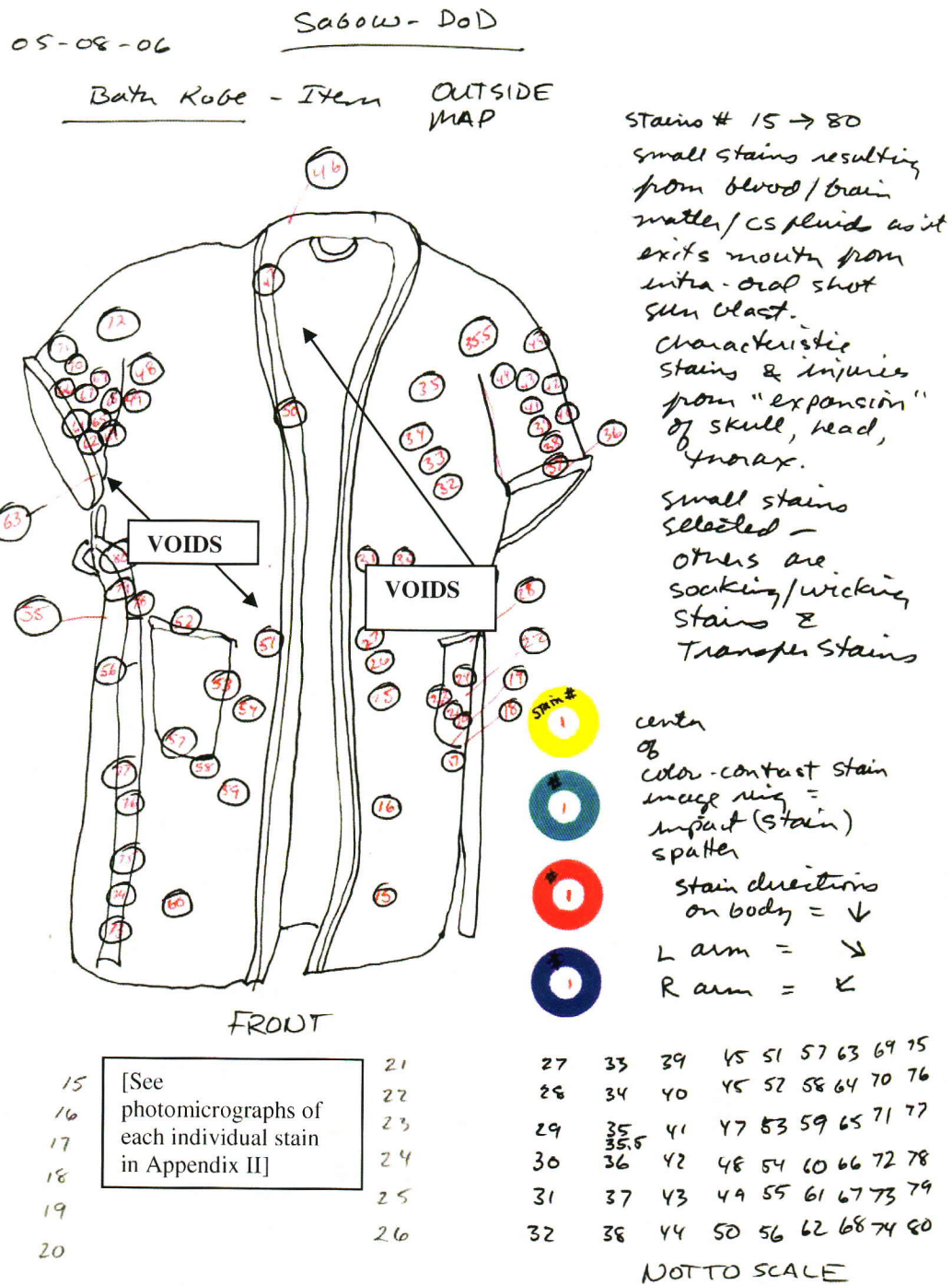
¹ Gunshot residue transfers to items near a firearm during its discharge [AFTE (*Association of Firearm and Toolmark Examiners*) defines GSR as any particulates resulting from the discharge of a firearm including burned and unburned gunpowder, primer residues, and metal particulates, etc.]. They consist of burned and unburned gunpowder, lead, copper, or brass shavings from the bullet and its jacket (if present), and residues from the initiating primer, usually antimony, barium and lead. To be typical of gunshot residue *primers*, each of these elements, or according to the ASTM, at least antimony and lead, must be fused together in a single particle. The latter are microscopic in size, usually between 0.5 μ m and 5.0 μ m with some up to 10.0 μ m to 15.0 μ m or larger. These materials exit from the muzzle and from any other opening in the firearm through which combustion gases may exit, depending upon the weapon's design and condition. Such primer residues, usually antimony (Sb), barium, (Ba), and lead, (Pb), exiting from the sides, top, or bottom of the weapon at issue are commonly distributed toward the shooter's hands and clothing as well as through the muzzle. [Note: symbol ' μ ' means 'micron' and the symbol ' μ m' means 'micrometer' - they are equivalent].



The left arm and left hand are oriented above the right arm and right hand – the left hand was closest to his mouth when the shotgun discharged.

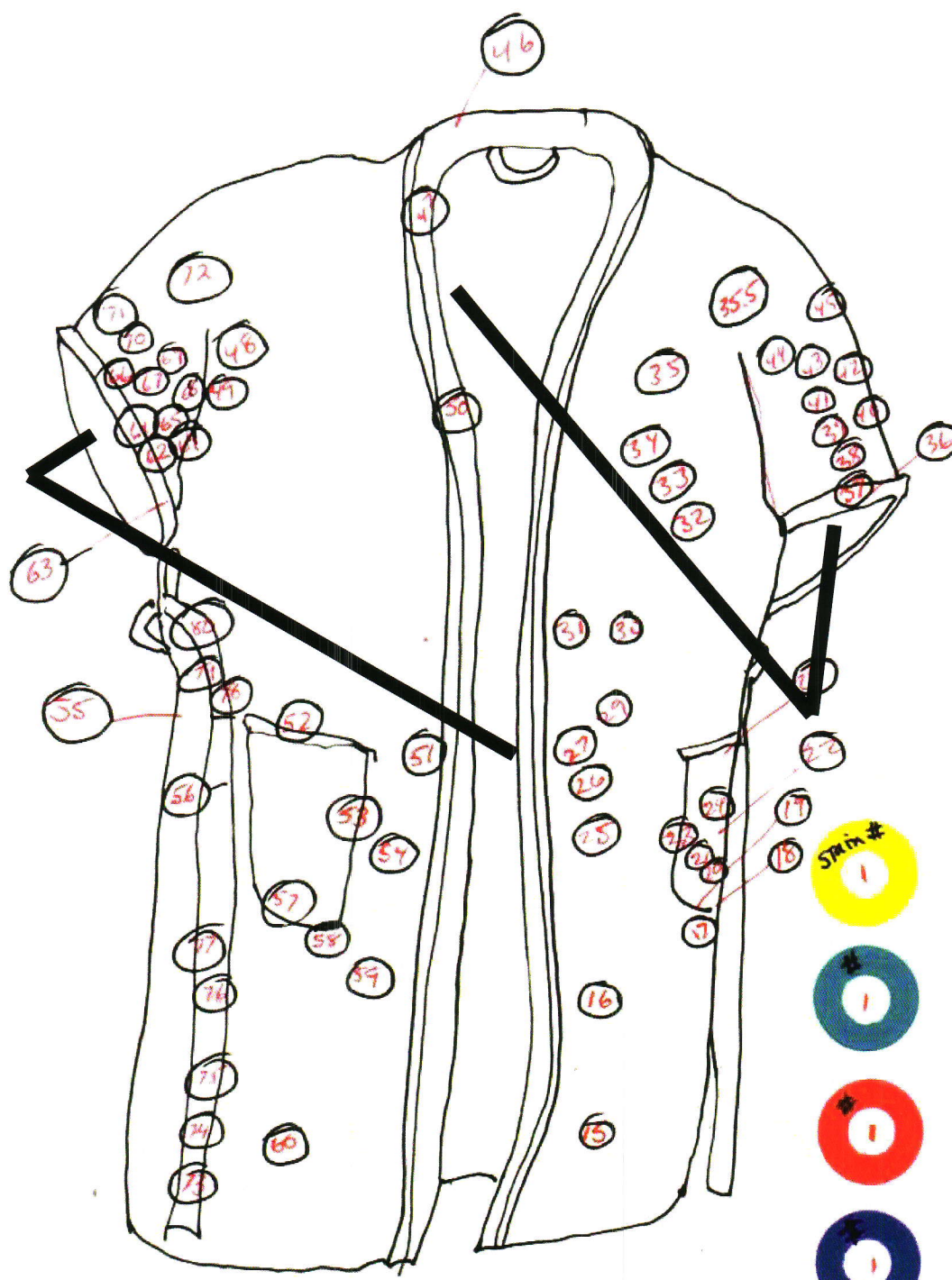


The Ithaca shotgun oriented between the decedent's legs in one of two directions – with the trigger guard facing up & out, or with the trigger guard down & in. The orientation of the shotgun will influence the GSR patterns from the breech and the trigger – in this case, the trigger guard was up & out.



Bloodstains documented on the robe show that impact stains originated from above – note the void areas on the robe from both the left and right arms. [These voids are further depicted below]. Each circled number locates an impact bloodstain. Each stain has been analyzed and photographed through a digital microscope. These photomicrographs, as well as overall photos of the robe and its bloodstains, appear in Appendix II.

[See graphical representation of this page attached at the end of this section as page as page 28 of 285]



The voids on the robe help indicate the position of Col. Sabow's arms when the Ithaca shotgun was discharged. From these patterns of impact spatter on the robe, his left arm extended upward while his right arm extended downward. His left hand held the muzzle of the shotgun and his right hand thumb operated the trigger. When in a seated position and leaning forward, as indicated the by the impact stain patterns, his right thumb is within easy reach of the Ithaca shotgun's trigger (see 2004 ROI).

[See graphical representation of this page attached at the end of this section as page as page 28 of 285]



The decedent had been moved prior to this photograph being taken (see discussion in ROI, 2004).



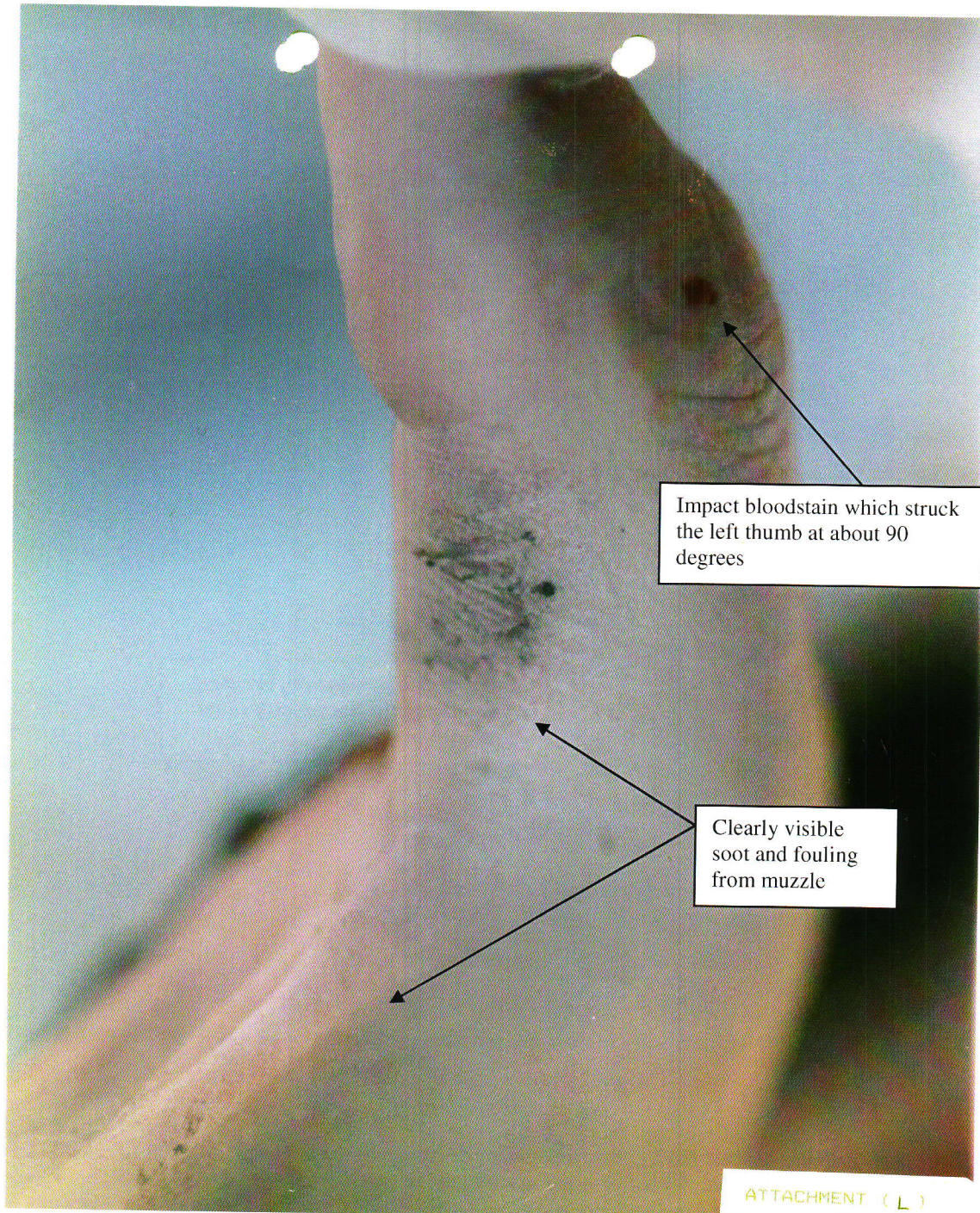
Note position of shotgun – the orientation of the trigger guard could be either up or down – evidence shows that the trigger guard faced UPWARD & FORWARD when the shotgun's left barrel discharged.



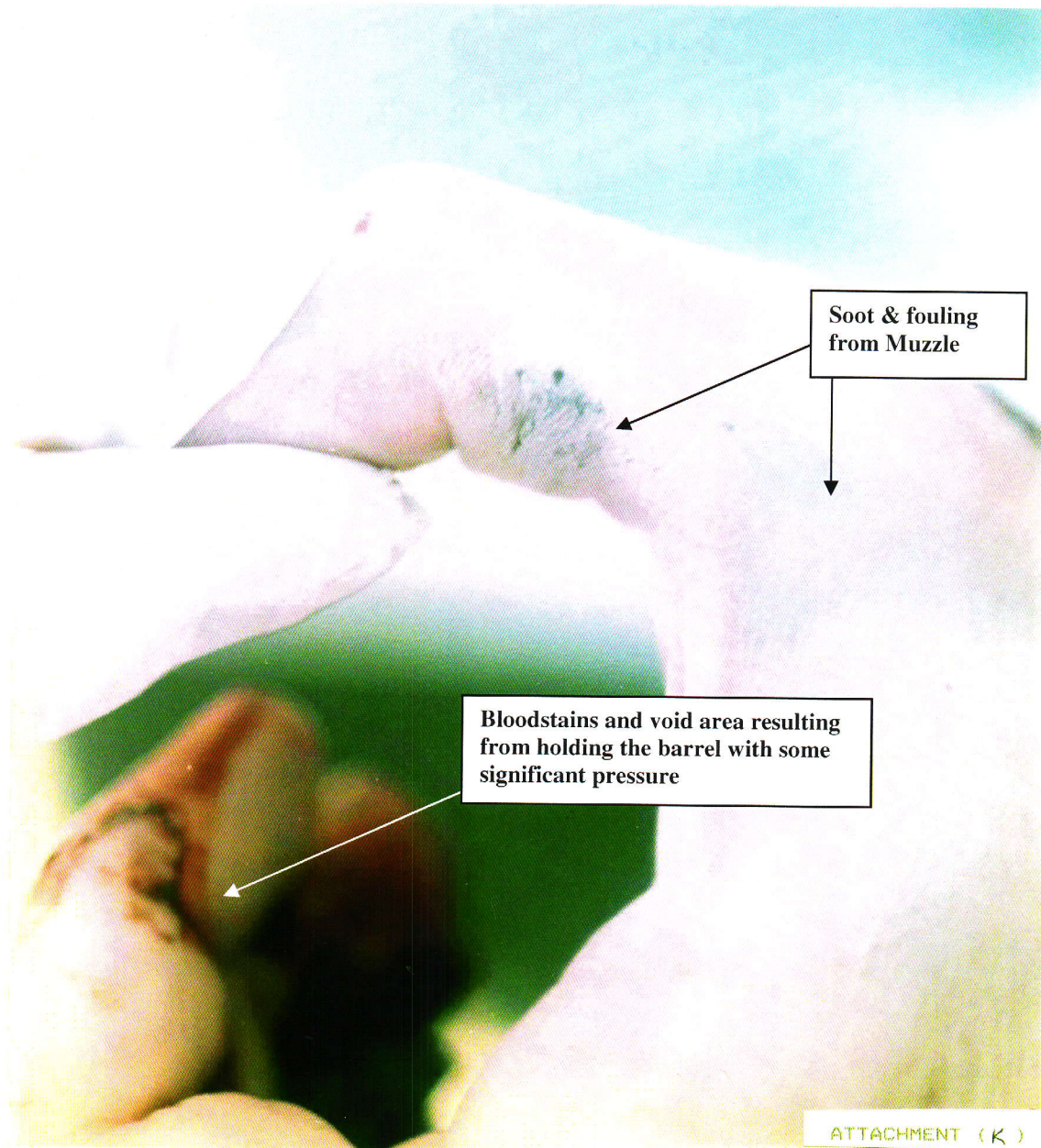
The left hand shows evidence of muzzle effluents and bloodstain patterns which result from holding the barrel of the Ithaca shotgun in the mouth with the left hand during the left barrel's discharge. All the blood visible on the decedent's hands and his clothing originated from the mouth and nose – the autopsy provides no evidence of any other injuries to the decedent – and certainly no other injuries which resulted in any blood loss.



The bloodstain patterns on the left hand and left arm are the result of being in close proximity to the mouth and nose during an intraoral shotgun discharge – the so-called void patterns, or areas conspicuously absent bloodstains, show the areas which were protected from blood staining during a blood-shedding event.



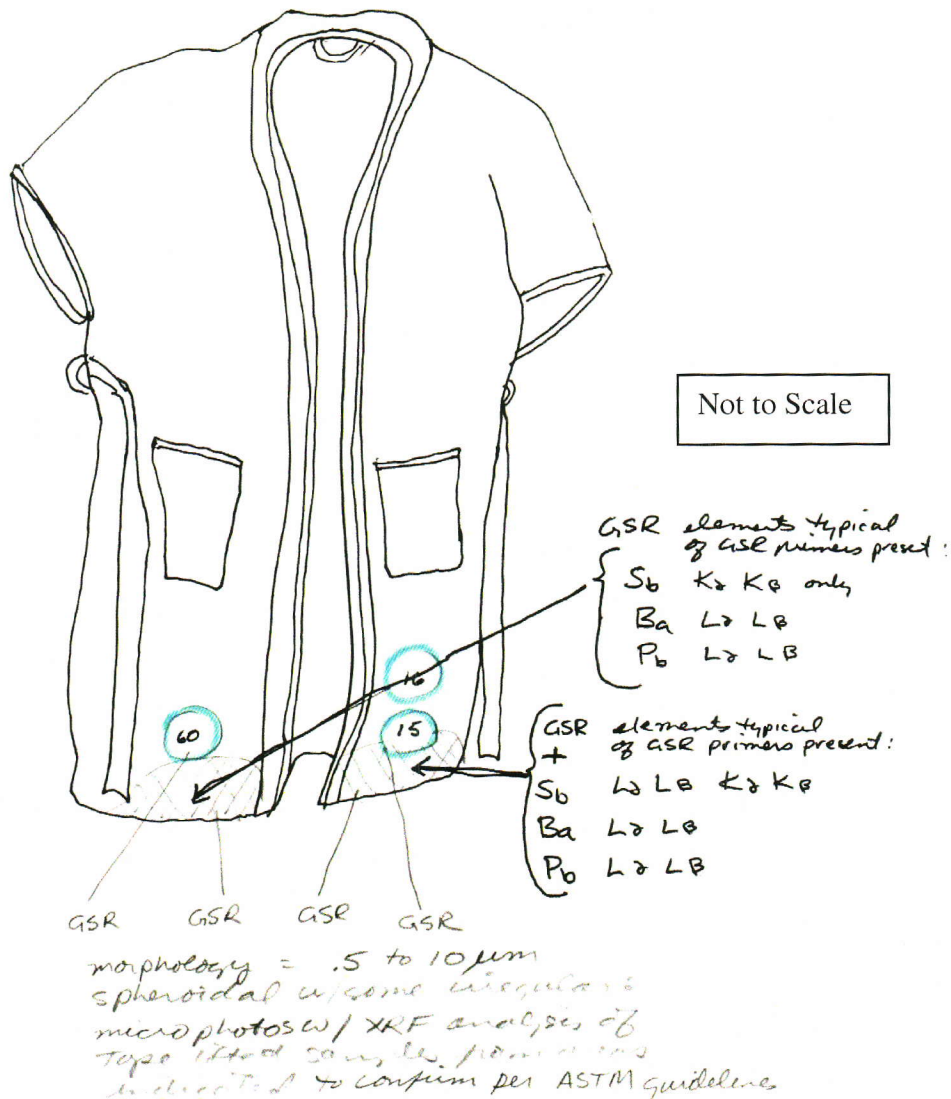
View of soot & fouling from muzzle of left barrel and an impact bloodstain on the left thumb which appears to have struck the skin at about 90 degrees, +/- . The soot and fouling depicted here typically consists of burned and unburned gunpowder, trace elements from the cartridge case, and even trace elements from the shot cup or wad as well as the primer residues of Sb, Ba, and Pb (antimony, barium, and lead). These primer residues are tested for in most GSR tests since these are the most enduring elements which are typical of most center-fire cartridge discharges.



This shows both the soot and fouling from the shotgun discharge on the left hand as well as the bloodstain pattern resulting from holding the barrel of the gun with the fingers – again, note the voids indicating areas protected from bloodshed and protected from the resulting bloodstain patterns. The voids play a key role in helping us understand the placement of the left hand in relation to the Ithaca's barrel. They also help us understand the position of Col. Sabow's left and right arm given the bloodstains on his bathrobe. As seen in the photographs appearing below, voids present on the right hand will also help us understand the position of Col. Sabow's right hand during the blood-shedding event resulting from the discharge of the Ithaca shotgun's left barrel into his mouth.

Batz Robe - Item OUTSIDE GSR

(see spectrum & morphology photos for complete results)



GSR is detected on the lower edges of the robe as indicated in the drawing [ASTM guidelines indicate that primer residues (a component of GSR per the AFTE definition) typically consist of Sb, Ba, and Pb fused into a single particle with the following characteristics: spheroidal morphology, generally 5μm to 10μm in size (although some can be as large as 20μm) and non-crystalline structures.]

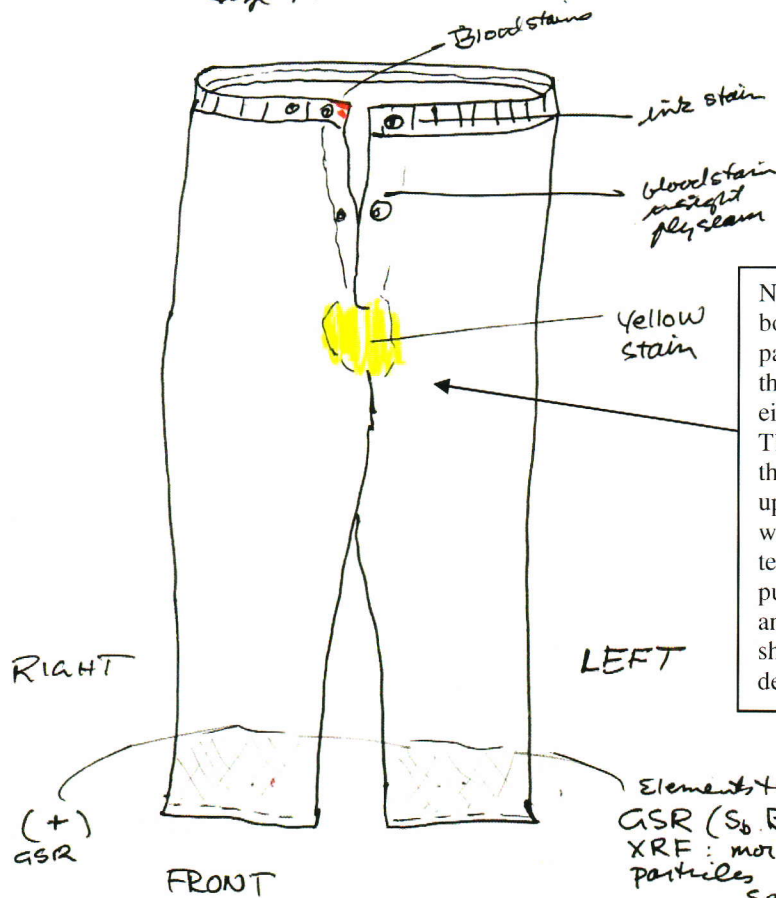
This finding supports the conclusion that the Sabow Ithaca's breech faced toward the decedent's robe and pajama bottoms with the trigger facing upward and away from the clothing – the Ithaca, like any such shotgun, will leak GSR through the breech block and trigger when discharged. A greater volume of such residues will exit the breech block than will exit the trigger area simply given the architecture of this side-by-side 12-gauge weapon. Recall that the LEFT barrel of the shotgun was fired using the right thumb with the breech facing toward the bathrobe and pajamas and the trigger guard facing upward and outward.

[See graphical representation of this page attached at the end of this section as page as page 30 of 285]

Not to Scale

SABOW - DOW

light blue pajama bottoms w/ snaps
size M



Note that the urine stains on both the boxer shorts and on the pajama bottoms appear along the midline, and do not run either to the right or to the left. This supports the conclusion that the decedent was in an upright position when the urine was discharged. [Recall that testimony established that he put on clean underwear, socks, and pajama bottoms after his shower on the morning of his death.

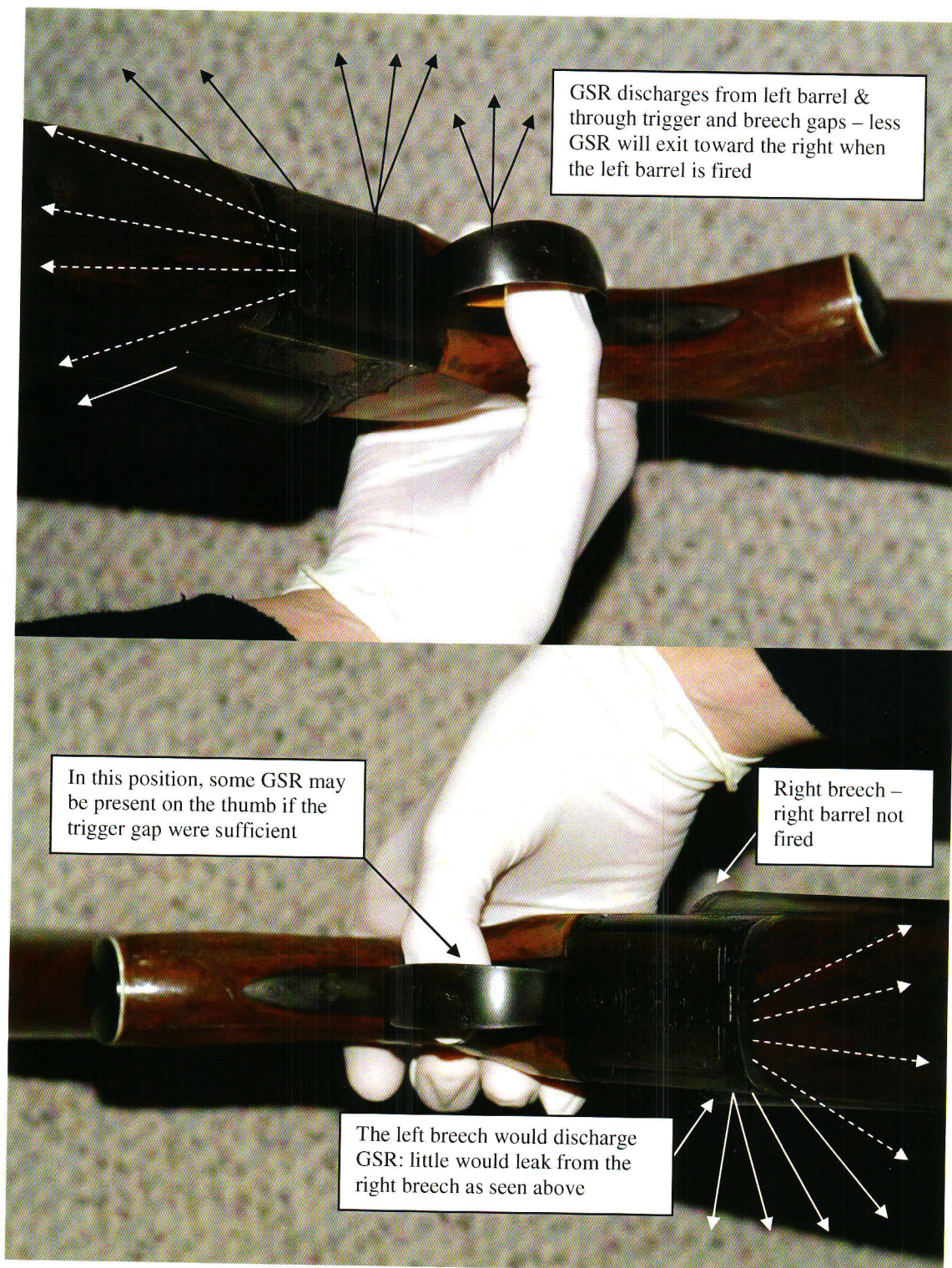
Elements typical of GSR (Sb, Ba, Pb) detected
XRF: morphology of particles 10-20 μm size, spheroidal in shape.

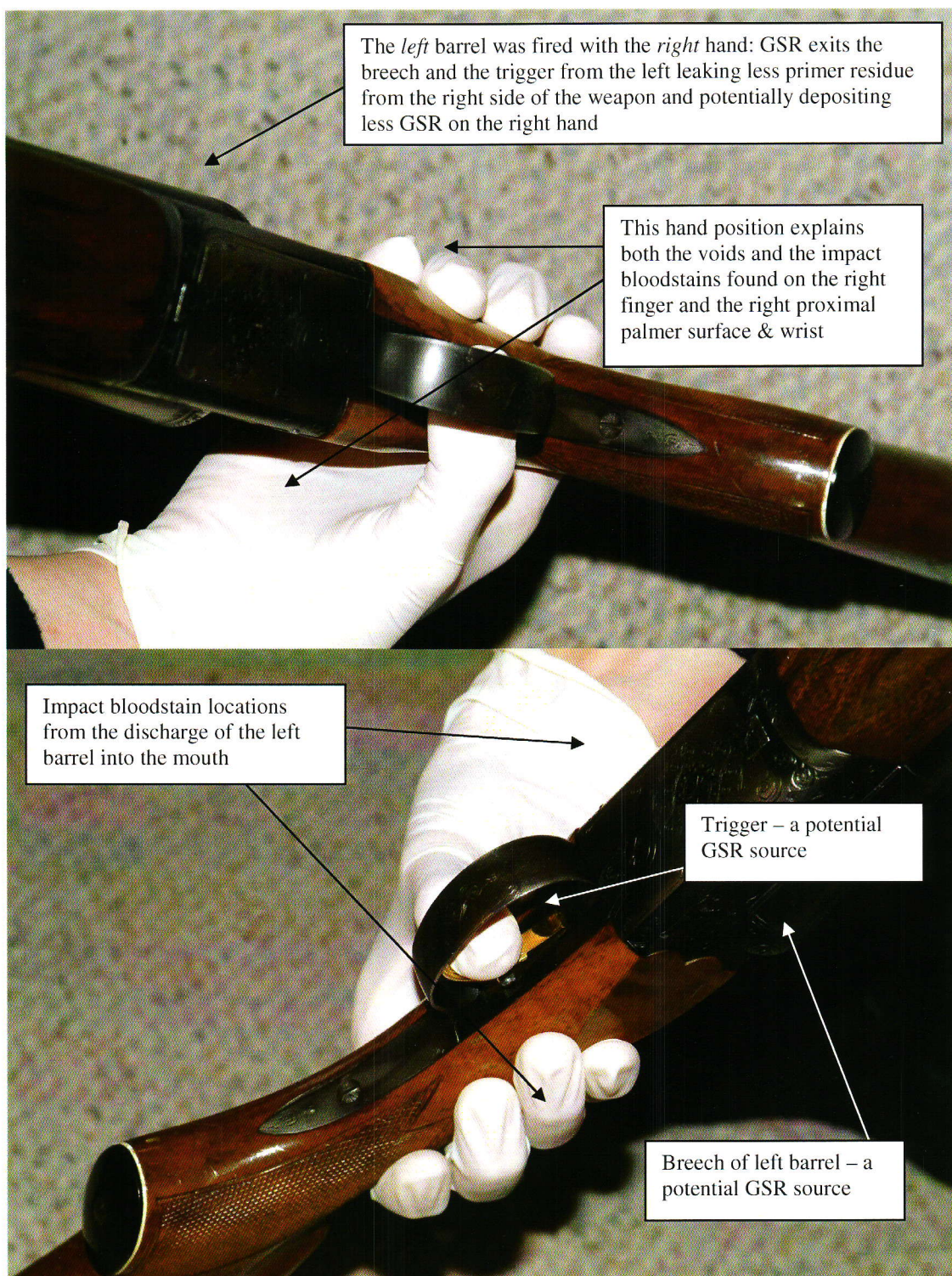
only one apparent blood stain
on the right upper wasteband
@ FLY appears upon gross
exam.

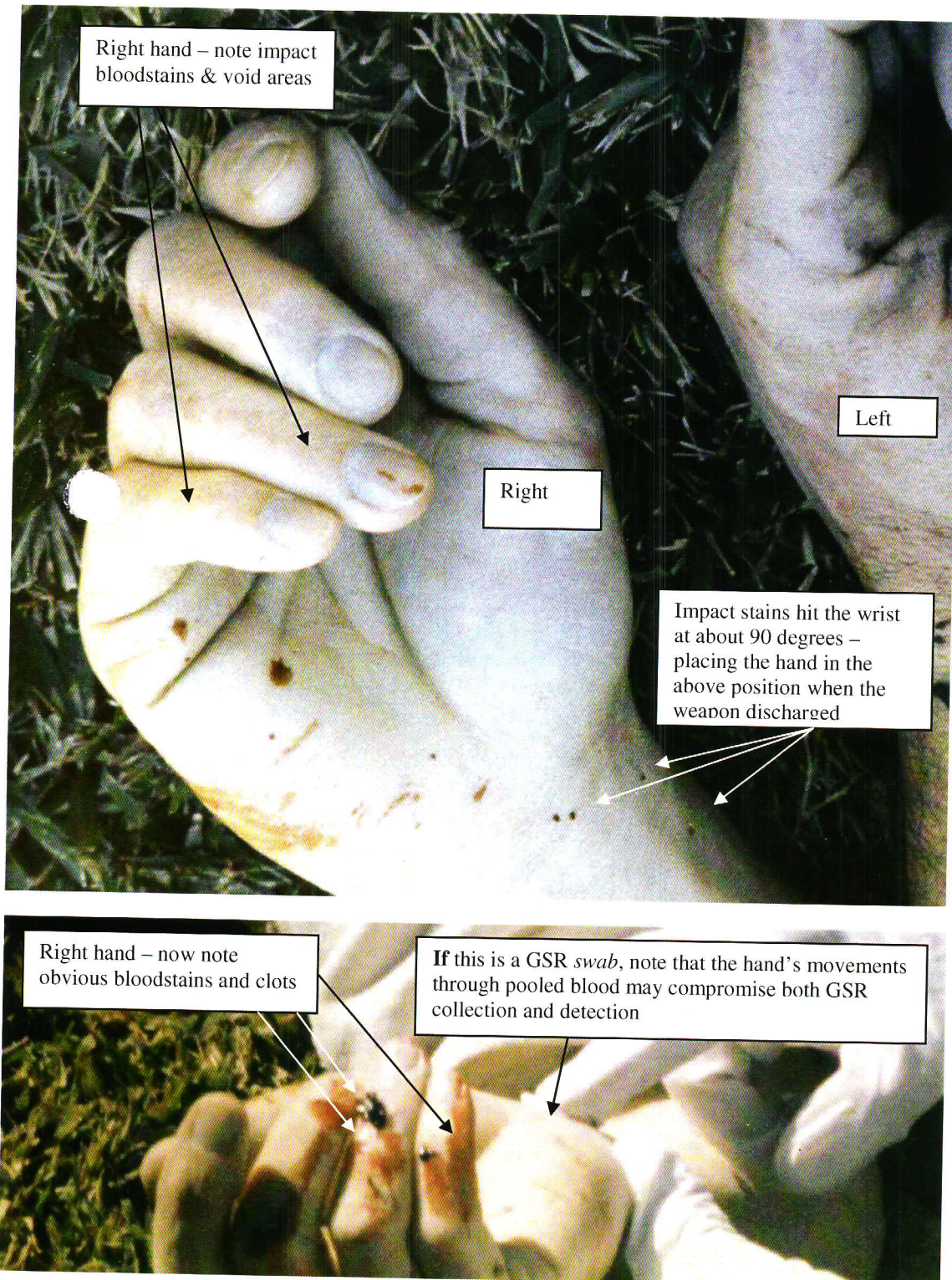
dark hair appear on garment
micro - shows other stains and GSR morph.
@ lower leg near cuffs

GSR* is detected on the lower edges of the pajama bottom as indicated in the drawing [*ASTM guidelines for GSR primer residues]. The Ithaca shotgun was fired from between the decedent's legs with the left barrel's breech toward the decedent and the trigger guard facing upward as he was seated - the robe and the pajamas each have GSR patterns at parallel levels placing the bottom edge of the robe at the same level as the bottom cuff of the pajamas. If the decedent were in some other position, then the pajama bottom's cuffs would be lower than the bottom edge of the bathrobe and the GSR pattern would appear differently than it does. This supports the conclusion that the decedent was seated in a vertical position, and leaning forward, when the left barrel of the shotgun was fired.

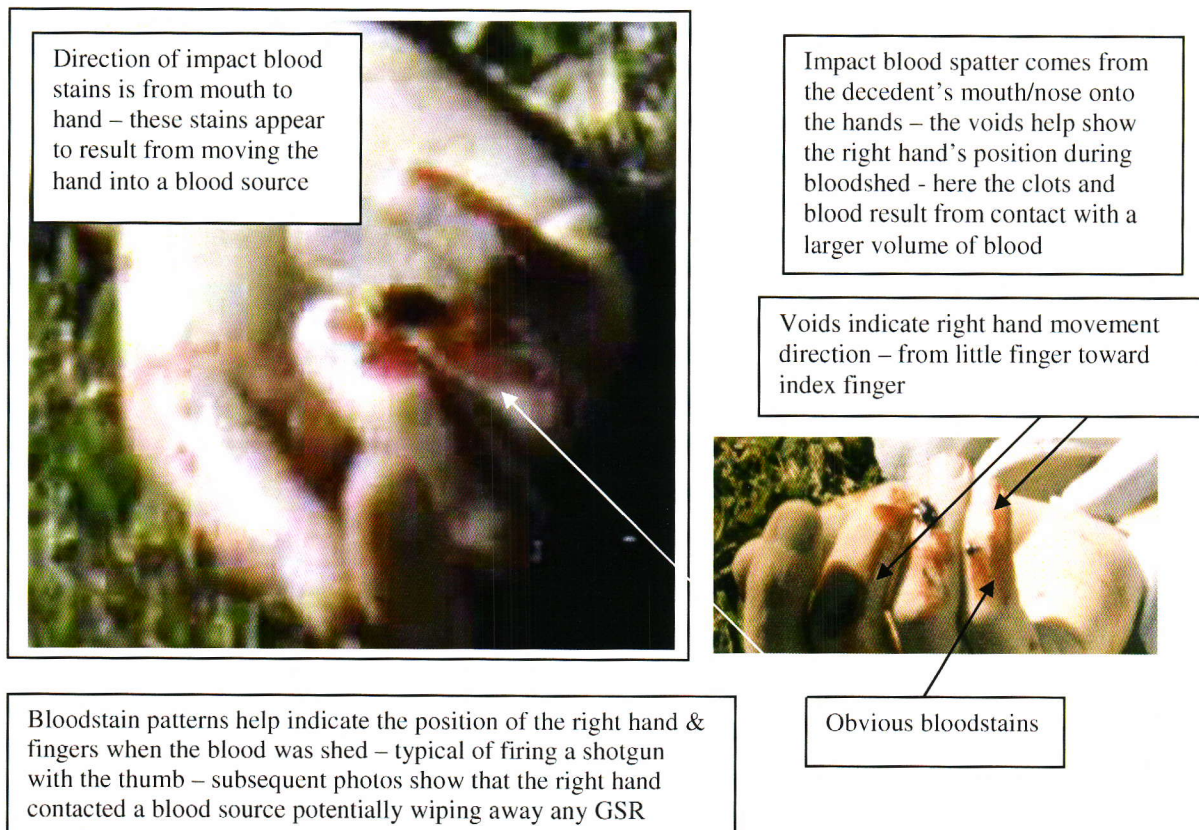
[See graphical representation of this page attached at the end of this section as page as page 31 of 285]







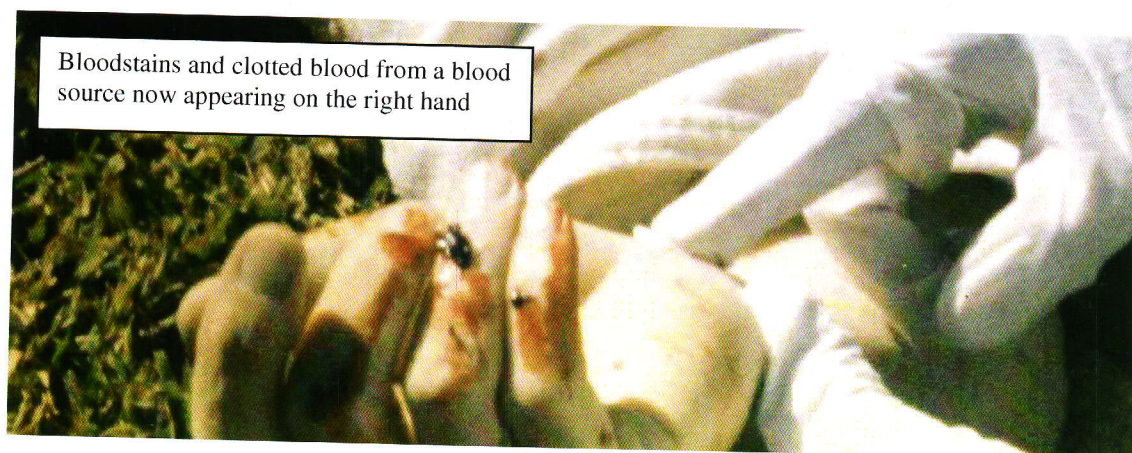
These two scene photo details indicate that the right hand has contacted the pool of blood in the grass – clearly bloodstains evident in the lower photo do not appear in the upper photo – this may also help explain the failure of GSR detection [note that this does not necessarily mean that no GSR was initially present anywhere on the right hand – the old saying “absence of proof is not proof of absence” applies here].



Impact blood spatter clearly appears on the right hand but as the body is moved, the hand apparently contacts a volume of blood on the grass [see photos, Appendix II Part 7] producing the larger volume of blood on the right hand seen in some of the above photographs. This movement may adversely affect the successful collection of any GSR which may be present [see further discussion in what follows].



Obvious bloodstains appear on the decedent's right hand above that do not appear in the other photographs – these stains alone could preclude the successful collection of GSR primer samples by SEM tape stub application. Attempts at GSR collection in such circumstances are rarely successful – the blood over any possible primer residues compromises the collection effort thereby compromising the ability to detect **GSR primer residues** in the collected samples.





The American Arms Gentry was used in the prior testing documented in the ROI, 2004. The *test* Gentry has the identical barrel configuration, choke, barrel length, measurements and weight as the Sabow Ithaca. The two are functionally equivalent when firing the same type of ammunition through the same barrel side. However, the *test* Gentry is not a high-quality shotgun like the *Sabow* Ithaca. While functionally equivalent when considering the effects of firing the same ammunition from the same barrel at the same close-range target, the different quality of their constructions will differently affect the dispersion of GSR

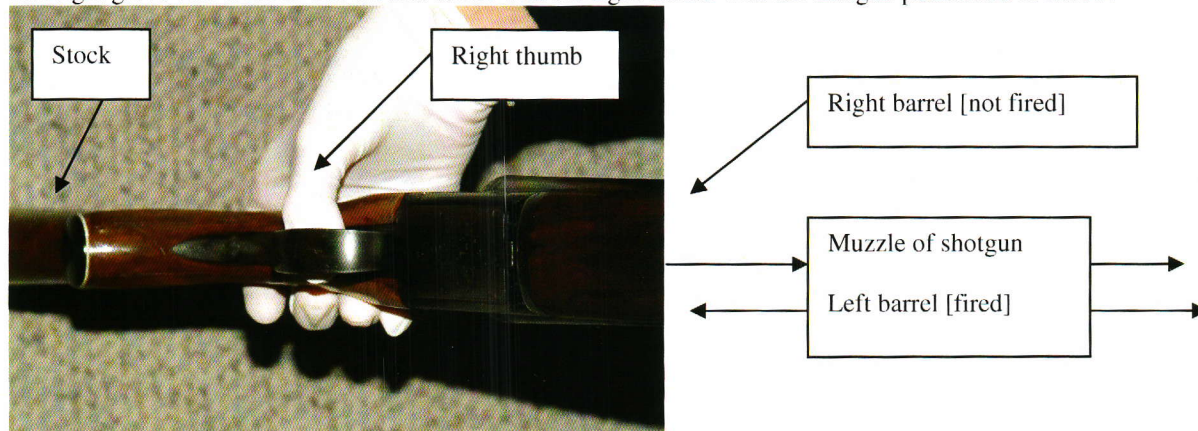
through the breech block and the trigger. Therefore, the two weapons potentially discharge GSR differently through breech-block leakage due to this difference and due to other individual weapon idiosyncrasies.

The higher quality Sabow Ithaca has a breech gap 3 times smaller than the *test* Gentry so the prior Gentry testing should produce *even more GSR leakage* through the breech and trigger than would the *Sabow* Ithaca. Firing the Gentry in the position at issue should therefore produce more GSR than would the Ithaca.

The Gentry was test fired with the right hand in the above position using the right thumb to fire the left barrel during the 2004 testing. The left barrel was fired once using the right thumb while wearing white cotton gloves to capture potential GSR leakage from the trigger and the breech. The white glove was first tested using XRF to detect any presence of the elements Sb, Ba, and Pb, which are typical of GSR primer residues. If those residues were present, then SEM EDX analysis would be used confirm the presence of GSR primers according to criteria discussed above. The results appear below.



The right glove was worn to fire the left barrel with the right thumb with the shotgun positioned as below:



AA GENTRY CSR TESTING - HANDS (prior TEST FIRES)

Run 2 - Left Hand - PPM (firing position)

PPM: primer residue analysis only (see spectrum for elements present)

Element	ppm	±1
Pb	139.06	4.02
Pb	138.06	4.02
Fe	70.47	16.05
Zr	50.51	1.62
Mo	40.50	2.04
Sr	27.42	1.22
Sr	27.42	1.22
Rb	15.21	0.98
As	13.07	2.71
Br	4.56	0.89

Pb
Fe

Reading #4 11-Aug-2006
field1 Sabow - GENTRY Testing
field2 Left hand glove
field3 PPM
field4 GSR - firing position only
fields
No Matches
Reading Time 12:13:36

Run 3 - Left hand - LEAP (firing position)

(see spectrum)
no Ba present

Element	ppm	±1
Ca	340.94	59.63
Fe	153.47	7.79
Mn	56.99	4.67
Cr	25.50	3.39

(-)

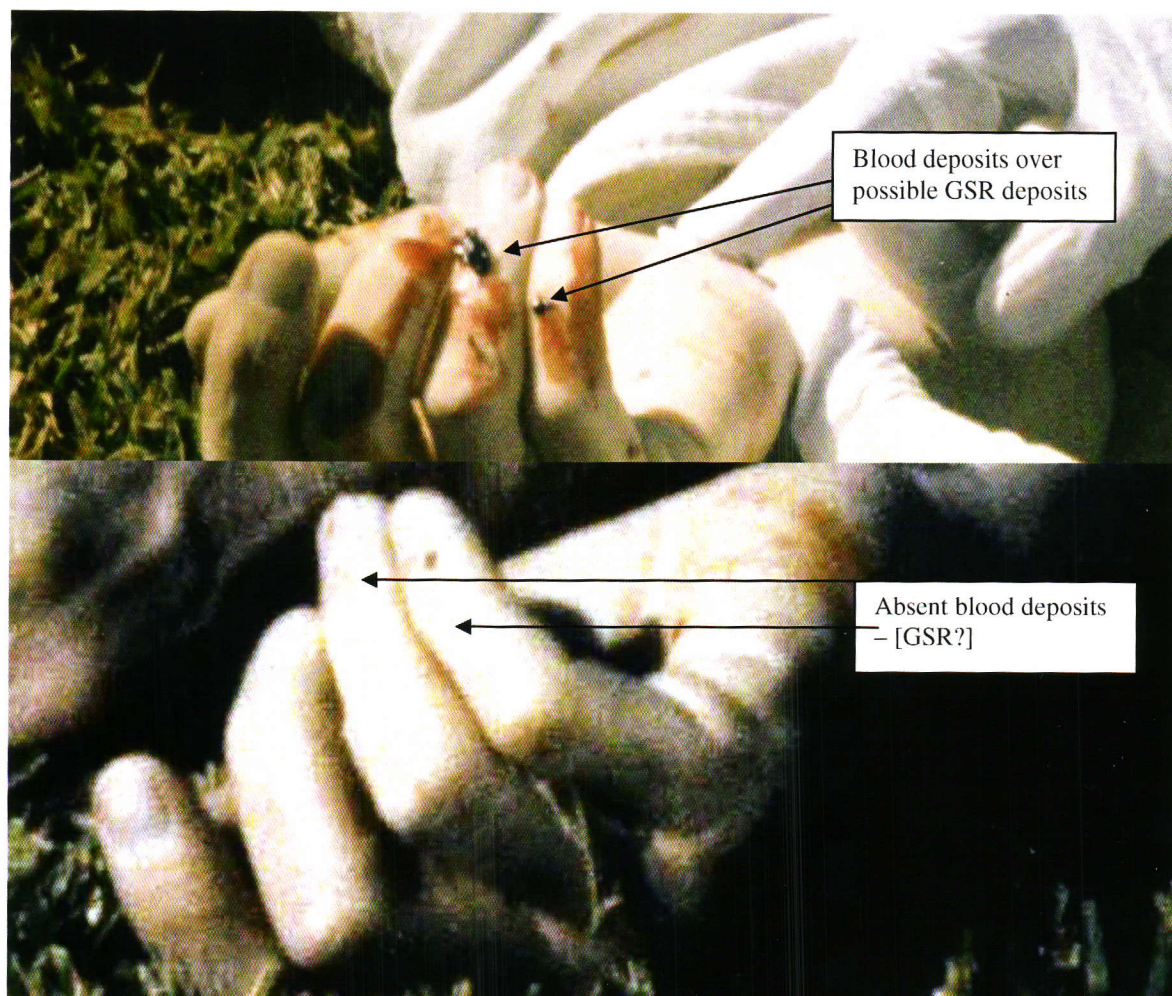
Reading #5 11-Aug-2006
field1 Sabow - GENTRY Testing
field2 Left hand glove
field3 LEAP
field4 GSR - firing position only
fields
No Matches
Reading Time 12:21:27

[To view the analytical results more clearly, use the % Zoom tool to increase the font size of the page].

No elements typical of GSR primers were found on the right cotton glove used in the above experiment. This is not surprising given the fact that the right-hand thumb was used to fire the **left barrel** and the fact that the breech of the left barrel was facing away from the right hand when fired. **HOWEVER, IT DOES NOT FOLLOW FROM THIS TEST THAT NO GSR PRIMER RESIDUES APPEAR ON THE TESTED RIGHT HAND GLOVE. OF COURSE WHAT DOES FOLLOW IS THAT OUR TESTING FAILED TO DISCOVER THEM.**

It also follows that IF GSR PRIMER RESIDUES APPEAR ON THE RIGHT HAND, THEN THEY APPEAR IN SUFFICIENTLY SMALL QUANTITIES TO PRECLUDE XRF DETECTION.

With a higher quality shotgun, such as the Sabow Ithaca, one would expect **LESS** breech-block trigger leakage than with the lower quality *test* Gentry. **HOWEVER, ONE MUST EXPECT TYPICAL GSR PRIMER RESIDUES TO LEAK FROM THE SABOW ITHACA'S BREECH - INDEED GSR PRIMER RESIDUES WERE FOUND ON COL. SABOW'S CLOTHING. THEY ALSO PROBABLY LEAKED ONTO HIS RIGHT HAND. BUT THE QUESTION IS: IF THEY DID LEAK ONTO HIS RIGHT HAND, WOULD THEY NECESSARILY HAVE BEEN DETECTED BY SEM STUB TAPE LIFTS, LIKE THEY WERE DETECTED ON HIS LEFT HAND?** There seem to be many possible reasons why they were not: blood volumes, wiping the hand through the blood source on the grass, unknown or unproductive stub locations for testing, minute discharge of primer residues too small for detection by the testing employed, etc. - we can never know for certain which of these many factors may apply.

Col. Sabow right-hand GSR

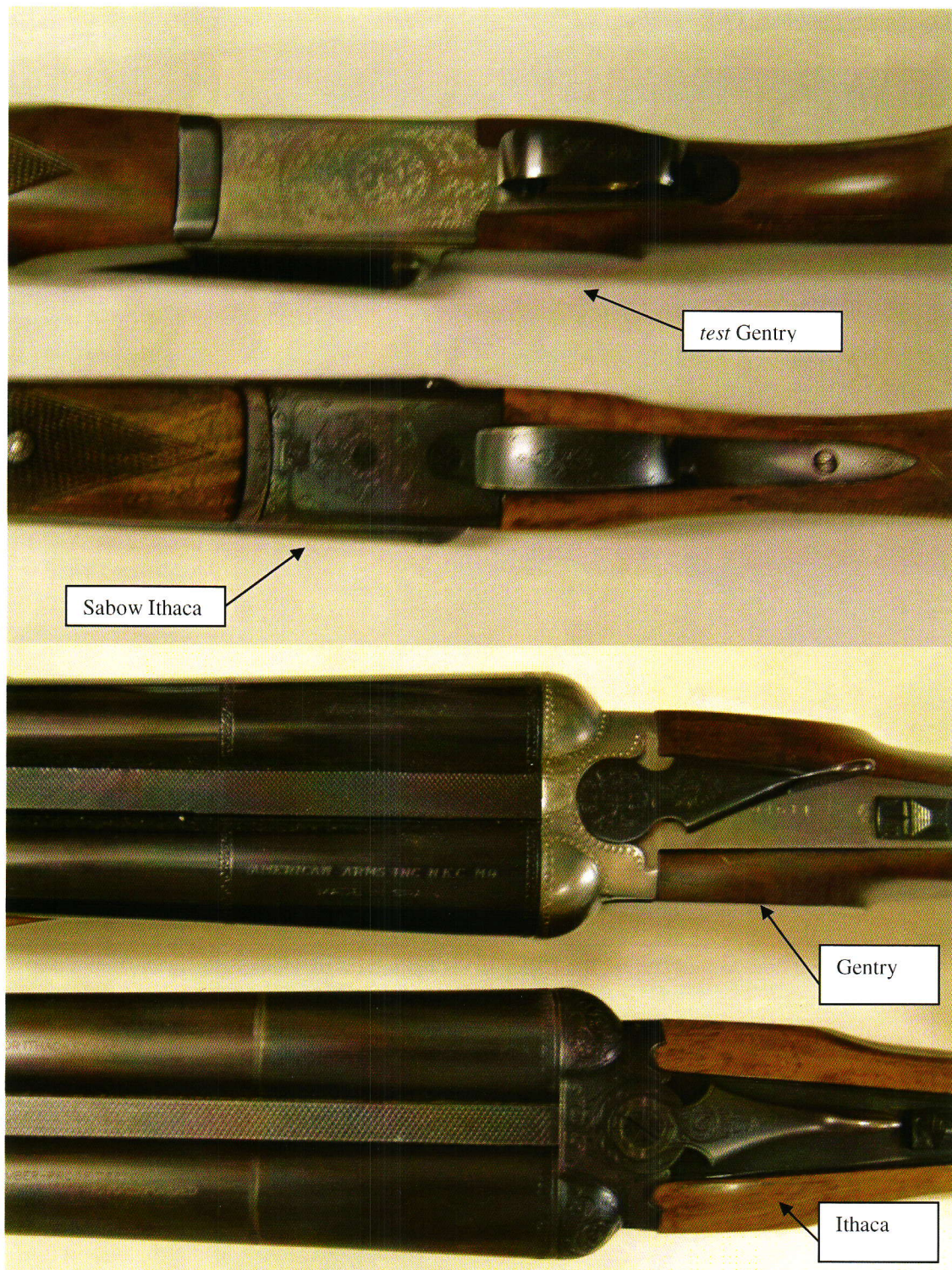
The simple failure to find Osama Bin Laden in the mountains of Afghanistan in 2001 does not *by itself* mean that he was never there.

Similarly,

The simple failure to find GSR on Col. Sabow's right hand in 1991 does not *by itself* mean that it was never there.

Each piece of available data has been analyzed and the support it provides for alternative shooting scenarios has been considered - homicide, suicide, and accident. The only constraints on the evidence are supplied by sound scientific practice. No datum or combination of data scientifically support that the manner of Col. Sabow's death is either homicide or accident. The factual support remains for his manner of death being suicide as originally determined by the medical examiner in 1991.

As scientists, we must be reticent to make too much out of too little.



The *test* Gentry and the *Sabow* Ithaca both share the same architecture. [See the detailed comparisons in Appendix II.]

American Arms Gentry shotgun - showing left barrel
side against breech - Jon J. Nordby, Ph.D., Final
Analysis Forensics

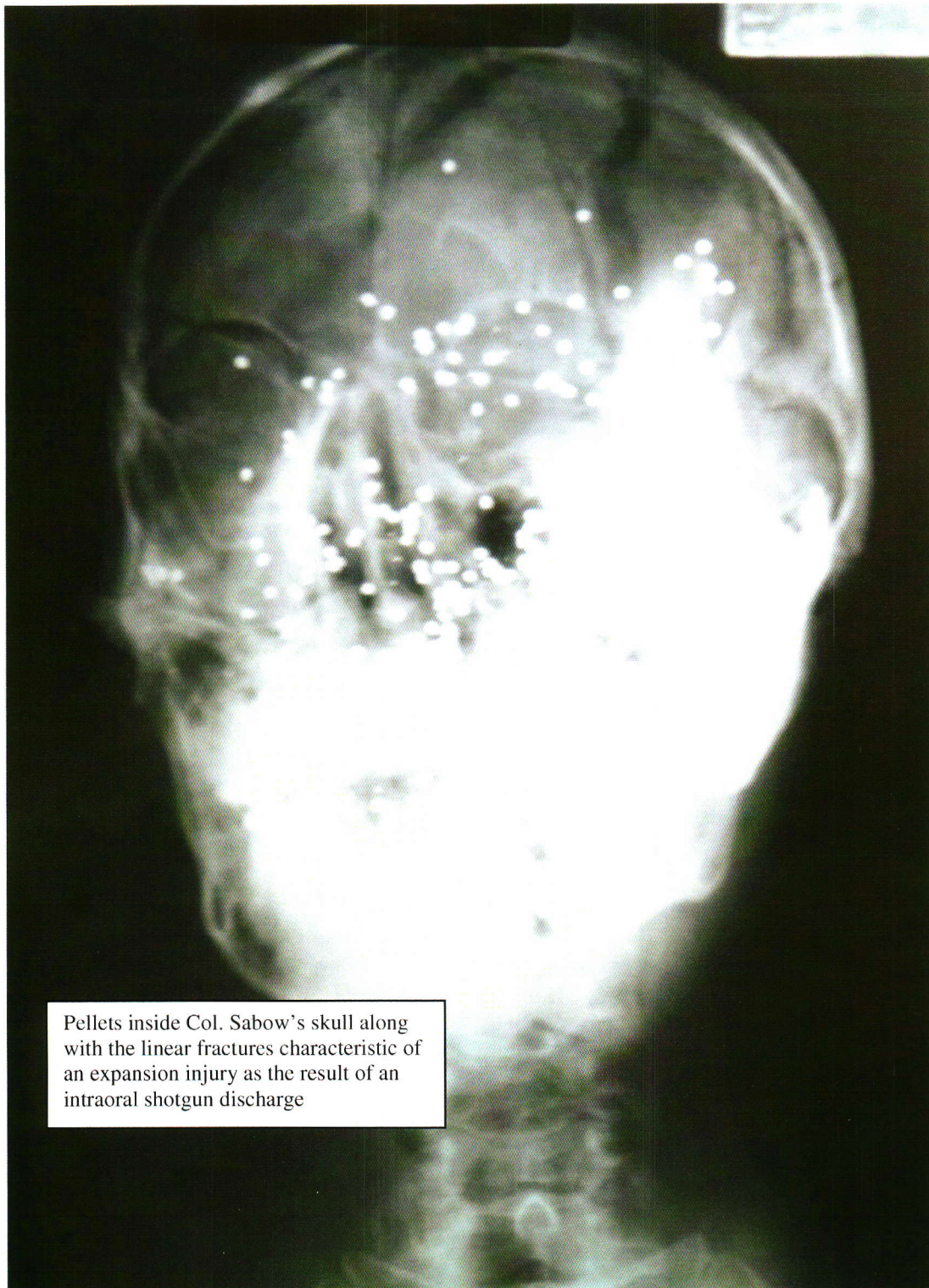
0.066 mm

Note that the *test* Gentry's left barrel breech gap is much greater than the left barrel breech gap on the Sabow Ithaca shotgun shown below: the *test* Gentry's gap is 0.044 mm bigger than the Sabow Ithaca's

Sabow - Ithaca shotgun - left barrel breech
gap - Jon J. Nordby, Ph.D., Final Analysis
Forensics

0.022 mm

The *test* Gentry's left barrel breech gap is THREE TIMES bigger than the left barrel breech gap on the higher quality Sabow Ithaca showing that the *test* Gentry will potentially allow even more GSR to escape from the breech than the Sabow Ithaca.

Col. Sabow Injuries

Pellets inside Col. Sabow's skull along with the linear fractures characteristic of an expansion injury as the result of an intraoral shotgun discharge

X-ray: all fractures of Col. Sabow's skull result from expansion forces – fractured from the inside outward.

No credible medical evidence indicates that Col. Sabow suffered anything other than expansion-type fractures of the skull. As noted in the 2004 ROI, a displaced fracture is not the same thing as a depressed fracture. [See observations from noted radiologist and former Board Chair of the AMA Timothy Flarity, MD in the 2004 ROI]. No contusions, abrasions, or lacerations from the application of external forces appear at the base of his skull or anywhere else according to the autopsy and to the available photographs.

Bloodstain patterns on the hands and clothing, the architecture of the Sabow Ithaca, and its propensity to leak GSR primer residues through the breech and trigger, together with the findings at the scene and at the autopsy (see 2004 ROI), support the original medical examiner's determination that Col. Sabow's death was a suicide.

The physical evidence received and analyzed supports the conclusion that Col. Sabow held the Ithaca shotgun between his legs while seated in the lawn chair, with the shotgun's trigger facing upward and foreword and the breech facing toward his feet (bottom of robe, pajamas, socks, and slippers). He used his left hand to hold the barrel in his mouth and he used his right-hand thumb to activate the trigger as reconstructed above.

The scientific analysis of the items as received 02-02-06 and the result of efforts to secure additional factual data relevant to this case neither suggest nor support any conclusion other than that Col. Sabow's death resulted from a self-inflicted intraoral shotgun wound. These findings support the conclusions reached and established by each of the prior official investigations into Col. Sabow's death [see 2004 ROI].

Jon

08-26-06

Jon J. Nordby, Ph.D., D-ABMDI
Consultant in Forensic Science & Forensic Medicine

Dated

3. Appendices: Assessment Details

Organization of Appendices

Appendix I – Items Received

Appendix II Part 1 – Laboratory Notes

Appendix II Part 2 – Bathrobe

Appendix II Part 3 – Bathrobe Microscopy

Appendix II Part 4 – Clothing Analyses

Appendix II Part 5 - Shotguns

Appendix II Part 6 – Clothing ALS

Appendix II Part 7 – Some Scene Photos

Appendix III – CV Data

4. Contributors

Note:

Image versions of page 6 of 285, page 7 of 285, page 13 of 285, and page 14 of 285 appear below. They are appended simply to make the original pages using the original laboratory drawings clearer and easier to read. [Images by Gary Knowles, Oregon State Police Crime Laboratory, (retired)].

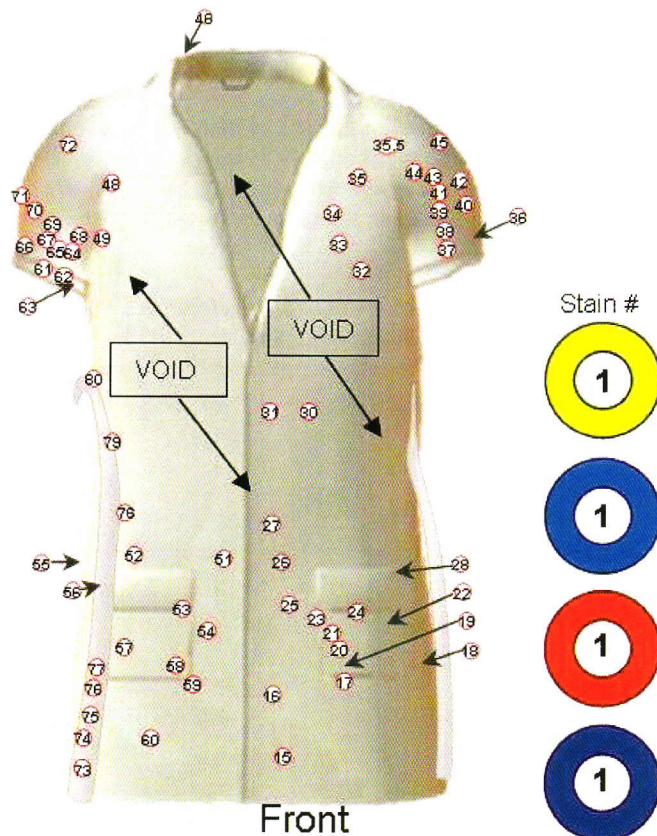
Impact Bloodstains: Mapped

[See lab notes]

Bathrobe – Item

Outside Map

Stains # 15 - # 80



NOT TO SCALE

15	21	27	33	39	45	51	57	63	69	75
16	22	28	34	40	45	52	58	64	70	76
17	23	29	35	41	47	53	59	65	71	77
			35.5							
18	24	30	36	42	48	54	60	66	72	78
19	25	31	37	43	49	55	61	67	73	79
20	26	27	38	44	50	56	62	68	74	80

(SEE PHOTO DOC &
PHOTOMICROGRAPHS)

Bloodstains documented on the robe show that the impact stains originated from above - note the void areas on the robe left by both the left right arms. [These voids are further depicted below]. Each circled number locates an impact bloodstain. Eighty stains are documented. Each stain has been analyzed and photographed through a digital microscope. These photomicrographs, as well as overall photos of the robe and its bloodstains, appear in Appendix II.