



The Patent Print

Official Publication of
The Utah Division of the I.A.I.
Chartered 1989
International Association for Identification

The President's Message



By Jame May

Well, I just wanted to thank all the people that attended the Fall meeting that was held at the Sandy City Police Department. The training was very informative and very interesting. The first part of the day was a presentation given by Lumachem. The presentation was on a forensic laser that is out for processing crime scenes. After that we had a presentation from Rocky Mountain Information Network. This presentation was on the computer system that they offer to law enforcement agencies to retrieve information on possible suspects, gang members, or any other information that you might need for a case.

After lunch we had a presentation from the D.E.A. on clandestine labs. The presentation went into how Meth is made to safety of processing a clandestine lab. If you were not able to make it to the training and would like information about any of the topics please give me a call at (801) 568-7187. Once the

training was done we held our business meeting. The nominations and votes poured in and the new board for 2000 are as follows:
President - James May (Sandy Police)
Vice President - Jeff Itami (Salt Lake County Sheriff)
Secretary - Doug Huntsman (Utah County Sheriff)
Treasurer - Barbara Reed (Salt Lake County Sheriff)

Congratulation to the new officers and I know that with this group of people, we should have some great training throughout the next year.

I was just informed at the fall meeting that Kent Timothy has been diagnosed with leukemia. He is having mild Chemo treatments and will likely go in for a bone-marrow transplant in February. I would like to let Kent know that we are thinking of him and we wish him the best of luck and a quick recovery. []

Utah Division I.A.I.

1999 Board

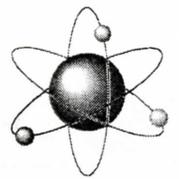
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* * * *



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Another Believer

On September 3, 1999, I came to work and discovered that I was to have a ride-along with me for the first 4 hours of my shift. The ride-along is a student from Weber State University doing his 100 hours of field training experience. We answered the first two assigned calls - both Hit and Run traffic accidents - for photographs. When we returned to the crime lab, I decided to show my student just how A.F.I.S. worked. I had a latent print from a bank robbery that had been developed with Ninhydrin and was on a bank deposit slip. The print was not of great A.F.I.S. quality, but then again, I like challenges. When I directly scanned the print in on our antiquated NEC Power Mate 360/20, I only received a minutiae count of 3 and a quality of "C". Explaining the AFIS system to the student and editing the print, I was able to raise the quality to a "B" and the minutiae count to 24. Off went the print.

Let me regress for a moment, while entering in the descriptive data for the print, my student stated that he recognized the case number as a case that he is working on - you see my student is a detective with the Salt Lake City Police Department and is assigned to the Robbery Division.

I had explained to the Detective, which is the first time in his 15 year police career that he had ever observed A.F.I.S. firsthand, that when the match is completed that we will either get a status of 'Done' or

'No-P' (I wanted so much for it to come back as 'Done'). It came back as 'No-p' and the Detective made a comment like "Oh well!". I then explained the importance of checking the candidate prints anyway, because I have in the past gotten hits on 'No-p'.

Three of the ten candidates had Utah SIDs (#1, #4, & #5). I showed him that the #1 candidate was born in 1973. To which he replied that the suspect was in his thirties. I advised him that candidate #4 was born in 1960, and asked him to look up the name and description on BCI UCCH. He discovered that candidate #4 was a black male, while his suspect is a white male. I had him check candidate #5 who was born in 1969. The check resulted in a very close match to the description of the suspect. We then looked at candidate #5 prints, specifically the number 7 finger, left index, and bingo - an extremely close likeness to the latent print on the deposit slip.

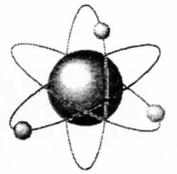
Detective Carl Merino then made the comment as he was leaving with the suspects information in hand, "I guess I can't go back upstairs and bad mouth the crime lab anymore!."

And that my fellow technicians is a good reason to check all the candidate prints, even if it comes back as No-P. []

Gary Johansen
Crime Lab Technician II
Salt Lake City Police Department.



" I guess I can't go back and bad mouth the crime lab anymore!"



SPR

Small Particle Reagent

by Pat Wertheim,
Director of Training, F.I.T.S.

Small Particle Reagent (also referred to as SPR) is the common lab name for molybdenum disulfide (MoS₂) when used as a fine powder suspension in water. The word "suspension" refers to particles of insoluble material mixed into the water, but not dissolved in it. The word "solution" would be used for a substance which actually dissolves in the water. The MoS₂ particles are insoluble in water, but can be held in suspension when a small amount of detergent is added. MoS₂ is soluble in oils, so when the SPR suspension comes in contact with an oily patch on a surface, the MoS₂ particles stick to the oil. Therefore, if a latent print has an oily component such as sebum, it develops with the color of the SPR, dark gray to black. The print can be allowed to dry and then may be lifted in normal fashion.

SPR may be used on either wet or dry surfaces. Sprayed onto dry surfaces that have not been wet, SPR has been reported to be successful for developing latent prints

on paper, cardboard, new metal, rusty metal, bricks, rocks, concrete, plastic, vinyl, wood, galvanized metal and glass. The success of the method depends on the amount of sebaceous material, or oil, present in the latent print.

Because it is used in a water-based suspension, SPR is most widely known for its ability to develop print on wet surfaces. This method works because the oily residue in the fingerprint is held in place by surface tension of the water. Items recovered wet should be kept wet in the same water in which they are found until they can be processed. As long as the latent prints remain wet, the oils retain the shape and detail of the fingerprints. However, if the surface is exposed to air and the water drains off or evaporates, the oily residue tends to spread out or run as the surface dries, resulting in

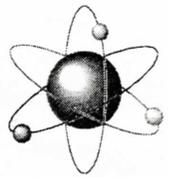
Because it is used in a water-based suspension, SPR is most widely known for its ability to develop print on wet surfaces.

smudged prints. Processing with SPR before the surface dries will develop and fix the prints.

Items may be processed for latent prints during or after rain, or if they have been submerged. The suspension itself can even be used under water as long as it reaches the latent print in sufficient concentration to deposit the MoS₂ on the oily residue. SPR can also be used where foreign residue would prevent the use of

dry powder, such as on a soft drink can coated with sticky droplets of the beverage, or on a bar top with spilled drinks on it.

SPR is prepared by mixing approximately an ounce of MoS₂ powder in a quart of water. In metrics, one would measure about 30 grams of MoS₂ per liter of water. In either case, two or three drops of laboratory detergent is added. One good detergent for this purpose normally used in darkrooms is PhotoFlo®. The detergent should be used sparingly, however; too little and the MoS₂ will overdevelop the background, too



much and the detergent itself will degrade the latent. The MoS₂ and detergent are placed in water in a bottle or jar with a watertight lid, and shaken vigorously to create the suspension. It looks similar to dirty used motor oil when it is ready to use. The SPR must be agitated frequently during use, usually by shaking the bottle from which it is being dispensed.

It has been reported that adjusting the pH on the suspension to somewhere between 3 and 4 by the addition of acetic acid increased the effectiveness of the SPR. If you want to try this, mix the suspension first, then add a few drops of acetic acid. Monitor the pH with test paper and add a few drops of acetic acid at a time until the correct pH range is established.

SPR is normally sprayed on the wet surface being examined for latents. For example, if a vehicle were submerged in a lake and a request was pending for a latent prints examination, SPR would be sprayed liberally onto the wet vehicle body and glass surfaces just as it was being removed from the lake, and prior to its drying off in the air. After the SPR is sprayed onto the surface, it must be rinsed off with clean water before it begins to dry. All that remains

after rinsing is the MoS₂ which has adhered to the latent print. The latent print may then be photographed and, after it has dried, lifted. ^B

Smaller items may be processed using the SPR in a tray. The items should be submerged in SPR with the side to be processed facing up, then removed and rinsed under clean water. If all sides are to be examined, an object should be submerged in SPR and turned, allowing each side several seconds of exposure upwards. As with SPR in a spray bottle, the suspension must be agitated or stirred frequently to ensure the MoS₂ remains in suspension and does not sink to the bottom of the tray.

Experiments by the Israel National Police have also found SPR effective at arson scenes in developing latent prints from glass fragments coated with an accelerant such as gasoline or kerosene, even after burning. Because accelerants are usually oil-based substances, it was found necessary to increase the detergent concentration to

around 10 ml per liter of water and the MoS₂ to 200 grams per liter. Surfaces coated with soot should be cleaned by sonication in toluene prior to application of the SPR. (See *The Journal of Forensic Identification*, Vol. 46,, No.5, September/October 1996.)

Although the Home Office, in its *Scene of Crime Handbook of Fingerprint Development Techniques*, says that MoS₂ present no known hazards,

Experiments by the Israel National Police have also found SPR effective at arson scenes in developing latent prints from glass fragments coated with an accelerant . . .

Molybdenum and its compounds are listed by others as being toxic.

Therefore, precautions are recommended in the use of SPR. Wear gloves and a dust mask when mixing the MoS₂, and again when spraying

the SPR. The compound is extremely messy, as well, and clean up may be necessary after use. Soap and water are usually sufficient to remove the unwanted residue left by SPR. []

Pat A. Wertheim, Director of Training Forensic Identification Training Seminars, Ltd.

1230 Hoyt Street SE
Salem, OR 97302-2121

SCHROEN, John
Utah State Dept. Of Commerce
P.O. Box 323
Salt Lake City, UT 84110
#99-06 1999

RIGBY, Robert
Murray City Police Dept.
5025 South State Street
Murray, UT 84157
#93-08 1997***

RIMMASCH, Paul
Weber Co. Sheriff-CSI
457 26th Street
Ogden, UT 84401
#95-15 1998

ROBELLO, Cynthia
F.B.I.
Medical Examiner's Office
48 North Medical Drive
Salt Lake City, UT 84113
#94-08 1994***

ROGERS, Scott
LumaChem Inc.
3675 West 1987 South
Salt Lake City, UT 84104
#98-06 1998

ROMNEY, Jason David
Weber-Metro CSI
457 26th Street
West Jordan, UT 84088
#99-05 1999

STIPANOVICH, Justin
Nevada State Division of I.A.I.
c/o LVMPD Criminalistics
6759 West Charleston Blvd.
Las Vegas, NV 89146-9003
#99-10 2001

SAMSON, Bradley
Student-Weber State
c/o LVMPD Criminalistics
6759 West Charleston Blvd.
Las Vegas, NV 89146-9003
#98-05 1998

TAYLOR, Ann
Student-Weber State
650 S. Main #9302
Bountiful, UT 84010
#96-12 1999

MITCHELL, Travis
Duchesne Co. Sheriff
P.O. Box 985
Duchesne, UT 84021
#97-10 1999

MOLINE, Jeffrey
Salt Lake City Police
315 E. 200 S.-Crime Lab
Salt Lake City, UT 84111
#98-03 1998

MOUSLEY, Steve
Salt Lake Co. Sheriff
437 S. 200 E. Crime Lab
Salt Lake City, UT 84111
#94-01 1999

NIELSON, Valeri
Medical Examiner's Office
48 North Medical Drive
Salt Lake City, UT 84113
#94-08 1994***

OSTLER, Calvin
LumaChem Inc.
3675 West 1987 South
Salt Lake City, UT 84104
#98-06 1998

PALMER, Charles
West Jordan Police
8000 S. Redwood Rd.
West Jordan, UT 84088
#98-04 1998

PARKIN, Deborah
Salt Lake Co. Sheriff
437 S. 200 E. Crime Lab
Salt Lake City, UT 84111
#93-07 1999

RAWSON, Raelene
Student
927 E. 800 S., #9
Salt Lake City, UT 84102
#96-01 1997***

REED, Barbara
Salt Lake Co. Sheriff
437 S. 200 E. Crime Lab
Salt Lake City, UT 84111
#96-04 1997***

KLINETOP, John L.
West Valley City Police
3600 So. Constitution Blvd.
West Valley City, UT 84119
#99-03 1999

LASSIG, Manfred F.
Salt Lake Co. Sheriff
437 S. 200 E. Crime Lab
Salt Lake City, UT, 84111
#97-05 1999

LENZER, Cheryl A.
Salt Lake Co. Sheriff's
437 S. 200 E. Crime Lab
Salt Lake City, UT 84111
#99-04 1999

MACCONAGHY, Gabbi
Utah B.C.I. - AFIS Section
4501 South 2700 West,
Salt Lake City, UT 84119
#93-13 1997***

MASNER, James W.
Millard Co. Sheriff
Star Rt. Box 50, 765 S. Hwy 99
Fillmore, UT 84631
#88-10 1997***

MAY, James
Sandy Police Dept.
10000 S. Centennial Pky.
Sandy, UT 84070
#95-04 1999

MAYFIELD, Steven
Salt Lake City Police
315 E. 200 S., Crime Lab
Salt Lake City, UT 84111
#96-05 1999

MCNAIR, Jennifer
State of Utah Crime Lab
4501 South 2700 West,
Salt Lake City, UT 84119
#94-24 1999

MEACHAM, James
Cache Co. Sheriff
50 West 200 North
Logan, UT, 84321
#97-09 1997**

ILLSTLEY, Valen
West Valley City Police
3600 So. Constitution Blvd.
West Valley City, UT 84119
#97-14 1997***

ITAMI, Jeff
Salt Lake Co. Sheriff's
437 S. 200 E. Crime Lab
Salt Lake City, UT 84111
#88-09 2000

JACKSON, Paige
Student-Weber State
4000 Brinker Ave. #42
Ogden, UT 84403
#97-01 1997***

JENSEN, Yvonne
Student
864 East Baker Drive
Midvale, Utah 84010
95-22 1997***

JEWKES, Darren
State of Utah Crime Lab
4501 South 2700 West,
Salt Lake City, UT 84119
#93-10 1999

JOHN, Gary
Canyon Co. Sheriff's
9060 Cherry Lane
Nampa, ID 83687
#93-05 1997***

JOHN, JR.
Davis Co. Sheriff
800 W. State St., Box 618
Farmington, UT 84025
#97-03 1997***

JOHANSON, Gary
Salt Lake City Police
315 E. 200 S., Crime Lab
Salt Lake City, UT 84111
#96-09 1998

KIDO, Karen
Salt Lake City Police
315 E. 200 S.
Salt Lake City, UT 84111
#94-16 1999

GUNSOLLEY, Christian
Student-Weber State
2432 Van Buren #8
Ogden, UT 84401
#96-07 1998

HACKLEY, Daniel
Weber Co. Sheriff's Office
457 26th Street
Ogden, UT 84401
#95-07 1997***

HATCHER, Veronica
Utah B.C.I.-AFIS Section
4501 South 2700 West
Salt Lake City, UT 84119
#95-21 1997***

HATCHETT, Julie
Utah B.C.I.-AFIS Section
4501 South 2700 West
Salt Lake City, UT 84119
#95-22 1997***

HILLIARD, Shawna Kaye
State of Utah Crime Lab
4501 S. 2700 W., Box 148285
Salt Lake City, UT 84114
#99-14 1999

HOWELLS, Lesley B.
Twin Falls Police
P.O. Box 1907
Twin Falls, ID 83303-1907
#96-17 1998

HUNT, Robert
Davis Co. Sheriff's Office
800 West State Street
Farmington, UT 84025
#94-05 1997***

HUNTSMAN, Doug
Utah County Sheriff
3075 N. Main
Spanish Fork, UT 84660
#96-02 1999

ILLSTLEY, Charles
West Valley City Police
3600 So. Constitution Blvd.
West Valley City, UT 84119
#89-06 1997***

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TERKELSON, Art
No. Utah Crime Lab
1250 University Circle
Ogden, UT 84408-1250
#88-14 1997***

THOMAN, Charles
Sandy Police Dept.
10000 S. Centennial Pkwy.
Sandy, UT 84070
#99-13 1999

THOMPSON, Donna
Forensic Nurse Examiner
2639 Skyline Dr.
Salt Lake City, UT 84117
#99-07 1999

THROCKMORTON, George
Salt Lake City Police
315 E. 200 S. Crime Lab
Salt Lake City, UT 84111
#94-22 1999

TIMOTHY, Kent
West Valley City Police
3600 So. 2700 W., C.S.I.
West Valley City, UT 84119
#95-16 1999

TYRRELL, Kellie
Utah B.C.I.-AFIS Section
4501 S. 2700 W.
Salt Lake City, UT 84114-8280
#97-06 1997***

VILLALOBOS, Tristan
Weber-Metro CSI Unit
457 26th Street
Ogden, UT 84401
#96-14 1997***

WEAVER, Daniel
Salt Lake City Police
315 E. 200 S., Crime Lab
Salt Lake City, UT 84111
#93-13 1999

WOODS, Joy
American Fork Police
1912 West 1100 North
American Fork, UT 84003
#97-12 1997***

WRIGHT, Richard
State Crime Lab
4501 South 2700 West
Salt Lake City, UT 84119
#91-02 1999

**Extra Addresses for
Newsletters:
NOT MEMBERS
Not Members of Utah**

**PARKER, Charles, Crime
Lab. Services MSC0460
Texas Dept. of Public Safety
Latent Print Section
P.O. Box 4143
Austin TX, 78765-4143**

**DAURY, Ardis
N.Y.S. Identifler
P.O. Box 295
Rensselaer, NY 12144-0295**

**BRYANT, Brenda
Institute of Applied Science
P.O. Box 639
Youngsville, NC 27598-0639**

**POLSKI, Joseph P.
I.A.I. Executive Secretary
2535 Pilot Knob Road, Suite
117
Mendota Heights, MN 55120-
1120**

**GRIEVE, David L.
I.A.I. Editor
P.O. Box 2226
Carbondale, IL 62902-2226**

**FUTRELL, Ivan
FBI Fingerprint Section
10th & Pennsylvania Av.NW
Washington, D.C. 20515**

**SMITH, Ron
Mississippi Crime Lab
P.O. Box 4450
Meridian, MS 39304**

**HAYES, Kristin R.
Orange Co. Sheriff Off.
2450 W. 33rd Street, Lab
Orlando, FL 32839**

**Pat & Bonnie Wertheim
Forensic Identification
Training Seminars, LLC
FITS.
P.O. Box 4232
Salem, Oregon 97302**

**OLIVER, James "Jim"
Editor-Lone Star
ForensicJournal
1803 12th Street
Galenda Park, TX. 77547-
2303**

**CROOKER, Ashley R. Jr.
I.A.I. Secretary-Treasurer
P.O. Box 2423
Alameda, CA 94501-2423**

ACREE, Randall
FYI, Research Investigator
555 N. 400 W. #38
Centerville, UT 84014
#98-01 1998

BARBER, Cindy
Utah B.C.I.-AFIS Section
4501 South 2700 West
Salt Lake City, UT 84119
#95-17 1997***

BAZARNIK, Ted
State of Utah Crime Lab
4501 South 2700 West,
Salt Lake City, UT 84119
#94-23 1997***

BELL, John
Salt Lake Co. Sheriff
437 South 200 East
Salt Lake City, UT 84111
#88-01 1997***

BIER, J. Gabriel
State of Utah Crime Lab
4501 S. 2700 W., Box 148285
Salt Lake City, UT 84114
#97-07 1997***

BOREN, David
Duchesne Co. Sheriff
P.O.Box 985
Duchesne, UT 84021
#97-08 1997***

BRYNER-BROWN, Su
Forensic Nurse Examiner
4848 S. Highland Dr. #346
Salt Lake City, UT 84117
#98-02 1998

BRYSON, Gordon
Sandy Police Department
10000 S. Centennial Pkwy.
Sandy, UT 84070
#99-11 1999

BURGON, Lynn
Investigator
1314 South Roberta
Salt Lake City, UT 84115
#91-03 1997***

BURNS, LaMar
West Valley City Police
514 South 200 East
Bountiful, UT 84010
#95-18 1999

CARRICK, Michael
Lightning Powder Co.
1230 Hoyt Street
Salem, OR 97302-2121
#89-03 Life

CAUDLE, Derald
The Phoenix Group
205 N. Walnut
Pittsburg, KS 66762
#99-01 1999

CAWLEY, William
Salt Lake City Police
315 East 200 South
Salt Lake City, UT 84111
#95-10 1999

CECIL, Danielle
Salt Lake Co. Sheriff
437 S. 200 E. Crime Lab
Salt Lake City, UT 84111
#99-12 1999

CHAMBERS, Dennis
Twin Falls Police
P.O.Box 907
Twin Falls, ID 83303-1907
#96-16 1998

CRANE, Barbara
Utah B.C.I. - AFIS Section
4501 South 2700 West
Salt Lake City, UT 84119
#88-04 1997***

CROOK, Russell
Dental Lab Tech - Forensic
2366 W. Bueno Vista Dr.
West Jordan, UT 84088
#99-15 1999

DAWSON, Dale
Helper City Police Dept.
73 South Main
Helper, UT 84526
#94-25 1998

DEAN, Russ
Weber-Metro CSU
457 26th Street
Ogden, UT 84401
#99-02 1999

DERYKE, Bud
Clearfield Police Dept.
140 East Center Street
Clearfield, UT 84015
#93-25 1999

EKKER, Kyle
Emery Co. Sheriff's Office
295 M. Center Street
Castle Dale, UT 84513
#88-06 1997***

ERICKSON, Alice
Utah B.C.I. - AFIS Section
4501 South 2700 West
Salt Lake City, UT 84119
#93-18 1997***

FIORENZA, Tom
Essex Co. Attorney
328 White Oak Ridge Rd.
Short Hills, NJ 07078
#88-07 Life

FRISBEE, Jan
Utah B.C.I.-AFIS Section
4501 South 2700 West
Salt Lake City, UT 84119
#95-20 1997***

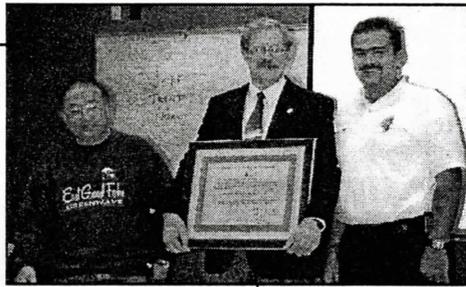
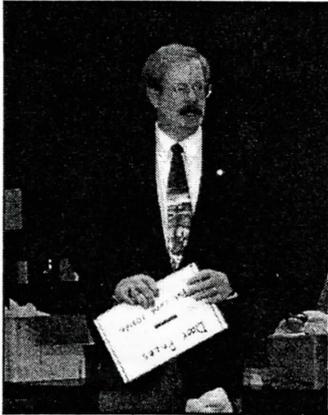
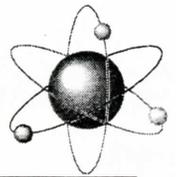
GASKILL, James
Weber State University
1206 University Circle
Ogden, UT 84408-1206
#94-13 1997***

GRANDY, Trenton
Salt Lake City Police
785 East Elgin Ave.
Salt Lake City, UT 84106
#94-14 1999

GREEN, Richard
Salt Lake City Police
315 E. 200 S., Crime Lab
Salt Lake City, UT 84111
#96-08 1999

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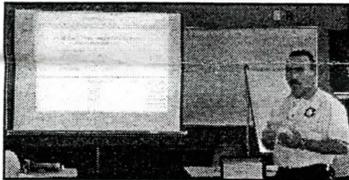
Passing The Torch

Kent Timothy, words of Wisdom and Appreciation for your support, as the 1998 & 1999 President..

James May & Jeff Itami giving their acceptance speeches.

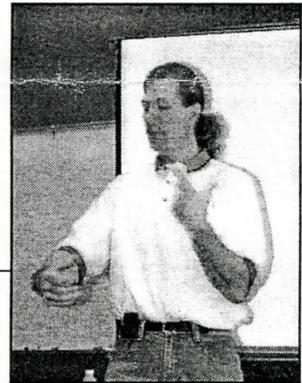


Lumichem's Argon Laser.

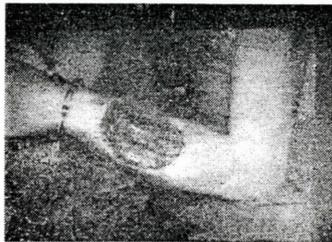


R.M.I.N.'s slide presentation.

Clandestine Labs are the #1 drug problem in Utah. Per capita, Utah leads the nation in Clandestine Labs discovered.



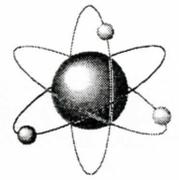
Injection is a popular method to take Meth.



This is your arm on METH.



Giving out door prizes.



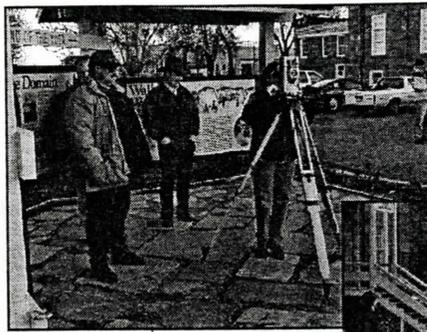
The Editor's Corner

I would like to pass on some details and pictures of the spring meeting that was held in Filmore Utah. The new technology in Laser Measuring devices has come a long way. The meeting showed several software packages that automatically take the measurements at the crime scene and draws the scene for you. A great time saver.

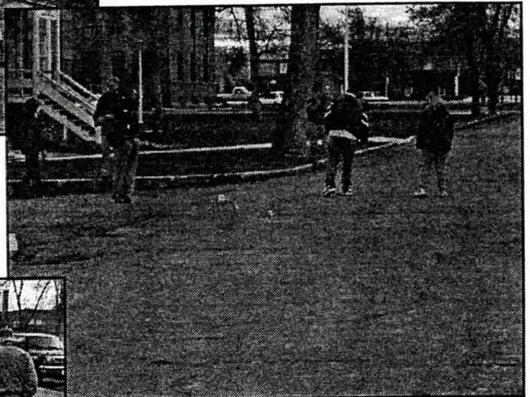
It was also announced that Trent Grandy had passed the Latent Print Certification Test and is now the third person in Utah that is Certified.

The International Association for Identification Conference held in Milwaukee was a great success as usual. As an attendee we were updated on several new things. (We discussed the recent ruling on fingerprinting as a developed science.)

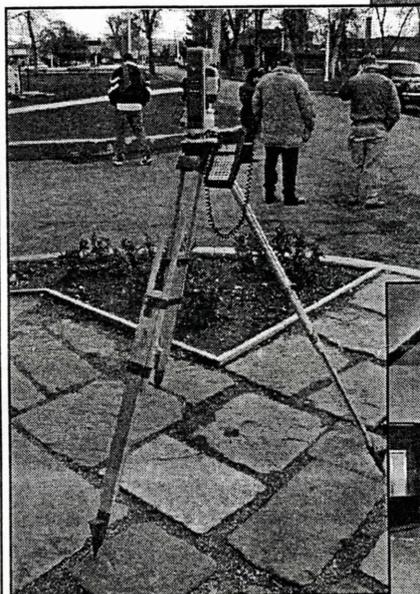
* * * * *



Taking instruction on measuring outside crime scenes.



Looking for items of evidence so we can measure them.



Look over there, you missed one.



Our inside crime scene where we used a smaller and less expensive measuring device.

We want to thank the Salt Lake County Sheriff's Office and Jeff Itami for sponsoring and putting on the training, as well as the other participants.