DEPARTMENT OF DEFENSE
ARMED FORCES INSTITUTE OF PATHOLOGY
WASHINGTON, DC 20306–6000

REPLY TO
ATTENTION OF

October 30, 2009

Office of the Armed Forces
Medical Examiner

Department of Defense
HQ, Combined/Joint Task Force (CJTF)-82
Attn: SFC (b)(6)
Bagram Airfield, Afghanistan
APO AE 09354

Dear SFC Lambertus:

As requested, enclosed is a copy of the Autopsy Report Protocol in the case of PFC Kevin C. Thomson SSN (b)(6), SPC Christopher T. Griffin, SSN (b)(6), SGT Joshua J. Kirk, SSN (b)(6), SPC Stephan L. Mace, SSN (b)(6) and SGT Joshua Hardt, SSN (b)(6).

I realize that there is a possibility that some of the terminology used therein may be unfamiliar to you. If you have questions regarding any portion of the report provided, please do not hesitate to call me at (b)(6) or fax at (b)(6) (b)(6). You may also contact me via e-mail at the following address: (b)(6)

As these are copies of the reports, there is no need to return them to our office. However, if the next of kin desires a copy of this report please have them contact the Office of the Armed Forces Medical Examiner directly to request a copy of the autopsy report in writing, which will be released only from our office. If you need any further assistance, please do not hesitate to contact me.

Sincerely,

(b)(6)

(b)(6)
Captain, Medical Corps
United States Navy
Armed Forces Medical Examiner

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ARMED FORCES INSTITUTE OF PATHOLOGY
Office of the Armed Forces Medical Examiner
1413 Research Blvd., Bldg. 102
Rockville, MD 20850
301-319-0000

AUTOPSY EXAMINATION REPORT

Name: Mace, Stephan Lee
SSAN: (b)(6)
Date of Birth: 11 Apr 1988 (21 years)
Date of Death: 03 Oct 2009
Date/Time of Autopsy: 06 Oct 2009/1000-1200 hrs
Date of Report: 18 Oct 2009

Autopsy No.: ME09-0689
AFIP No.: 3143492
Rank: SPC; USA
Place of Death: Afghanistan
Place of Autopsy: Port Mortuary
Dover AFB, DE

Circumstances of Death: This 21-year-old soldier was serving in Afghanistan in support of Operation Enduring Freedom when, as reported, he was mortally wounded after receiving small arms fire, rocket propelled grenade fire, and indirect fire.

Authorization for Autopsy: Armed Forces Medical Examiner, per 10 U.S. Code 1471

Identification: Positive identification is established by antemortem and postmortem fingerprint and dental comparisons.

CAUSE OF DEATH: Multiple ballistic injuries

MANNER OF DEATH: Homicide

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EXTERNAL EXAMINATION

The unclad body is that of a well-developed, well-nourished white male. The body weighs 173 pounds, is 72 inches in length and appears compatible with the reported age of 21 years. The body is cold. Rigor is passing. Lividity is present and fixed on the posterior surface of the body, except in areas exposed to pressure. The head is normocephalic, and the scalp hair is short and brown. The face is clean shaven. The irides are blue. The corneae are cloudy. The conjunctivae are pale. The sclerae are white. The external auditory canals, external nares and oral cavity are free of foreign material and abnormal secretions. The left earlobe is pierced. The nasal skeleton and maxilla are palpably intact. The lips are without evident injury. The teeth are natural. Examination of the neck reveals no evidence of injury. The chest is unremarkable. No evidence of injury of the ribs or the sternum is evident externally. The abdomen is slightly distended. No healed surgical scars are seen. The external genitalia are those of an adult male.
The fingernails are intact. Tattoos are noted on the back, left buttock and abdomen and are photographed for documentation. A tag inscribed with "BTB unknown" is attached to the right wrist. A Dover tag (ME09-0689) is attached to the right ankle.

CLOTHING AND PERSONAL EFFECTS

- One gray colored religious pendant and chain is attached to the left wrist
- Green personal effects bag (removed by Port Mortuary personnel prior to autopsy)

MEDICAL INTERVENTION

- Endotracheal intubation
- Nasogastric tube
- Intraosseous access (sternum and right tibia)
- Intravenous access (left side of the neck and right groin)
- Stapled wounds of the both thighs
- Chest tube (right chest cavity)
- Dressings (right arm, abdomen and left leg)
- Foley catheter inserted into the penile urethra
- Vertical laparotomy incision (14 inches) closed with staples
- Left sided sutured thoracotomy (7 inches)
- Descending colon resection

RADIOGRAPHS

A complete set of postmortem radiographs is obtained. Injuries identified radiographically are incorporated into the evidence of injury section below.

EVIDENCE OF INJURY

The ordering of the following injuries is for descriptive purposes only, and is not intended to imply order of infliction or relative severity. All wound pathways are given relative to standard anatomic position.

TORSO:
There is a perforating ballistic injury of the abdomen (A). A 1/2 x 1/4 inch entrance wound is on the right lower quadrant of the abdomen located 29-1/2 inches below the top of the head and 6 inches to the right of the anterior midline. No soot or gunpowder stippling is seen on the skin surrounding the entrance wound. The skin and subcutaneous tissues are injured. A 1/8 x 1/8 inch exit wound is on the right lower quadrant of the abdomen located 30 inches below the top of the head and 3 inches to the right of the posterior midline. The trajectory of the projectile is right to left and downward with minimal front to back deviation. Associated injuries include bleeding along the wound tract.

There is a perforating ballistic injury of the abdomen (B). A 1/4 inch circular entrance wound with an eccentric marginal abrasion on the superior-lateral border is on the left lower back located 27-1/2 inches below the top of the head and 2-1/2 inches to the left of the posterior midline. No soot or gunpowder stippling is seen on the skin surrounding the entrance wound. The skin, subcutaneous tissue and descending colon (a portion of descending colon was surgically removed and cannot be completely evaluated) are injured. A 1 x 1 inch exit wound is on the left side of the abdomen located 35 inches below the top of the head and 5-1/2 inches to the left of the anterior midline. The trajectory of the projectile is left to right, back to front and downward. Associated injuries include bleeding along the wound tract and a 300ml hemoperitoneum.

A 3 x 3 inch area of multiple (4) superficial penetrating ballistic injuries is on the right upper back. No soot or gunpowder stippling is seen. The skin and subcutaneous tissues are injured. One 1/4 x 1/8 x 1/8 inch gray metal fragment is recovered from one of the wounds.

An 8 x 4 inch area of multiple (4) superficial penetrating ballistic injuries and one superficial perforating ballistic injury is on the right lower back. No soot or gunpowder stippling is seen. The wounds range from 1/8 inch to 1/2 inch in greatest dimension. The skin and subcutaneous tissues are injured. A 1 x 1/2 inch abrasion is associated with the superficial perforating wound.

On the right lower back and right hip is a 5 x 5 inch area of multiple (9) penetrating ballistic injuries measuring up to 1/4 inch in greatest dimension. No soot or gunpowder stippling is seen. The skin and subcutaneous tissues, muscle, and right adrenal gland are injured. A minute radiopaque foreign body is seen adjacent to the upper pole of the right kidney but is not recovered at autopsy.

A 1/4 x 1/2 inch penetrating ballistic injury is on the right flank located 27-1/2 inches below the top of the head and 9 inches to the right of the posterior midline. No soot or gunpowder stippling is seen. The skin, subcutaneous tissue and muscle are injured. The trajectory of the projectile is right

to left and back to front with minimal up-down deviation. One 1/2 x 1/4 x 1/4 inch gray metal fragment is recovered from the musculature of the right back.

Two 1/8 inch superficial penetrating ballistic injuries are on the left upper back. No soot or gunpowder stippling is seen. The skin and subcutaneous tissues are injured.

A perforating ballistic injury is on the right buttock. The 1 x 3/4 inch entrance wound with an eccentric marginal abrasion measuring up to 3/4 inch on the superior margin is on the superior aspect of the right buttock located 34 inches below the top of the head and 2-1/2 inches to the right of the posterior midline. No soot or gunpowder stippling is seen. The skin, subcutaneous tissue and muscle are injured. A 1 x 3/4 inch lacerated exit wound is on the inferior aspect of the right buttock located 38-1/2 inches below the top of the head and 3-3/4 inches to the right of the posterior midline. A 3 x 1 inch contusion extends from the entrance to the exit wound. The trajectory of the projectile is left to right and downward with no significant front to back deviation.

A 1/8 inch superficial penetrating ballistic injury is on the left buttock. A 4 x 4 inch contusion is on the left upper quadrant of the abdomen.

EXTREMITIES:
RIGHT UPPER EXTREMITY:
A 2 x 2 inch area of multiple (4) penetrating ballistic injuries ranging from 1/8 to 1 inch in greatest dimension is on the lateral aspect of the right arm. No soot or gunpowder stippling is seen. The skin, subcutaneous tissues and muscle are injured. A 1/8 x 1/8 x 1/16 inch gray metal fragment is recovered from the musculature of the right arm.

There is a 7 x 5 inch area of multiple (7) graze-type and superficial penetrating ballistic injuries of the posterior aspect of the right arm ranging from 1/4 inch to 1/2 inch in greatest dimension. No soot or gunpowder stippling is seen. The skin and subcutaneous tissues are injured.

RIGHT LOWER EXTREMITY:
There are two 1/8 inch superficial penetrating ballistic injuries, one 1/2 x 1/2 inch superficial penetrating ballistic injury, and one 2 x 3/4 inch graze-type ballistic injury of the anterior aspect of the right thigh. No soot or gunpowder stippling is seen. The skin and subcutaneous tissues are injured.

A perforating ballistic injury is of the right thigh. The 1/2 x 1/4 inch entrance has an eccentric marginal abrasion that measures up to 1/8 inch on the superior border and is located 26-1/4 inches above the right heel and 2 inches to the left of the posterior midline of the right lower extremity in the anatomic position. The skin, subcutaneous tissue and muscle are injured. The 3/4 x 1/2 inch exit wound is on the medial surface of the right thigh located 24-1/2 inches above the right heel. The trajectory of the projectile is right to left, back to front and downward.

There is a 4 x 2 inch area of multiple (6) superficial penetrating ballistic injuries ranging from 1/8 inch to 1/2 inch in greatest dimension of the posterior and lateral aspects of the right thigh. No soot or gunpowder stippling is seen. The skin and subcutaneous tissues are injured.

A 1/2 x 1/4 inch superficial penetrating ballistic injury is on the lateral surface of the right knee. No soot or gunpowder stippling is seen. The skin and subcutaneous tissues are injured. One 1/2 x 1/4 x 1/4 inch gray metal fragment is recovered from the subcutaneous tissues adjacent to the right knee.

LEFT LOWER EXTREMITY:
There is a superficial perforating ballistic injury of the left thigh. The 3 x 1-1/2 inch entrance wound is located 28 inches above the left heel and 1 inch to the left of the anterior midline of the left lower extremity in the anatomic position. No soot or gunpowder stippling is seen. The 1 x 1 inch exit wound is located 24 inches above the left heel and 1-1/2 inches to the left of the anterior midline of the left lower extremity in the anatomic position. The skin and subcutaneous tissues are injured. The trajectory of the projectile is right to left and downward with minimal front to back deviation.

A 5 x 3 inch area of multiple (4) superficial penetrating ballistic injuries ranging from 1/16 inch to 1/8 inch in greatest dimension is on the posterior surface of the left thigh. No soot or gunpowder stippling is seen. The skin and subcutaneous tissues are injured.

A 3 x 3 inch contusion is on the left calf. There are compound and comminuted fractures of the left tibia and fibula with associated lacerations measuring 4 x 1 inches, 2 x 1/4 inches, and 3 x 4 inches.

INTERNAL EXAMINATION

BODY CAVITIES:

(Please see Evidence of Injury.) The ribs, sternum, and vertebral bodies are visibly and palpably intact. No adhesions are present in any of the body cavities. Seven hundred fifty milliliters of blood is seen in the left chest cavity and 300 ml of blood is seen in the peritoneum. All body organs are present in normal anatomical position. The subcutaneous fat layer of the abdominal wall is 1/2 inch thick.

HEAD AND CENTRAL NERVOUS SYSTEM:

The scalp is reflected. The galeal and subgaleal soft tissues of the scalp are free of injury. There are no skull fractures. The calvarium of the skull is removed. The dura mater and falx cerebri are intact. There is no epidural or subdural hemorrhage present. The leptomeninges are thin and delicate. The cerebral hemispheres are symmetrical. The structures at the base of the brain, including cranial nerves and blood vessels are intact. Clear cerebrospinal fluid surrounds the 1540 gram brain, which has unremarkable gyri and sulci. Coronal sections through the cerebral hemispheres reveal no lesions. Transverse sections through the brain stem and cerebellum are unremarkable. The atlanto-occipital joint is stable. The spinal cord is unremarkable.

NECK:

The anterior strap muscles of the neck are homogenous and red-brown, without hemorrhage. The thyroid cartilage and hyoid bone are intact. The larynx is lined by intact white mucosa. The tongue is free of bite marks, hemorrhage, or other injuries.

CARDIOVASCULAR SYSTEM:

The 360 gram heart is contained in an intact pericardial sac. The epicardial surface is smooth, with minimal fat investment. The coronary arteries are present in a normal distribution, with a right-dominant pattern. Cross sections of the vessels show wide patency. The myocardium is homogenous, red-brown, and firm. The valve leaflets are thin and mobile. The walls of the left ventricle, interventricular septum, and right ventricle are 1.4, 1.4, and 0.5-cm thick, respectively. The endocardium is smooth and glistening. The aorta gives rise to three intact and patent arch vessels. The renal and mesenteric vessels are unremarkable.

RESPIRATORY SYSTEM:

The upper airway is clear of debris and foreign material; the mucosal surfaces are smooth, yellow-tan and unremarkable. The pleural surfaces are smooth, glistening and unremarkable bilaterally. The pulmonary parenchyma is diffusely congested and edematous, exuding slight to moderate amounts of blood and frothy fluid; no focal lesions are noted. The pulmonary arteries are normally developed, patent and without thrombus or embolus. The right lung weighs 1700 grams; the left 1240 grams.

HEPATOBILIARY SYSTEM:

The 2300 gram liver has an intact smooth capsule covering dark red-brown, moderately congested parenchyma with no focal lesions noted. The gallbladder contains 10 ml of green-brown, mucoid bile; the mucosa is velvety and unremarkable. The extrahepatic biliary tree is patent, without evidence of calculi.

GASTROINTESTINAL SYSTEM:

(Please see Evidence of Injury.) The esophagus is lined by gray-white, smooth mucosa. The gastric mucosa is arranged in the usual rugal folds and the lumen contains 100 ml of brown fluid. The small and large bowels are dusky and distended. A portion of descending colon is previously resected (please see "Medical Intervention" above). The pancreas has a normal pink-tan lobulated appearance and the ducts are clear. The appendix is present.

GENITOURINARY SYSTEM:

The right kidney weighs 180 grams; the left 200 grams. The renal capsules are smooth and thin, semi-transparent and strip with ease from the underlying smooth, red-brown cortical surface. The cortex is sharply delineated from the medullary pyramids, which are red-purple to tan and unremarkable. The calyces, pelves and ureters are unremarkable. White bladder mucosa overlies an

intact bladder wall. The bladder contains approximately 50 ml of clear yellow urine. The testes, prostate gland and seminal vesicles are without note.

LYMPHORETICULAR SYSTEM:

The 260 gram spleen has a smooth, intact capsule covering red-purple, moderately firm parenchyma; the lymphoid follicles are unremarkable. Lymph nodes in the hilar, periaortic and iliac regions are not enlarged.

ENDOCRINE SYSTEM:

(Please see Evidence of Injury.) The pituitary gland is unremarkable. The thyroid gland is symmetric and red-brown, without cystic or nodular change. The left adrenal gland has a bright yellow cortex and red-brown medullae. The left adrenal gland is described above. No masses or areas of hemorrhage are identified.

MUSCULOSKELETAL SYSTEM:

(Please see Evidence of Injury.) No non-traumatic abnormalities of muscle or bone are identified.

ADDITIONAL PROCEDURES

1. Documentary photographs are taken by Petty Officer Cole.
2. Personal effects are released to the appropriate mortuary operations representatives.
3. Specimens retained for toxicology testing and/or DNA identification are: brain, heart, lung, liver, spleen, kidney, skeletal muscle, adipose tissue, cavity blood, femoral blood, vitreous fluid, bile, urine, and gastric contents.
4. The dissected organs are forwarded with body.
5. The recovered evidence is retained by OAFME.

MICROSCOPIC EXAMINATION

Selected portions of organs are retained in formalin, without preparation of histology slides.

FINAL AUTOPSY DIAGNOSES:

I. Perforating ballistic injury of the abdomen (A)
- **a. Entrance: Right lower quadrant of the abdomen; no soot or gunpowder stippling is seen**
- **b. Injured: Skin and subcutaneous tissues**
- **c. Exit: Right lower quadrant of the abdomen**
- **d. Trajectory: Right to left and downward with minimal front to back deviation**
- **e. Associated Injuries: Bleeding along the wound tract**

II. Perforating ballistic injury of the abdomen (B)
- **a. Entrance: Left lower back; no soot or gunpowder stippling is seen**
- **b. Injured: Skin and subcutaneous tissues and descending colon**
- **c. Exit: Left side of the abdomen**
- **d. Trajectory: Left to right, back to front and downward**
- **e. Associated Injuries: Bleeding along the wound tract and hemoperitoneum**

III. Four superficial penetrating ballistic injuries of the right upper back

IV. Four superficial penetrating ballistic injuries and one superficial perforated ballistic injury of the right lower back

V. Nine penetrating ballistic injuries of the right lower back and right hip

VI. Penetrating ballistic injury of the right flank
- **a. Entrance: Right flank; no soot or gunpowder stippling is seen**
- **b. Injured: Skin, subcutaneous tissue and muscle**
- **c. Trajectory: Right to left and back to front with minimal up-down deviation**
- **d. Recovered: One gray metal fragment is recovered from the musculature of the right back**

VII. Two superficial penetrating ballistic injuries of the left upper back

VIII. Perforating ballistic injury of the right buttock
- **a. Entrance: Superior aspect of the right buttock; no soot or gunpowder stippling is seen**
- **b. Injured: Skin, subcutaneous tissue and muscle**
- **c. Exit: Inferior aspect of the right buttock**
- **d. Trajectory: Left to right and downward with no significant front to back deviation**
- **e. Associated injuries: Contusion of the right buttock extending between the entrance and exit wound**

IX. Superficial penetrating ballistic injury of the left buttock

X. Contusion of the left upper quadrant of the abdomen

XI. Four penetrating ballistic injuries of the lateral aspect of the right arm; one gray metal fragment is recovered from the musculature of the right arm

XII. Seven graze-type and superficial penetrating ballistic injuries of the posterior aspect of the right arm

XIII. Three superficial penetrating ballistic injuries and one graze-type ballistic injury of the anterior aspect of the right thigh

XIV. Perforating ballistic injury of the right thigh

XV. Six superficial penetrating ballistic injuries of the posterior and lateral aspects of the right thigh

XVI. Superficial penetrating ballistic injury of the lateral surface of the right knee; one gray metal fragment is recovered from the subcutaneous tissues of the right knee
XVII. Superficial perforating ballistic injury of the anterior aspect of the left thigh
XVIII. Four superficial penetrating ballistic injuries of the posterior surface of the left thigh
XIX. A 3 x 3 inch contusion of the left calf
XX. Compound and comminuted fractures of the left tibia and left fibula with associated lacerations
XXI. Natural Diseases: None identified within the limits of the examination
XXII. Medical Therapy: As described above
XXIII. Postmortem Changes: As described above
XXIV. Identifying Marks: As described above
XXV. Toxicology (AFIP):
- **a. VOLATILES: No ethanol is detected in the blood and vitreous fluid**
- **b. DRUGS:**
  - **i. Morphine is detected in the urine and blood**
  - **ii. Promethazine is detected in the urine and blood (0.05 mg/L)**
  - **iii. Lidocaine is detected in the urine**

OPINION

This 21-year-old male, Steven Lee Mace, died of multiple ballistic injuries. One of the projectiles perforated the torso and damaged the bowel. Another ballistic injury penetrated the torso and damaged the right adrenal gland. Both of these wounds led to a significant amount of bleeding into the abdomen. He also had a compound fracture of the left tibia and fibula. The toxicology screen is positive for morphine, promethazine and lidocaine. The toxicology screen findings are consistent with medical intervention prior to death. The manner of death is homicide.

(b)(6)

(b)(6) , J.D. M.D.
MAJ, MC, USA
DEPUTY MEDICAL EXAMINER

QC
22 OCT 09
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DEPARTMENT OF DEFENSE
ARMED FORCES INSTITUTE OF PATHOLOGY
WASHINGTON, DC 20306-6000

REPLY TO
ATTENTION OF

AFIP-FME-FT

TO:

OFFICE OF THE ARMED FORCES MEDICAL EXAMINER
ARMED FORCES INSTITUTE OF PATHOLOGY
WASHINGTON, DC 20306-6000

PATIENT IDENTIFICATION

AFIP Accessions Number	**Sequence**
3143492	00

Name
MACE, STEPHAN LEE

SSN: (b)(6) 7718 **Autopsy:** ME09-0689
Toxicology Accession #: 095101
Date Report Generated: October 15, 2009

CONSULTATION REPORT ON CONTRIBUTOR MATERIAL

AFIP DIAGNOSIS **REPORT OF TOXICOLOGICAL EXAMINATION**

Condition of Specimens: GOOD
Date of Incident: 10/3/2009 **Date Received:** 10/8/2009

VOLATILES: The **BLOOD AND VITREOUS FLUID** were examined for the presence of ethanol at a cutoff of 20 mg/dL. No ethanol was detected.

DRUGS: The **URINE** was screened for amphetamine, antidepressants, antihistamines, barbiturates, benzodiazepines, cannabinoids, chloroquine, cocaine, dextromethorphan, lidocaine, narcotic analgesics, opiates, phencyclidine, phenothiazines, sympathomimetic amines and verapamil by gas chromatography, color test or immunoassay. The following drugs were detected:

Positive Opiate: Morphine was detected in the urine by immunoassay and confirmed by gas chromatography/mass spectrometry. No morphine was detected in the blood at a limit of quantitation of 0.05 mg/L using gas chromatography/mass spectrometry.

Positive Phenothiazine: Promethazine was detected in the urine by gas chromatography and confirmed by liquid chromatography/mass spectrometry. The blood contained 0.05 mg/L of promethazine as quantitated by liquid chromatography/mass spectrometry.

Positive Lidocaine: Lidocaine was detected in the urine by gas chromatography and confirmed by gas chromatography/mass spectrometry.

(b)(6)

(b)(6) , PhD, DABFT
Director, Forensic Toxicology Laboratory
Office of the Armed Forces Medical Examiner

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