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Additional Work Performed During the Years 1997 to 2000 on the Investigation of the Death of Marilyn Reese Sheppard by the Cuyahoga County Coroner's Office

Elizabeth K. Balraj

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CORONER
Elizabeth K. Balraj, M.D.

February 11, 2000

Marilyn Reese Sheppard
Coroner's Case #76620
Autopsy #M-7280
Date of Death: July 4, 1954

Written opinion of Elizabeth K. Balraj, M.D., Forensic Pathologist and Coroner of Cuyahoga County, February 11th, 2000 - addendum.

Re: Marilyn Reese Sheppard death investigation and additional work performed during the years 1997 to 2000, by the Cuyahoga County Coroner's Office.

Materials Reviewed and Additional Tests Performed.

Materials reviewed:

1. Autopsy Protocol.
2. Coroner's Verdict.
3. Report of Laboratory Findings.
4. Photographs of body and crime scene.
5. Summary of Trace Evidence Report prepared by Ms. Mary Cowen.
6. Coroner's Inquest.
7. Police Report.

Additional Work Performed at the Cuyahoga County Coroner's Office from 1997 to 2000:

1. Disinterment of the body of Dr. Samuel Holmes Sheppard on 17th of September 1997 from Forest Lawn Memorial Gardens Cemetery, 5600 East Broad Street, Columbus, Ohio 43213, by Elizabeth K. Balraj, M.D., for the plaintiff.



CORONER
Elizabeth K. Balraj, M.D.

2. Disinterment of the body of Marilyn Reese Sheppard (Case #76629, Autopsy #M-7280; and Fetus (Case #76629F), from Knollwood Cemetery, 1678 SOM Center Road, Mayfield Heights, Ohio 44124, on the 5th of October 1999, by Elizabeth K. Balraj, M.D., for the Cuyahoga County Prosecutor.
3. Results of DNA testing of male fetus and Marilyn Reese Sheppard.
4. Head injury reconstruction to study effects and resultant injuries on a skull, (visually and radiologically) produced by various weapons, namely: 1950's vintage flashlight, channel lock pliers, fire place poker, and adjustable crescent wrench. Tests performed on December 15th, 1999.
5. Review of Cuyahoga County Coroner's Office files for other cases of injuries by blunt objects (weapons) to study wound patterns.
6. Results of "weapon" imprint analysis on pillow case to determine the nature of the blood imprint observed on the pillow case.
7. Source of blood trail in the Sheppard home. Compared the number and size of blood stains deposited on a stairwell using bloodied channel lock pliers, a bloodied pipe, and a pipette containing blood.
8. Results of the photographic analysis of the scar on the wrist of Richard Eberling.
9. Results of the digitized film negatives relevant to this case.
10. Results of digital image analysis of the wristwatch. Blood stains found on the wristwatch were accurately measured. A composite image was then assembled using photographs taken in 1966 of the links of the wristwatch belonging to Samuel Holmes Sheppard.
11. Results of digital image analysis of Marilyn Reese Sheppard crime scene photographs.



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Opinions and Conclusions:

Upon completion of my review, study and analysis of all of the materials stated in the aforementioned pages, I have arrived at the following professional opinions and conclusions. My opinions and conclusions are based upon a reasonable degree of medical and scientific certainty.

My opinions and conclusions are as follows:

Cause and Manner of Death:

Based on review of the autopsy findings and other materials, it is my opinion that Marilyn Reese Sheppard sustained a maximum of twenty five blows to her head and face resulting in multiple lacerations, abrasions and contusions. These blows caused comminuted fractures of skull bones, facial bones and upper incisor teeth. Furthermore, She had bilateral subdural hemorrhage, diffuse bilateral subarachnoid hemorrhages and contusions of brain. It is my opinion that Marilyn Reese Sheppard came to her death as a result of multiple blunt impacts to head and face with comminuted fractures of skull and separation of frontal suture, bilateral subdural hemorrhages, diffuse bilateral subarachnoid hemorrhage and contusions of brain. The manner of her death is Homicide.

Time of Death:

Autopsy revealed that Marilyn Reese Sheppard's stomach contained "one-half ounce of orange brown mucoid fluid". Investigation indicated that she had eaten a meal consisting of cottage ham, tossed salad, a vegetable and blueberry pie between 8:30 P.M., and 10:30 P.M., on July 3rd, 1954. A meal of that size ordinarily will be emptied by the stomach in four or five hours. Autopsy showed that this meal had already been emptied by the stomach. Based on this, the estimated time of death in my opinion is between 3:00 A.M., and 4:00 A.M., on July 4th, 1954.



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Type of Weapon Used to Inflict the Blows:

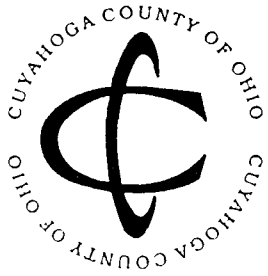
Autopsy showed that the type of injuries sustained by Marilyn Reese Sheppard were blunt force in nature and inflicted by blunt object. Examples of blunt object are baseball bat, hammer, wrench, fireplace poker, flashlight, etc. It is my opinion that these injuries were caused by blunt object however, without additional Trace Evidence (such as hair, blood, tissue, etc. from the decedent transferred onto the weapon) or experiment (such as the one conducted by the Cuyahoga County Coroner's Office on December 15th, 1999, in which the 1950's vintage flashlight was excluded), it will not be possible to identify the specific blunt weapon involved in this death. Hence, it is my opinion that these injuries were inflicted by blunt weapon. Specific weapon is not identified.

Vaginal Smear:

Autopsy Protocol gives a complete report of the external and internal genitalia. Page 2, first paragraph, and page 9, ninth paragraph of the Autopsy Protocol describes these structures. Under the heading Injures (pages 2, 3, and 4), detailed description of injuries is given. Among these injuries there is no mention of any injury to the external or internal genitalia. This type of detailed examination can by no means be categorized as a " cursory " examination. I have known Dr. Lester Adelson, who performed this autopsy, professionally, for fifteen years. I received my training in Forensic Pathology under him and later worked side by side with him as one of his colleagues. Towards the end of Dr. Adelson's career, I served as Coroner of Cuyahoga County. I can attest to the fact that Dr. Lester Adelson was a thorough and meticulous Forensic Pathologist. He was in the habit of painstakingly noting the details of injuries of decedents that he examined. In his Autopsy Protocol, he does not mention injuries to the genitalia. If they were present, he would have stated so.

Vaginal smear showed abundant epithelial cells and bacteria. There were no spermatozoa seen.

In order to conclude that there was recent sexual intercourse, one would need to see intact spermatozoa (heads and tails attached) in the vaginal smears or smears from other orifices.



CORONER
Elizabeth K. Balraj, M.D.

Ordinarily intact sperms are found in the smears anywhere up to 8 hrs. to 12 hrs. or 24 hrs. after intercourse. This is dependent also on the condition of the semen, the vagina and also the individuals involved. After this period of time, the sperms will, in general, disintegrate and will no longer have intact heads and tails. When recent sexual intercourse has taken place, one would see intact sperms. The autopsy report does not report the presence of sperms. Hence, based on the result from the vaginal smear, there was no evidence of recent sexual intercourse. The very few sperm heads found, not by microscopic examination of the smear, but by differential extraction techniques during the DNA procedure conducted by Dr. Mohammad Tahir, Ph.D., cannot be attributed to recent sexual intercourse. The reason swabs were not obtained from the mouth and anus/rectum, is because this was not the protocol in the 1950's. Incorporation of obtaining oral and anal/rectal swabs as part of sexual assault examination was a practice that was developed after the 1950's.

In my opinion, this crime did not involve a sexual assault because there were no sperms present in the vagina and there were no injuries to the genitalia. According to the crime scene photographs, Marilyn Reese Sheppard is found partially nude, waist down, lying on her back on the bottom half of a four post bed. Both her legs hang over the foot end of the bed. Her feet are almost touching the ground. Both lower extremities are located underneath the horizontal railing which stretches across the foot of the end of the bed, between the two bed posts. It is my opinion that this position with the horizontal bar of the bed post being in the way, is not physically conducive to sexual intercourse. Furthermore, struggling and fighting her assailant while in this position would have caused her to repeatedly bang her thighs, knees and legs against the hard horizontal railing of the bed. This type of struggle would have produced injuries such as bruises on her thighs, knees and/or legs. Autopsy showed no bruises on the thighs, legs or knees. Based on these observations, it is my opinion that Marilyn Reese Sheppard was not sexually assaulted.

Upper Extremity Injury:

Autopsy showed contusion on the right shoulder, contused abrasion of tip of right thumb, contused abrasions of dorsum of right



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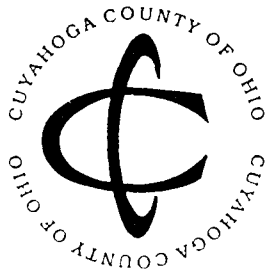
wrist, abrasion of palmar surface of right thumb, abrasion of dorsum of proximal phalanx of right index finger, and abrasion of dorsum of metacarpophalangeal joint of right fourth finger. Also, there was hyper-mobility of right fifth finger at metacarpophalangeal joint. The left hand showed contused abrasion of the tip of left middle finger. There was partial avulsion of the left 4th fingernail with the root of the nail exposed. These injuries can be categorized as wounds of offense or defense because they may have been sustained by Marilyn Reese Sheppard striking the assailant (offense wounds), or by her raising her hands in front of her face and head to ward off the blows (defense wounds), or from the combination of both.

Left Fourth Fingernail Injury:

Autopsy revealed partial avulsion of the fingernail of the left fourth finger. The root of the nail was exposed. All of the injury to this fingernail was limited to the proximal portion (root of the nail). The distal portion of the fingernail was intact and not damaged. If the fingernail was used to cause a gouging type injury or scratch type injury of the assailant, I would expect the tip or the free end of the nail to be damaged and not the base portion of the fingernail. It will not be possible to scratch or gouge the flesh of another individual by using the base portion of the fingernail. It is my opinion that the avulsion injury to the left fourth finger is not due to inflicting gouging type injury to the assailant, but due to blunt trauma to the hand.

Upper Right and Left Incisor Teeth:

There was complete fracture of the right medial incisor. There was a chip defect of the left medial incisor. Autopsy revealed fracture of nasal bone. Examination of the head following disinterment of Marilyn Reese Sheppard's body on the 5th of October, 1999, by visual and radiologic examination, disclosed extensive fractures of the maxilla, zygomatics, nasal bones, and the lateral orbital rims. Based on these observations and the multiple facial injuries described in the autopsy report, it is my opinion that the injury to the upper central incisor teeth are the result of blunt force injury to the face, and not due to biting the assailant.



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Additional Work Performed from 1997 to 2000.

1. Disinterment of the body of Dr. Samuel Holmes Sheppard on the 17th of September 1997 from Forest Lawn Memorial Gardens Cemetery, 5600 East Broad Street, Columbus, Ohio 43213. Upon disinterment, samples were collected by Elizabeth K. Balraj, M.D., for DNA analysis by Dr. Mohammad Tahir, Ph.D., Plaintiff's Attorney's DNA Consultant.
2. Disinterment of the body of Marilyn Reese Sheppard (Case #76629, Autopsy #7280), and fetus (Case #76629F) from Knollwood Cemetery, 1678 SOM Center Road, Mayfield Heights, Ohio 44124, on the 5th of October 1999. Upon disinterment, examinations were conducted by anthropologists and odontologists respectively. Samples were obtained for DNA analysis by Elizabeth K. Balraj, M.D.
3. DNA Testing: Male Fetus and Marilyn Reese Sheppard.
- Under direction of Ms. Linda Luke, Supervisor, Trace Evidence and DNA Department, Cuyahoga County Coroner's Office.
4. Head Injury Reconstruction:
The effects and resultant injuries on a skull (visually and radiologically) produced by various weapons, namely: 1950's vintage flashlight, channel lock pliers, fireplace poker and an adjustable crescent wrench. X-rays of the head were taken after use of each weapon. The purpose of this experiment was to provide relevant information about the type of weapon that might have been used to inflict the injuries. It is my opinion that these are blows caused by blunt trauma. A flashlight did not produce those injuries. The weapon was greater in mass than a flashlight. Of particular note in our experiments, was that we were unable to fracture the human female skull by forcefully striking repeatedly with the 1950's vintage flashlight.
5. "Weapon" imprint analysis on pillow case to determine the nature of blood imprint observed on the pillow case:
Experiments were conducted using a variety of objects in an attempt to create a pattern similar to the one observed at the crime scene. The following conclusions were drawn from the experiments:
 - i. The pattern is not the result of random folds.



CORONER
Elizabeth K. Balraj, M.D.

- ii. A pattern of this nature is the result of wet blood on an object being transferred to an area of dried blood. Experimental models require that 10 ml of blood dry for a period of time greater than two hours.
- iii. The soaking type blood stain on the pillow in question was dry when it was inverted and placed in its final resting position due to the lack of transfer to the bed sheet.
- iv. The pillow was flipped after an extended period of time. Experimental models indicate that the time exceeds one hour.
- v. A flashlight did not produce this pattern.
- vi. A medical instrument is not the likely source of this pattern (because they are typically made of stainless steel).
- vii. The item that created this pattern is still of unknown origin.

Source of blood "trail" in the Sheppard home:

Compared the number and size of blood stains deposited on a stairwell using bloodied channel lock pliers, a blooded pipe and a pipette containing blood.

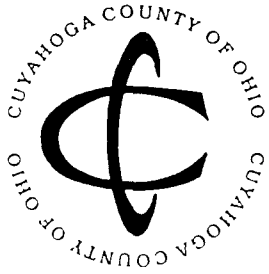
Conclusion:

- i. The size and shape of an item coated in blood dictates the number of blood drops that will be shed from it while going up or down the stairs.
- ii. A blood covered object or weapon cannot be ruled out as a possible source of blood trail.

Photographic analysis of the scar on the wrist of Richard Eberling by James Wentzel.

Conclusion:

- i. The two autopsy photographs of Richard Eberling's scar are of poor quality and seem to conflict with one another.



CORONER
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- ii. The autopsy photographs of Marilyn Reese Sheppard's hand are lacking a ruler or scale.
- iii. No scientific, repeatable comparison of the two subjects is possible.

Digitize the film negatives relevant to this case by Mr. James T. Wentzel.

6. Digitized image analysis of the wristwatch.
Accurately measure the blood splatters found on the wristwatch. A composite image was assembled using photographs taken in 1966 of the links of the wristwatch belonging to Samuel Holmes Sheppard.

Conclusion:

- i. A high-resolution composite image of Dr. Samuel Holmes Sheppard's entire wristwatch can be assembled, studied and measured using current digital imaging technology.
- ii. Many of the blood splatters measured on Dr. Samuel Holmes Sheppard's wristwatch are consistent in size and shape with high velocity nature, the wristwatch was in close proximity (less than 3 feet) to the source of the blood during Marilyn Reese Sheppard's murder.

Digital image analysis of Marilyn Reese Sheppard crime scene photographs:

Determine using modern imaging technology, the size, shape and location of the individual blood stains found in crime scene photographs of the bedroom by James T. Wentzel.

Elizabeth K. Balraj MD
Elizabeth K. Balraj, M.D.
Forensic Pathologist and
Coroner of Cuyahoga County