



FEDERAL BUREAU OF INVESTIGATION

**RYMUR**

**(JONESTOWN)**

**BUFILE NUMBER : 89-4286**

**(AUTOPSY REPORTS)**

SUBJECT RYMUR - JONESTOWN

FILE NUMBER BUFILE 89-4286

SECTION NUMBER —

SERIALS —

TOTAL PAGES 42

PAGES RELEASED 42

EXEMPTION(S) USED NONE

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AUTOPSY REPORTS (ONLY 7 AUTOPSIES WERE CONDUCTED)

**CLINICAL RECORD**

**AUTOPSY PROTOCOL**

DATE AND HOUR DIED 18 November 1978	A. M. P. M.	DATE AND HOUR AUTOPSY PERFORMED 15 December 1978	A. M. P. M.	CHECK ONE		
PROSECTOR Kenneth H. Mueller, LTCOL, USAF		ASSISTANT Robert L. Thompson, CAPT, MC, USN		FULL AUTOPSY	HEAD ONLY	TRUNK ONLY
						X

**CLINICAL DIAGNOSES (Including operations)**

This body (later identified as James Warren Jones) was one of a large number of bodies discovered at Jonestown, Guyana on or about 19 November 1978 by members of the Guyanese Defense Force. The scene, as reported in various news media and by government officials of Guyana, was said to be grotesque in the extreme. A few witnesses, again reported in various news media, said that most of these people, some willingly and others unwillingly, had ingested poison(s) which fairly quickly led to their deaths.

After inquiries into the cause and manner of death by Guyanese officials, including Dr. Leslie Mootoo, forensic pathologist to the government of Guyana, the bodies, which were rapidly putrefying in the hot and humid tropical climate of Guyana, were released by the government of Guyana and transported by the United States Air Force from Jonestown, Guyana to Dover AFB, Delaware between 23 and 26 November 1978. Efforts to identify the bodies and add to the store of reliable information about the causes and manners of their deaths were carried on at Dover AFB from 27 November 1978 onward.

**PATHOLOGICAL DIAGNOSES**

1. Gunshot wound, head, hard contact, perforating, with extensive skull fractures.
  - a) Entrance wound: left temple area.
  - b) Wound track: left to right, anterior to posterior, and slightly inferior to superior.
  - c) Exit wound: right temple area.
2. Postmortem decomposition.
3. Embalming artifacts.

Cause of Death: Gunshot wound of head.

Manner of Death: Undetermined.

APPROVED-SIGNATURE <i>KH Mueller</i> KENNETH H. MUELLER, LTCOL, USAF, MC		APPROVED-SIGNATURE <i>Robert L. Thompson</i> ROBERT L. THOMPSON, CAPT, MC, USN				
MILITARY ORGANIZATION (If less required)	AGE 47	SEX Male	RACE Caucasian	IDENTIFICATION NO.	AUTOPSY NO.	
PATIENT'S IDENTIFICATION (For typed or written entries give Name—last, first, middle, grade, date, hospital or medical facility)				REGISTER NO.	WARD NO.	

JONES, JAMES WARREN  
 AFIP #1680342

AUTOPSY REPORT - (B013)

AFIP #1680342

Name: JAMES WARREN JONES  
Age: 47 years  
Date of Birth: 13 May 1931  
Sex: Male  
Race: Caucasian  
Date of Death: 18 November 1978  
Date of Autopsy: 15 December 1978  
Prosecutor: Kenneth H. Mueller, Lt.Col, USAF, MC  
Witnesses: Robert L. Thompson, CAPT, MC, USN  
Joseph M. Ballo, LTC, MC, USA  
Douglas S. Dixon, MAJ, MC, USA  
Rudiger Breitenecker, M.D., Baltimore, Maryland

This is one of the bodies (B013) transported by the USAF from Jonestown, Guyana to Dover Air Force Base, Delaware.

Body Identification:

The body is identified as James Warren Jones on the basis of the comparison of antemortem and postmortem fingerprint and dental records. No medical records are available.

Description of Clothing:

The body is clothed in a red shirt with the label "Fruit of Loom, Extra Large", tan trousers labeled "Sears Permapress, 36 X 30", no belt, brief type underwear with the label "3H Fruit of Loom" and the name "Steve" initialed into the waist band, black socks and black lace shoes with the label "84550, Comb, 305Z".

External Description:

The body is that of a Caucasian male with moderate to severe decomposition changes. There is a tag attached to the toe with the name Reverend James W. Jones and the number 138 is also attached to the body. The body is well nourished, well developed and measures 68 inches in length. The age is estimated to be 45-60 and the weight 175 lbs. The color of the hair is black. The body has been previously embalmed and is covered with a white-tan powder. The examination of the teeth reveal them to be in good repair and a few of the anterior lower teeth have a pink coloration. The eyes are sunken. The face has been incised at each corner of the mouth for previous examination of the teeth. In the anterior midline of the body there is a 26 inch sutured incision which begins in the area of the left sterno-clavicular junction and ends in the supra-pubic area. There are coils of intestine protruding through the sutured incision. Examination of the external genitalia reveals the penis to be circumcised. No scars or tattoos are identified.

Evidence of Embalming:

Trocar stab wounds are identified in the following areas: beneath the chin, in the cheek areas bilaterally, the right forearm near the antecubital fossa, the left anterior shoulder area, the right side of the anterior abdominal wall at the level of the umbilicus, the supra-pubic area slightly to the right, the right anterior upper thigh area, the area of the right medial thigh near the knee, the left lower leg anterior near the knee.

Evidence of Injury:

The entrance of a gunshot wound is located in the left temple area  $3\frac{7}{8}$  inches below the top of the head,  $\frac{1}{2}$  inch anterior to the external auditory canal and 5 inches to the left of the midline of the face. The entrance wound is triangular shaped and measures  $\frac{3}{4}$  by  $2\frac{1}{2}$  inches. No powder residue or muzzle imprint is identified around the wound.

The track of the wound perforates the underlying tempo-parietal skull with internal beveling. The wound track within the brain is not identified because of severe postmortem decomposition. The wound then perforates the right temporal bone with external beveling.

The exit gunshot wound is located in the right temple area superior to the right ear. The wound measures  $\frac{3}{8}$  by  $\frac{1}{4}$  inch, and is  $3\frac{1}{2}$  inches below the top of the head,  $\frac{1}{2}$  inch posterior to the external auditory canal and 6 inches to the right of the midline of the face.

The path of the wound is directed from left to right, anterior to posterior and slightly inferior to superior.

Internal Examination:

The thorax and abdomen are opened by extending, in the usual Y shape, the previously described incision. The original incision on the chest is seen to have extended through the skin and subcutaneous tissue, but not the rib cage. The abdominal segment of this incision extends into the abdominal cavity. The usual intermastoid coronal scalp incision is employed for examination of the cranial cavity.

Cranial Cavity: The examination of the skull reveals multiple comminuted fractures in the areas of the frontal bone, parietal bone, occipital bone and base of the skull. There is a fracture of the base of the skull in the area of the ethmoid bone. The brain is severely decomposed and is in a semi-liquid state. No grossly identifiable structures are noted within the brain. Except for fractures, the sella turcica shows no abnormality and the pituitary gland is not enlarged. The gunshot wound of the head has previously been described.

Neck: The examination of the neck structures reveals no hemorrhage and no fractures of the hyoid bone or laryngeal cartilages. Examination of the interior of the larynx reveals no evidence of obstruction.

Body Cavities: Each chest cavity has approximately 150 cc's of reddish-brown, foul smelling fluid. The abdominal cavity contains a small amount of yellowish-brown fluid.

Cardiovascular System: The heart is of normal size and shape. Examination of the coronary arteries reveals no thickening and they are of normal size and distribution. Examination of the chambers of the heart reveals all valves to be normal and the myocardium shows no abnormalities except for the changes of decomposition. The examination of the aorta reveals a few small atheromatous plaques at the ostia of the coronary arteries.

Respiratory Tract: The lungs have an extensive honey-combed appearance due to decomposition, but they are of normal size and shape. Examination of the bronchi reveals a small amount of brownish material within the lumens.

Biliary Tract: The liver is of normal size and shape and there is no abnormality except for decomposition changes on the cut surfaces. The gall-bladder is empty.

Spleen: The spleen is of normal size and shape and there is no abnormality except for decomposition changes on the cut surface.

Pancreas: The pancreas is extensively decomposed, but no abnormality is noted.

Genitourinary System: The kidneys are of normal size and shape and examination of the cut surface reveals an extensive honey-combed appearance due to decomposition on the cut surfaces. There is no abnormality of the ureters. The bladder is empty, and the mucosa of the bladder shows no abnormality. The prostate gland is small and no nodules are noted on the cut surface.

Alimentary Tract: Examination of the pharynx reveals no obstruction. The esophagus is empty. The stomach is empty and no identifiable food or drugs are identified. Examination of the small and large intestine reveals no external abnormality.

Endocrine System: Examination of the area of the pituitary gland reveals extensive fractures of the bone in this area. The pituitary gland is extensively decomposed, but no gross abnormality is noted. Examination of the thyroid gland and adrenal gland reveals no abnormality except for changes of decomposition.

Musculoskeletal System: The extensive fractures of the skull have been previously described. Examination of other areas of the musculoskeletal system reveals no gross abnormality.

Toxicology: The following tissues are submitted for toxicological examination: the stomach and stomach contents, spleen, liver, kidney, lung.

X-Ray Examination: Total body X-rays reveal the only obvious trauma to be confined to the head. The calvarium is fractured in a massive, comminuted fashion. Within the head are scattered small metallic densities, consistent with a bullet track, but no large fragments are seen. There is no obvious evidence of sella turcica or pituitary problems, but the sella is not ideally evaluated on the available films.

#### Microscopic Description

All of the tissues show moderate to severe changes of postmortem decomposition:

**Skin:** Sections from the entrance and exit wounds are examined. No definite powder residue is identified. The changes of decomposition preclude further evaluation.

**Coronary arteries:** Sections of coronary artery show slight to moderate intimal thickening.

**Lung:** Sections of lung show focal intra-alveolar hemorrhage.

Sections of liver, kidney, thyroid, myocardium, and prostate show no changes except decomposition.

After fungus and bacterial stains were prepared, the microscopic stains were evaluated by the Department of Infectious Diseases. It is the opinion of this Department that fungi and bacteria seen in the sections are postmortem contaminants, and no changes to indicate antemortem infectious disease are noted.

Summary:

This is the case of a 47 year old Caucasian male who was found dead in Jonestown, Guyana. The cause of death is a gunshot wound of the head. The caliber of the gun was large enough to produce the typical stellate tearing of the skin surrounding the wound. The hands were not swabbed for powder residue because the embalming and extensive handling of the body after death would have led to the high probability of either false positive or false negative results.

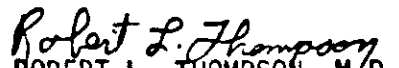
The tissue levels of pentobarbital are within the toxic range, and in some cases of drug overdose have been sufficient to cause death. The liver and kidney pentobarbital levels are within the generally accepted lethal range. The drug level within the brain is not within the generally accepted lethal range, and brain levels are the most important as far as vital functions are concerned. The cause of death is not thought to be pentobarbital intoxication because: (1) the brain level is low, as stated above (2) tolerance can be developed to barbiturates over a period of time and (3) the lethal level of a drug varies from individual to individual. The level of chloroquine within the liver is within the therapeutic range.

No anatomic evidence of antemortem disease is found.

The manner of death is consistent with suicide because of the finding of a hard contact gunshot wound of the head. The possibility of homicide cannot be entirely ruled out because of the lack of specific and reliable information.



KENNETH H. MUELLER  
LTCOL, USAF, MC  
Division of Forensic Pathology



ROBERT L. THOMPSON, M.D.  
Captain, MC, USN  
Chairman, Department of  
Forensic Sciences





PATIENT IDENTIFICATION	PLEASE USE AFIP ACCESSION NUMBER IN ALL CORRESPONDENCE
AFIP ACCESSION NUMBER.	1680342
JONES, JAMES W.	
PLEASE INFORM US OF ANY PATIENT IDENTIFICATION ERRORS	

ADDRESS REPLY TO THE DIRECTOR  
ATTN AFIP - CPL-T

18 April 1979

CONSULTATION REPORT ON CONTRIBUTOR MATERIAL

Specimens Submitted: Lung, kidney, muscle, stomach, brain, liver, teeth and spleen.

AFIP DIAGNOSIS                      REPORT OF TOXICOLOGIC EXAMINATION

1. All tissues submitted were putrefied; the body was embalmed prior to autopsy.
2. Neutral drugs - LIVER - None Found.
3. The following drugs were identified and quantitated by gas chromatography and uv spectrophotometry and verified by mass spectrometry. Amounts reported are in milligrams per 100 grams tissue.

	<u>LUNG</u>	<u>STOMACH</u>	<u>BRAIN</u>	<u>KIDNEY</u>	<u>MUSCLE</u>	<u>LIVER</u>	<u>SPLEEN</u>
Pentobarbital	0.5	37.3	0.3	8.4	0.03	5.7	19.3
Chloroquine	NR	NR	NR	NR	NR	8.3	NR

*William W. Manders*  
WILLIAM W. MANDERS  
LTCOL, USAF, BSC  
Chief, Division of Toxicology

CLINICAL RECORD		AUTOPSY PROTOCOL		
DATE AND HOUR DIED 18 November 1978	A. M. P. M.	DATE AND HOUR AUTOPSY PERFORMED 15 December 1978	A. M. P. M.	CHECK ONE
				FULL AUTOPSY
				HEAD ONLY
				TRUNK ONLY
PROSECTOR Douglas S. Dixon, MAJ, MC, USA		ASSISTANT Joseph M. Ballo, LTC, MC, USA		X

CLINICAL DIAGNOSES (Including operations)

This body (later identified as William Richard Castillo) was one of a large number of bodies discovered at Jonestown, Guyana on or about 19 November 1978 by members of the Guyanese Defense Force. The scene, as reported in various news media and by government officials of Guyana, was said to be grotesque in the extreme. A few witnesses, again reported in various news media, said that most of these people, some willingly and others unwillingly, had ingested poison(s) which fairly quickly led to their deaths.

After inquiries into the cause and manner of death by Guyanese officials, including Dr. Leslie Mootoo, forensic pathologist to the government of Guyana, the bodies, which were rapidly putrefying in the hot and humid tropical climate of Guyana, were released by the government of Guyana and transported by the United States Air Force from Jonestown, Guyana to Dover AFB, Delaware between 23 and 26 November 1978. Efforts to identify the bodies and add to the store of reliable information about the causes and manners of their deaths were carried on at Dover AFB from 27 November 1978 onward.

PATHOLOGICAL DIAGNOSES

1. Advanced postmortem decomposition.
2. Trocar embalming artifacts.
3. Surgical resection of cheeks.
4. Postmortem toxicology:  
     liver chloroquine - 9.5 mg/100 gm  
     tissue cyanide - negative.

Cause of Death: Probable acute cyanide intoxication.

Manner of Death: Undetermined.

APPROVED SIGNATURE <i>Douglas S. Dixon, Major, MC, USA</i>		APPROVED SIGNATURE <i>Joseph M. Ballo, LTC, MC, USA</i>		
DOUGLAS S. DIXON, MAJ, MC, USA		JOSEPH M. BALLO, LTC, MC, USA		
MILITARY ORGANIZATION (None required)	AGE 34	SEX Male	RACE Caucasian	IDENTIFICATION NO. / AUTOPSY NO.
PATIENT'S IDENTIFICATION (For typed or written entries give Name - last, first, middle, grade, date, hospital or medical facility)			REGISTER NO.	WARD NO.

CASTILLO, WILLIAM RICHARD  
 AFIP #1680275

AUTOPSY REPORT - (A097)

AFIP #1680275

Name: CASTILLO, WILLIAM RICHARD  
Age: 34 years  
Date of Birth: February 19, 1944  
Sex: Male  
Race: Caucasian  
Date of Death: November 18, 1978  
Date of Autopsy: December 15, 1978  
Prosecutor: Douglas S. Dixon, Major, MC, USA  
Witnesses: Robert L. Thompson, CAPT, MC, USN  
Joseph M. Ballo, LTC, MC, USA  
Kenneth H. Mueller, LtCol, USAF, MC  
Rudiger Breitenecker, M.D., Baltimore, Maryland

This is one of the bodies (A97) transported by the United States Air Force from Jonestown, Guyana to Dover Air Force Base, Delaware.

Body Identification: The body was identified as William Richard Castillo on the basis of fingerprints. Physical parameters including height, age, race, hair color, sex and weight are consistent with antemortem medical records and passport data. The name "R. Castillo" was noted in the blue jeans removed from the body. No antemortem dental X-rays were available.

Description of Clothing: The body was dressed before embalming in a brown shirt, blue jeans, white brief underwear, brown tennis shoes and no socks.

External Description: The body is received in a body bag; the remains were previously embalmed by trocar and coated externally with a white powder consistent with lime. It measures 65 inches in length and weighs 101 pounds. The decedent is a Caucasian male, appearing the recorded age of 34 years. There is moderate postmortem decomposition characterized by skin slippage, brown-green skin discoloration, venous hemolytic pattern and minimal gaseous distention of tissues. The epidermis of the hands has separated from the body in a glove-like fashion and has been utilized for fingerprinting. The head hair is loosely attached and easily falls away from the body; it is dark brown and wavy. The thorax and abdomen are of the usual configuration. The genitalia are those of a normal adult male with both testes present in the scrotum; the presence of circumcision cannot be evaluated. No evidence of trauma is noted. The cheeks are resected to aid in dental identification.

Evidence of Embalming: There are multiple punctures of the tissues of thorax, abdomen, both upper and lower extremities; these measure 0.5 cm in greatest diameter and are consistent with artifacts due to trocar embalming. No other obvious injury is noted externally.

X-ray Findings: Total body X-rays reveal no metallic fragments of any kind. No recent fractures are noted. There is an old fracture of proximal femur (X-rays unlabeled as to side) which correlates with a fracture of the right femur recorded in the medical chart.

Body Cavities: The thoracic and abdominal organs are located in their usual positions, but are shrunken and discolored by decomposition. The pleural and peritoneal cavities are lined by smooth red brown membranes and contain small amounts of red-brown fluid smelling like formaldehyde. No fibrous adhesions are noted.

### Internal Description

Cardiovascular System: The heart weighs 150g and is dark red brown with a flabby consistency. The great vessels are distributed normally. The cardiac chambers are of normal size; the myocardium is of normal thickness without evidence of old or recent infarction. The valves are free of disease. Multiple sections of the coronary arteries demonstrate focal subintimal plaques without occlusion. The aorta is free of atherosclerosis. The pulmonary artery contains no thromboemboli.

Pulmonary System: The mucosa of the trachea and bronchi is red-brown with no obvious lesions. The right lung weighs 310g, while the left weighs 360g. They are dark red-brown, shrunken and filled with fluid on cut section. No discrete areas of consolidation are noted.

Gastrointestinal Tract: The esophageal mucosa is red-brown without lesion. The stomach has been punctured by trocar and contains fluid smelling like formaldehyde. There are no lesions of the gastric mucosa which is dark red-brown. The duodenum, small and large bowel are normal.

Liver: The liver weighs 530g and is dark brown and shrunken. The capsule is wrinkled and punctured by trocar. The gall bladder is normally located and empty. No lesions are seen in either organ.

Pancreas: The organ is normally situated. It has a red-brown lobulated appearance and is without obvious lesions.

Kidneys: Together the dark red-brown kidneys weigh 140g and are normally shaped and situated. On cut section, the cortico-medullary demarcation is obscured. No lesions are noted. The ureters are normally situated. The urinary bladder is empty and free of lesions.

Reproductive System: The testes are palpable in the scrotum and free of obvious masses.

Spleen: The red-black spleen weighs 130g and is free of lesions.

Adrenal Glands: The adrenals are normally situated and autolytic.

Neck Organs: The thyroid is normal without hemorrhages or masses. No hemorrhages are seen in the strap muscles. There are no fractures or hemorrhages of the bony or cartilaginous structures of the neck. The laryngeal mucosa is red-brown, but without hemorrhages.

Brain: The brain is tan-green and markedly liquefied. Few normal structures remain intact. There is no obvious hemorrhage or masses. There are no skull fractures appreciated after the dura is stripped.

Specimens for toxicology: Brain, kidney, muscle, liver, lung, spleen, gastric contents and representative teeth having a pink discoloration are submitted for toxicology.

Microscopic Descriptions: Sections of heart, lung, liver and kidneys show no pathologic diagnoses other than marked postmortem decomposition with gaseous distention of tissues and loss of nuclear detail.

Comment:

Because of the condition of this body, specifically markedly decomposed and trocar embalmed, the specimens available for toxicology were less than optimal; standard methods for cyanide detection as well as more experimental approaches have failed to demonstrate cyanide in this case, although chloroquine in much less than toxic amounts was detected.

There is, however, a sound chain of evidence which makes acute cyanide intoxication a defensible and appropriate cause of death in this case. Press reports indicate that many people were witnessed to ingest a purportedly poisoned mixture. Records from Jonestown indicate the availability of bottled cyanide salts in large quantities, and scene photographs depict these bottles opened and placed near the cauldron of fruit juice. At the scene, Dr. Mootoo, consulting forensic pathologist to the government of Guyana, demonstrated cyanide in the gastric contents of sixty-five bodies both by field test and later in the laboratory and in the contents of syringes. Tests performed in the Division of Toxicology at the Armed Forces Institute of Pathology revealed cyanide in probably fatal levels in two of the bodies autopsied as well as in the contents of a syringe received from the scene. In the absence of any other apparent cause of death and with this clear evidentiary chain, it is reasonable and appropriate to attribute the cause of death in this case to acute cyanide intoxication.

The manner of death has been designated undetermined; there is no possible way to decide in an individual case whether the cyanide mixture was ingested/injected willfully or as a result of coercion.

*Douglas S. Dixon, Major, MC, USA*  
DOUGLAS S. DIXON, M.D.  
Major, MC, USA  
Chief, Division of Forensic Pathology

*Joseph M. Ballo, M.D., LTC, MC, USA*  
JOSEPH M. BALLO, M.D.  
LTC, MC, USA  
Chief, Missile Trauma Pathology Branch



DEFENSE FORCES INSTITUTE OF PATHOLOGY

WASHINGTON, D.C. 20306

PATIENT IDENTIFICATION	PLEASE USE AFIP ACCESSION NUMBER IN ALL CORRESPONDENCE
AFIP ACCESSION NUMBER:	1680275
CASTILLO, WILLIAM R.	
PLEASE INFORM US OF ANY PATIENT IDENTIFICATION ERRORS	

ADDRESS REPLY TO THE DIRECTOR  
ATTN AFIP - CPL-T

18 April 1979

CONSULTATION REPORT ON CONTRIBUTOR MATERIAL

Specimens Submitted: Kidney, muscle, stomach, brain, liver, spleen and teeth.

AFIP DIAGNOSIS:

REPORT OF TOXICOLOGIC EXAMINATION

1. All tissues submitted were putrefied; the body was embalmed prior to autopsy.
2. Acid, neutral drugs - LIVER - None Found.
3. Chloroquine (9.5mg/100gm) was identified in the liver by uv spectrophotometry and gas chromatography.

*William W. Manders*  
WILLIAM W. MANDERS  
LTCOL, USAF, BSC  
Chief, Division of Toxicology

**CLINICAL RECORD**

**AUTOPSY PROTOCOL**

DATE AND HOUR DIED 18 November 1978	A. M. P. M.	DATE AND HOUR AUTOPSY PERFORMED 15 December 1978	A. M. P. M.	CHECK ONE		
				FULL AUTOPSY	HEAD ONLY	TRUNK ONLY
PROSECTOR Douglas S. Dixon, MAJ, MC, USA		ASSISTANT Joseph M. Ballo, LTC, MC, USA		X		

CLINICAL DIAGNOSES (Including operations)

This body (later identified as Violatt Esther Dillard) was one of a large number of bodies discovered at Jonestown, Guyana on or about 19 November 1978 by members of the Guyanese Defense Force. The scene, as reported in various news media and by government officials of Guyana, was said to be grotesque in the extreme. A few witnesses, again reported in various news media, said that most of these people, some willingly and others unwillingly, had ingested poison(s) which fairly quickly led to their deaths.

After inquiries into the cause and manner of death by Guyanese officials, including Dr. Leslie Mootoo, forensic pathologist to the government of Guyana, the bodies, which were rapidly putrefying in the hot and humid tropical climate of Guyana, were released by the government of Guyana and transported by the United States Air Force from Jonestown, Guyana to Dover AFB, Delaware between 23 and 26 November 1978. Efforts to identify the bodies and add to the store of reliable information about the causes and manners of their deaths were carried on at Dover AFB from 27 November 1978 onward.

**PATHOLOGICAL DIAGNOSES**

1. Advanced postmortem decomposition.
2. Trocar embalming artifacts.
3. Surgical resection of cheeks.
4. Postmortem toxicology:  
     liver chloroquine - 1.8 mg/100gm  
     tissue cyanide - negative.

Cause of Death: Probable acute cyanide intoxication.

Manner of Death: Undetermined.

*Douglas S. Dixon, Major, MC, USA*

*Joseph M. Ballo, LTC, MC, USA*

APPROVED—SIGNATURE

DOUGLAS S. DIXON, MAJ, MC, USA

JOSEPH M. BALLO, LTC, MC, USA

MILITARY ORGANIZATION (If applicable)	AGE 51	SEX Female	RACE Black	IDENTIFICATION NO.	AUTOPSY NO.
PATIENT'S IDENTIFICATION (For typed or written entries give Name—last, first, middle, grade, date, hospital or medical facility)				REGISTER NO.	WARD NO.

DILLARD, VIOLATT ESTHER  
 AFIP #1680114

AUTOPSY PROTOCOL  
 Standard Form 903  
 503-104

Autopsy Report - A024  
AFIP #1680114

Name: DILLARD, VIOLATT ESTHER  
Age: 51 years  
Date of Birth: September 16, 1927  
Sex: Female—  
Race: Black  
Date of Death: November 18, 1978  
Date of Autopsy: December 15, 1978  
Prosecutor: Douglas S. Dixon, Major, MC, USA  
Witnesses: Robert L. Thompson, CAPT, MC, USN  
Joseph M. Ballo, LTC, MC, USA  
Kenneth H. Mueller, LtCol, USAF, MC  
Rudiger Breitenecker, M.D., Baltimore, Maryland

Body Identification: The body was identified as Violatt Esther Dillard on the basis of fingerprints and dental comparison. Physical parameters including height, age, race, hair color, and sex are consistent with antemortem medical records and passport data. The name "E. DILLARD" was noted in the white shoes removed from the body.

Description of Clothing: The body was dressed in a white nurse's uniform with white shoes, a white scarf, a white slip, bra, panties and panty hose.

External Description: The body was received in a body bag; the remains were previously embalmed by trocar and coated externally with a white powder consistent with lime. The decedent measures 66 inches in length and weighs 180 pounds. The body is that of a black female consistent with the recorded age of 51 years. There is moderate postmortem decomposition with brown-green skin discoloration, venous hemolytic pattern, skin slippage and minimal gaseous distention of tissues. The epidermis of the hands has partially separated from the body in a glove-like fashion and has been utilized for fingerprinting. The head hair is grey-black and curly; it is loosely attached and easily falls away from the body. The thorax and abdomen are of the usual configuration; multiple striae are present on the abdomen. The genitalia are those of a normal adult female.

Evidence of Injury: There are multiple punctures of the tissues of the abdomen, upper and lower extremities; these measure 0.5 cm in greatest diameter and are consistent with artifacts due to trocar embalming. No other obvious injury is noted externally. The cheeks are resected to aid in dental identification.

X-ray Findings: Total body X-rays reveal no metallic fragments of any kind. No recent fractures are noted.

Body Cavities: The thoracic and abdominal organs are located in their usual positions and are markedly discolored and shrunken by decomposition. The membranes lining the pleural and peritoneal cavities are smooth, red-brown; the cavities contain red-brown fluid with the odor of formaldehyde. There are multiple, bilateral fibrous pleural adhesions with more involvement of the left than the right side.



Autopsy - A024  
AFIP #1680114

### Internal Description

Cardiovascular System: The heart is normal in size and shape; it is dark red-brown with a flabby consistency. The great vessels are normally distributed. The cardiac chambers are of normal size; the myocardium is of normal thickness without evidence of old or recent infarction. The valves are free of disease. The coronary arteries reveal yellow, subintimal plaques as does the aorta. The pulmonary artery contains no thromboemboli.

Pulmonary System: The trachea and bronchi have a red-brown mucosa with no apparent lesions. The lungs are shrunken and soft. They are dark red-brown and filled with fluid on cut section. No discrete areas of consolidation are noted.

Gastrointestinal Tract: The mucosa of the esophagus is red-brown without abnormality. The stomach is empty with a normal dark red-brown mucosa. The duodenum, small and large bowel are normal.

Liver: The liver is shrunken but normal in shape. The capsule is wrinkled. The gall bladder is normally located and empty. No lesions are seen in either organ.

Pancreas: The organ is normally situated. It is red-brown, lobulated and free of lesions.

Kidneys: The kidneys are normal in size, shape and location. The cortical surface is rough and marked with numerous scars, greater on the left than the right. No lesions are noted. The ureters are normally situated. The urinary bladder is empty and free of lesions.

Reproductive System: The uterus and ovaries are atrophic but free of obvious lesions.

Spleen: The spleen is red-black, normal in size and free of abnormalities.

Adrenal Glands: The autolyzed adrenals are normally situated.

Neck Organs: The thyroid is normal without hemorrhages or masses. No hemorrhages are seen in the strap muscles. There are no fractures or hemorrhages of the bony or cartilaginous structures of the neck. The laryngeal mucosa is red brown, but without hemorrhages.

Brain: The brain is tan-green and liquified. Few normal structures remain intact. There are no obvious hemorrhages or masses. There are no skull fractures appreciated after the dura is stripped.

Specimens for Toxicology: Brain, kidney, muscle, liver, lung, stomach and spleen are submitted.

Autopsy - A024  
AFIP #1680114

Microscopic Description: Sections of lungs, heart, aorta, liver, spleen, stomach, kidneys, uterus and ovaries show no pathologic diagnoses other than marked postmortem decomposition with gaseous distention of tissues and loss of nuclear detail.

Comment:

Because of the condition of this body, specifically markedly decomposed and trocar embalmed, the specimens available for toxicology were less than optimal; standard methods for cyanide detection as well as more experimental approaches have failed to demonstrate cyanide in this case, although chloroquine in much less than toxic amounts was detected.

There is, however, a sound chain of evidence which makes acute cyanide intoxication a defensible and appropriate cause of death in this case. Press reports indicate that many people were witnessed to ingest a purportedly poisoned mixture. Records from Jonestown indicate the availability of bottled cyanide salts in large quantities, and scene photographs depict these bottles opened and placed near the cauldron of fruit juice. At the scene, Dr. Mootoo, consulting forensic pathologist to the government of Guyana, demonstrated cyanide in the gastric contents of sixty-five bodies both by field test and later in the laboratory and in the contents of syringes. Tests performed in the Division of Toxicology at the Armed Forces Institute of Pathology revealed cyanide in probably fatal levels in two of the bodies autopsied as well as in the contents of a syringe received from the scene. In the absence of any other apparent cause of death and with this clear evidentiary chain, it is reasonable and appropriate to attribute the cause of death in this case to acute cyanide intoxication.

The manner of death has been designated undetermined; there is no possible way to decide in an individual case whether the cyanide mixture was ingested/injected willfully or as a result of coercion.

*Douglas S. Dixon, Major, MC, USA*  
DOUGLAS S. DIXON, M.D.  
Major, MC, USA  
Chief, Division of Forensic Pathology

*Joseph M. Ballo, LTC, MC, USA*  
JOSEPH M. BALLO, M.D.  
LTC, MC, USA  
Chief, Missile Trauma Pathology Branch



PATIENT IDENTIFICATION	PLEASE USE AFIP ACCESSION NUMBER IN ALL CORRESPONDENCE
AFIP ACCESSION NUMBER:	1680114
DILLARD, VIOLATT E.	
PLEASE INFORM US OF ANY PATIENT IDENTIFICATION ERRORS	

ADDRESS REPLY TO THE DIRECTOR  
ATTN: AFIP - CPL-T

18 April 1979

CONSULTATION REPORT ON CONTRIBUTOR MATERIAL

Specimens Submitted: Lung, kidney, muscle, stomach, brain, liver, and spleen.

AFIP DIAGNOSIS:

REPORT OF TOXICOLOGIC EXAMINATION

1. All tissues submitted were putrefied; the body was embalmed prior to autopsy.
2. Acid, neutral drugs - LIVER - None Found.
3. Chloroquine (1.8mg/100gm) was identified in the liver by uv spectrometry, thin layer and gas chromatography.

WILLIAM W. MANDERS  
LTCOL, USAF, BSC  
Chief, Division of Toxicology

CLINICAL RECORD		AUTOPSY PROTOCOL			
DATE AND HOUR DIED 18 November 1978		A. M. P. M.	DATE AND HOUR AUTOPSY PERFORMED 15 December 1978		A. M. P. M.
PROJECTOR Robert L. Thompson, CAPT, MC, USN		ASSISTANT Kenneth H. Mueller, LTCOL, USAF		CHECK ONE FULL AUTOPSY    HEAD ONLY    THUMB ONLY	
				X	

CLINICAL DIAGNOSES (Including operations)

This body (later identified as Maria Katsaris) was one of a large number of bodies discovered at Jonestown, Guyana on or about 19 November 1978 by members of the Guyanese Defense Force. The scene, as reported in various news media and by government officials of Guyana, was said to be grotesque in the extreme. A few witnesses, again reported in various news media, said that most of these people, some willingly and others unwillingly, had ingested poison(s) which fairly quickly led to their deaths.

After inquiries into the cause and manner of death by Guyanese officials, including Dr. Leslie Mootoo, forensic pathologist to the government of Guyana, the bodies, which were rapidly putrefying in the hot and humid tropical climate of Guyana, were released by the government of Guyana and transported by the United States Air Force from Jonestown, Guyana to Dover AFB, Delaware between 23 and 26 November 1978. Efforts to identify the bodies and add to the store of reliable information about the causes and manners of their deaths were carried on at Dover AFB from 27 November 1978 onward.

PATHOLOGICAL DIAGNOSES

- Cause of Death: Probable cyanide poisoning.
- Young adult Caucasian female (embalmed) in advanced stages of postmortem decomposition with maggot infestation.
- Manner of Death: Undetermined.

APPROVED—SIGNATURE <i>Robert L. Thompson</i>		APPROVED—SIGNATURE <i>K. H. Mueller</i>			
ROBERT L. THOMPSON, CAPT, MC, USN		KENNETH H. MUELLER, LTCOL, USAF, MC			
MILITARY ORGANIZATION (When required)	AGE 25	SEX Female	RACE Caucasian	IDENTIFICATION NO.	AUTOPSY NO.
PATIENT'S IDENTIFICATION (For typed or written entries give: Name—last, first, middle; grade; date; hospital or medical facility)				REGISTER NO.	WARD NO.
KATSARIS, MARIA AFIP #1680273					

AUTOPSY REPORT - (A006)

AFIP # 1680273

Name: MARIA KATSARIS  
Age: 25 years  
DOB: September 16, 1953  
Sex: Female  
Race: Caucasian  
Date of Death: November 18, 1978  
Date of Autopsy: December 15, 1978  
Prosecutor: Robert L. Thompson, Capt, MC, USM  
Witnesses: Kenneth H. Mueller, LtCol, USAF, MC  
Joseph M. Ballo, LTC, MC, USA  
Douglas S. Dixon, Major, MC, USA  
Rudiger Breitenecker, M.D.

This is one of the bodies (6A) transported by the USAF from Jonestown, Guyana to Dover Air Force Base, Delaware.

Body Identification:

The body is identified as MARIA KATSARIS by fingerprints taken by the Federal Bureau of Investigation and by comparing post-mortem dental observations with ante-mortem dental records by Colonels Hooker and Morlang, USAF, DC. Physical characteristics are also consistent.

Description of Clothing and Personal Effects:

When first seen during the week of 27 November through 2 December 1978, the body is clothed in a green checked shirt, tan trousers with a brass belt buckle, white socks, blue sneakers, and white panties and bra. Gold-colored earrings are held in place by pierced ears.

External Description:

When first seen sometime during the week of 27 November through 2 December 1978, the body is received clothed (see above) and in a body bag. Post-mortem decomposition is advanced. Maggots are present. The height is measured at 70 inches and weight is measured at 118 pounds. No scars, tattoos, or moles are noted. The scalp hair is brown to black, straight, and drawn up in a pony-tail. The race is judged to be Caucasian. The sex is female. The age is estimated to be somewhere between 25 and 40 years. Upper and lower teeth are present, in good repair, and pink-stained.

When examined again on 15 December 1978, the body is received unclothed and in a body bag. The remains have been embalmed by trocar injection and covered with a whitish powdery preservative. The general appearance is that of a young adult Caucasian female in which post-mortem decomposition is advanced with anterior hair loss, skin generally darkened, and showing skin slippage although some parts of the skin have a leathery appearance. The eyes are sunken and collapsed and color can not be determined. The external genitalia are those of a normal female.

No evidence of injury is noted externally on careful examination of both anterior and posterior aspects of the body, except for puncture marks (1/4") of the abdomen and arms, consistent with an embalmer's trocar; an incision is noted in both cheeks consistent with earlier dental examination.

#### X-ray Examination:

X-rays of the whole body before internal examination reveal no metallic fragments and no evidence of old or recent bony injury.

#### Internal Examination:

The usual body incisions and scalp incision are used to expose and examine the viscera.

#### Body Cavities:

The organs are normally located in their usual positions. They are discolored by decomposition and somewhat shrunken and reek of formalin. The pleural and peritoneal surfaces are smooth and without adhesions. Puncture marks (embalmer's trocar) are noted in most organs of the chest and abdomen. The pleural cavities each contain about 200 ml of dark fluid with the strong odor of formalin.

#### Head:

The skull is intact; no evidence of hemorrhage is seen in the scalp, or above or below the dura mater. The brain is soft and pasty but otherwise unremarkable.

#### Neck:

The soft tissues are discolored. The hyoid bone and laryngeal cartilages are intact and without evidence of injury. The larynx and trachea are unremarkable.

Cardiovascular System:

The heart appears to be normal sized; the coronary arteries are widely patent; the valves are normally shaped. The great vessels pursue their normal courses to and from the heart.

Respiratory System:

The lungs appear normally shaped; no parenchymal lesions are seen; the tracheobronchial tree is patent and unremarkable.

Liver and Biliary Tract:

The liver is intact though studded with a network of small holes owing to post-mortem decomposition. The gall-bladder is present and green-stained; the common bile duct is patent.

Gastro-intestinal Tract:

The esophagus is unremarkable; the stomach is empty; the small and large intestines are in their usual positions and deflated by multiple punctures; the pancreas is difficult to recognize owing to post-mortem decomposition; no lesions are noted in these organs.

Hematopoietic System:

The spleen weighs 80 grams; it is soft, mushy and reddish-brown; lymph nodes are not enlarged; bone marrow is unremarkable.

Genito-urinary Tract:

The uterus is present and its endometrial cavity is unremarkable. Ovaries can not certainly be identified. Kidneys, ureters and bladder are unremarkable.

Endocrine System:

Pituitary, thyroid and adrenals are unremarkable. Ovaries, although searched for, can not be certainly identified grossly.

Musculo-skeletal System:

No deformities or injuries are noted. Muscle from the right thigh has an almost normal color (embalming fluid had apparently not penetrated) and therefore 350 grams is taken for toxicology.

Specimens for Toxicology:

Brain, stomach, liver, kidney, spleen, and thigh muscle.

Microscopy:

Representative sections from all organs except brain are examined: they all reveal advanced post-mortem degeneration.

Summary and Opinion:

Postmortem examination of the body of Maria Katsaris demonstrated advanced putrefaction and evidence of embalming. These findings are consistent with the circumstances at and after her death as reported or known to us. Morphological alterations sufficient to account for death were not seen. Toxicological examination (the specimens being taken about one month after death and about 2 weeks after embalming) revealed a mixture of an anti-histamine, an anti-malarial, and a phenothiazine--all of these at tissue levels not ordinarily thought to be lethal--and a level of cyanide in the brain of 0.08 mg%, an amount that could be significant.

In view of the above mentioned observations, the reports of seemingly reliable witnesses, the presence of cyanide in the stomach contents of at least some of the bodies studied at the scene by Dr. Mootoo, and the presence of apparently significant amounts of cyanide in other bodies studied at Dover AFB (as reported by the Toxicology Division of the AFIP), it seems reasonable to say that, in our opinion, the death of Maria Katsaris was probably caused by cyanide poisoning. The manner of death, in our opinion, remains undetermined owing to the lack of reliable and specific information about her own intent and the possibility of coercion by others.

*Robert L. Thompson*  
ROBERT L. THOMPSON, M.D.  
Captain, MC, USN  
Chairman, Department of  
Forensic Sciences

*KH Mueller*  
KENNETH H. MUELLER  
LtCol, USAF, MC  
Division of Forensic Pathology





ARMED FORCES INSTITUTE OF PATHOLOGY  
WASHINGTON, D.C. 20306

PATIENT IDENTIFICATION	PLEASE USE AFIP ACCESSION NUMBER IN ALL CORRESPONDENCE
AFIP ACCESSION NUMBER: 1680273	
KATSAKIS, MARIA	
PLEASE INFORM US OF ANY PATIENT IDENTIFICATION ERRORS	

ADDRESS REPLY TO THE DIRECTOR  
ATTN: AFIP - CPL-T

18 April 1979

CONSULTATION REPORT ON CONTRIBUTOR MATERIAL

Specimens Submitted: Lung, kidney, muscle, stomach, brain, liver, spleen and teeth.

AFIP DIAGNOSIS:

REPORT OF TOXICOLOGIC EXAMINATION

- All tissues submitted were putrefied; the body was embalmed prior to autopsy.
- Acid, Neutral drugs - LIVER - None Found.
- The following drugs were identified and quantitated by uv spectrophotometry, gas chromatography, and verified by mass spectrometry. Cyanide was analyzed using a NiCl<sub>2</sub> method. Amounts reported in milligrams per 100 grams tissue/

	<u>BRAIN</u>	<u>SPLEEN</u>	<u>LIVER</u>	<u>MUSCLE</u>	<u>KIDNEY</u>	<u>LUNG</u>	<u>STOMACH</u>
Diphenhydramine	0.3	1.9	0.4	0.9	0.6	0.5	45.2
Chlorpromazine	0.06	11.8	3.6	0.03	0.8	0.4	283.7
Chloroquine	NR	NR	12.1	NR	NR	NR	NR
Cyanide	0.08	NR	NR	NR	NR	NR	NR

*William W. Manders*  
WILLIAM W. MANDERS  
LTCOL, USAF, BSC  
Chief, Division of Toxicology

**CLINICAL RECORD**

**AUTOPSY PROTOCOL**

DATE AND HOUR DIED 18 November 1978	A. M. P. M.	DATE AND HOUR AUTOPSY PERFORMED 15 December 1978	A. M. P. M.	CHECK ONE		
				FULL AUTOPSY	HEAD ONLY	TRUNK ONLY
PROSECTOR Joseph M. Ballo, LTC, MC, USA		ASSISTANT Douglas S. Dixon, MAJ, MC, USA		X		

CLINICAL DIAGNOSES (Including operations)

This body (later identified as Ann Elizabeth Moore) was one of a large number of bodies discovered at Jonestown, Guyana on or about 19 November 1978 by members of the Guyanese Defense Force. The scene, as reported in various news media and by government officials of Guyana, was said to be grotesque in the extreme. A few witnesses, again reported in various news media, said that most of these people, some willingly and others unwillingly, had ingested poison(s) which fairly quickly led to their deaths.

After inquiries into the cause and manner of death by Guyanese officials, including Dr. Leslie Mootoo, forensic pathologist to the government of Guyana, the bodies, which were rapidly putrefying in the hot and humid tropical climate of Guyana, were released by the government of Guyana and transported by the United States Air Force from Jonestown, Guyana to Dover AFB, Delaware between 23 and 26 November 1978. Efforts to identify the bodies and add to the store of reliable information about the causes and manners of their deaths were carried on at Dover AFB from 27 November 1978 onward.

**PATHOLOGICAL DIAGNOSES**

- Gunshot wound of head, close-contact, perforating with extensive laceration of brain and multiple comminuted fractures of skull. Date and Time of Death: The evening of 18 November 1978. Place of Death: Jonestown, Guyana.
    - Entrance: right temple
    - Course: right to left, above to below (less than 10°) and horizontal.
    - Exit: left temple.
    - Missile: not recovered.
  - Toxicology:
    - Cyanide - muscle - 0.2mg/100gm.
    - Chloroquine - liver - 7.3mg/100gm.
  - Extensive postmortem decomposition with maggot infestation.
  - Embalming artifacts with trocar wounds of upper and lower extremities and right hypogastrium.
  - Postmortem resection of both cheeks and left temporo-mandibular joint.
  - Miminal early systemic atherosclerosis.
  - Circular discoloration on anterior aspect of left shoulder; ? etiology.
- Cause of Death: Acute Cyanide Poisoning; Gunshot wound of head, laceration of brain.  
 Manner of Death: Undetermined.

APPROVED SIGNATURE: *[Signature]* DOUGLAS S. DIXON, MAJ, MC, USA

JOSEPH M. BALLO, LTC, MC, USA	DOUGLAS S. DIXON, MAJ, MC, USA				
MILITARY ORGANIZATION (If Appr required)	AGE	SEX	RACE	IDENTIFICATION NO.	AUTOPSY NO.
	24	Female	Caucasian		

PATIENT'S IDENTIFICATION (For typed or written entries give Name—last, first, middle, grade, date, hospital or medical facility)	REGISTER NO.	WARD NO.
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MOORE, ANN ELIZABETH  
 AFIP #1680343

AUTOPSY REPORT - (A001)

AFIP #1680343

Name: ANN ELIZABETH MOORE  
Age: 24 years  
Date of Birth: 12 May 1954  
Sex and Race: Female, Caucasian  
Date of Death: 18 November 1978  
Date of Autopsy: 15 December 1978  
Prosecutor: Joseph M. Ballo, LTC, MC, USA  
Witnesses: Robert L. Thompson, CAPT, MC, USN  
Douglas S. Dixon, MAJ, MC, USA  
Kenneth H. Mueller, LTCOL, USAF, MC  
Rudiger Breitenecker, M.D.

This is one of the bodies (A001) transported by the USAF from Jonestown, Guyana to Dover Air Force Base, Delaware.

An autopsy is performed on the remains of a body having the recovery number A001. This body has been identified as that of Ann Elizabeth Moore. This identification has been effected through comparison of antemortem and post-mortem fingerprints and dental records (including X-rays).

Examination of Clothing and Personal Effects:

The following items of clothing are present on the body when first examined and have been previously cataloged:

1. Shirt with key ring and keys
2. Tan pants with a key chain and keys
3. Pocket knife with folding blade present in pants
4. White panties
5. White socks
6. Blue tennis shoes with "Annie Moore" on them.

External Examination:

The body is that of a well-developed, well-nourished Caucasian female measuring 69" in length and weighing 134 lbs. when clothed. The remains are decomposed and there is evidence of embalming with a strong odor of formalin present in the tissues.

The hair is brown, straight and moderately long. The ears are not pierced. The color of the irides cannot be ascertained. The dentition is complete and in excellent repair. The nose is unremarkable. The neck is supple, the breasts free of masses. The abdomen is scaphoid. The pubic hair is dark brown and the external genitalia are unremarkable. The extremities are unremarkable.

Rigor mortis is not present. Livor mortis is not apparent. In addition to the evidence of embalming, the body has been externally preserved with lime and hardening compound.

Evidence of Embalming:

In both antecubital fossae, in the right hypogastrium, over the anterior aspect of both thighs and on the medial aspect of both calves are  $1/4$ " diameter regular perforations of the skin with no evidence of tissue reaction surrounding them.

Evidence of Injury:

On the right side of the head, superior to a line running between the right eye and right external auditory meatus is a large stellate laceration of the scalp. The center of the laceration is at a point 1" anterior to the external auditory meatus and  $1\frac{1}{2}$ " caudad to the vertex. The laceration extends anteriorly for 3" and posteriorly for  $2\frac{1}{2}$ " from the center. The laceration extends caudad for  $2\frac{1}{2}$ " running anteriorly to the right ear. Along this segment, on the posterior margin,  $1\frac{3}{4}$ " from the center of the laceration is an irregular defect, roughly circular in shape and measuring  $1/4 \times 1/2$ ". Caudad to this defect for a distance of  $7/8$ ", and posterior for a distance of  $1/2$ " is an irregular area of darkening and roughening of the skin, subcutaneous tissues and underlying muscle.

On the left side of the head, superior to a line running between the left eye and left external auditory meatus is a large stellate laceration of the scalp. The center of the laceration is at a point 1" posterior to the external auditory meatus and 2" caudad to the vertex. The laceration extends posterior for 2", anteriorly for  $2\frac{1}{2}$ " and then anterior and cephalad for an additional  $2\frac{1}{4}$ ", and caudally for  $1\frac{1}{4}$ ".

The right cheek has been incised posteriorly from the angle of the mouth for a distance of  $1\frac{3}{4}$ " and the left cheek has been incised posteriorly from the angle of the mouth for a distance of  $2\frac{1}{4}$ " and the temporomandibular joint has been separated surgically on the left.

On the anterior aspect of the left shoulder, 13" from the vertex, is a circular area of parchment-like discoloration of the skin, brown in color and  $1/2$ " in diameter.

There is no other evidence of external injury to the body.

The scalp is incised posteriorly to the lacerations. The calva is seen to be shattered over its entire extent. Nine fragments of bone are recovered. When these are reconstructed in situ, an irregular bony defect is present under the area of blackening and discoloration on the right temple. This measures 1+1/4" X 1" in its greatest extent. On the left side is an irregular defect 2+1/2" by 2" underlying the laceration in the left temple. At the junction of the posterior and inferior margin of the bony defect on the left is a semicircular defect measuring 3/4" in diameter. There is beveling here on the bony margins on the exterior table of the skull. No metallic fragments are noted in the cranial cavity. The brain is absent except for a few fragments of semiliquid, green-gray, foul, putrid material in the posterior fossa. Running across the sphenoid bone, through the sella turcica is an extensive fracture of the base of the skull which extends laterally to both the inferior margins of the shattered calva. The entire frontal skeleton of the face hinges through this defect. Numerous hair-line fractures extend into both anterior and posterior fossae.

There is no other evidence of trauma on the internal examination of the body.

#### X-ray Findings:

X-ray studies taken of the thorax, abdomen, pelvis, upper and lower extremities are unremarkable. X-ray studies taken of the skull show extensive shattering of the calva with displacement of the fragments. No retained metallic fragments are visualized.

#### Internal Examination of Body:

The body is opened with the usual Y-shaped thoracoabdominal incision. The internal organs occupy their usual positions, their relationships are normal and the body cavities are unremarkable.

Neck organs: The trachea, larynx and strap muscles are removed en bloc. The hyoid bone is intact. There is no hemorrhage into the strap muscles of the neck. The thyroid is autolytic but appears otherwise unremarkable. The cartilages of the larynx are intact.

Heart: The heart weighs 240 grams. The organ is flabby and there is vesiculation and evidence of gas production in an otherwise normal myocardium. The coronary arteries are free of atheromatous involvement, the valves are of normal size and configuration, and the chambers are of normal size.

Great vessels: The aorta has a few scattered atherosclerotic plaques around the orifices of the major vessels. The carotids are normal, the pulmonary arteries free of clots.

Lungs: The left lung weighs 330 gms, the right 250 gms. They are of greater than normal consistency posteriorly and caudally where they are fixed by preserving fluid. The pulmonary arteries and veins are normal. The bronchi are normal.

Gastrointestinal tract: The stomach has been perforated and drained. The gastric mucosa is absent, the duodenum appears normal. The intestines are parchment-like and empty. The liver weighs 949 grams, is flabby and on cut section, the normal architecture is obscured by numerous fine (1 mm or less) vesiculations. The gallbladder is present but empty.

Genitourinary tract: The kidneys weigh 290 grams in aggregate. The ureters are unremarkable. The bladder mucosa appears absent, the bladder is empty. The ovaries are present and appear reduced in size. The uterus is firm, measures 3" X 1+1/2" X 1+1/2". It is unremarkable on section. The cervix is nulliparous without lacerations. The vaginal mucosa is rugose.

Endocrine organs: The pituitary is not present. The adrenals are soft but are of normal size and appearance. The pancreas is markedly autolyzed.

Hematopoietic system: The spleen weighs 85 grams and is markedly autolyzed.

#### Microscopic Examination:

Slides of kidney, lung, heart and uterus show no abnormalities other than evidence of postmortem decomposition with moderate postmortem gas production.

A slide prepared from the area of parchment-like discoloration on the left shoulder shows apparent condensation and coagulation of the superficial dermis in a continuous layer, without apparent tissue reaction.

Three slides prepared from the tissue defect on the right temple show focal areas of condensation of the superficial dermis without apparent tissue reaction.

Special Studies: Portions of tissue from the defect on the right temple, examined by scanning electron microscopy show no definitive contamination by primer residue.

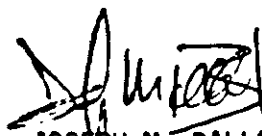
Summary:


The postmortem findings in this case offer two causes of death. The first is a lethal level of cyanide (in muscle), the second is a mutilating gunshot wound of the head with presumed extensive cerebral damage. The measured level of cyanide is within the range of concentrations found in tissues of proven cases of acute cyanide poisoning. Although the production of cyanide in the postmortem period cannot be completely ruled out, the strong circumstantial chain of evidence linking this agent to the deaths in Jonestown cannot be ignored. These items of evidence include the listing of cyanide in the drug inventory of the Jonestown Medical Department, photographs in the media of open bottles of cyanide and reports by the consultant forensic pathologist to the government of Guyana, Dr. Leslie Mootoo, that cyanide was recovered from syringes at the scene and from the stomach contents of 65 victims.

The shooting was surely not antecedent to the administration of cyanide. The possibilities then are a self-inflicted gunshot wound during an agonal period following cyanide ingestion/injection or a coup de grâce gunshot wound inflicted by another party. Incapacitation following cyanide poisoning is not necessarily immediate. The use of multiple modalities for effecting suicide is not uncommon. Notwithstanding this, the absence of witnesses, and the bizarre circumstances surrounding this death make it impossible to choose between the two alternatives with any degree of confidence. Thus, both are listed as "causes of death".

Similarly, the circumstances and the presence of two lethal injuries obscure the manner of death. Had there only been cyanide present, the presence of a note indicating intent at the scene (as reported in the media) would have allowed a strong presumption of suicide. However, since it cannot be determined if the gunshot wound was self-inflicted or not, and if not, whether it was inflicted before or after death by another person, the possibility of homicide cannot be entirely eliminated. Hence, the manner of death must be left undetermined.

The presence of chloroquine is an incidental finding and most probably represents malarial prophylaxis.

 LTC/MC/USA  
 JOSEPH M. BALLO, M.D.  
 LTC, MC, USA  
 Chief, Missile Trauma Pathology  
 Branch

 Major, MC, USA  
 DOUGLAS S. DIXON, M.D.  
 Major, MC, USA  
 Chief, Division of Forensic Pathology



PATIENT IDENTIFICATION	PLEASE USE AFIP ACCESSION NUMBER IN ALL CORRESPONDENCE
AFIP ACCESSION NUMBER	1690343
MOORE, ANN E.	
PLEASE INFORM US OF ANY PATIENT IDENTIFICATION ERRORS	

ADDRESS REPLY TO THE DIRECTOR  
ATTN. AFIP - CPL-T

18 April 1979

CONSULTATION REPORT ON CONTRIBUTOR MATERIAL

Specimens Submitted: Lung, kidney, muscle and liver.

AFIP DIAGNOSIS:

REPORT OF TOXICOLOGIC EXAMINATION

1. All tissues submitted were putrefied; the body was embalmed prior to autopsy.
2. Acid, neutral drugs - LIVER - None Found.
3. Chloroquine (7.3mg/100gm) was identified and quantitated in the liver by uv spectrophotometry and gas chromatography.
4. Cyanide (0.2mg/100gm) was quantitated from muscle using a  $\text{NiCl}_2$  procedure.

WILLIAM W. MANDERS  
LTCOL, USAF, BSC  
Chief, Division of Toxicology



**CLINICAL RECORD**

**AUTOPSY PROTOCOL**

DATE AND HOUR DIED 18 November 1978	A. M.	DATE AND HOUR AUTOPSY PERFORMED 15 December 1978,	A. M.	CHECK ONE		
	P. M.		P. M.	FULL AUTOPSY	HEAD ONLY	TRUNK ONLY
PROSECTOR Robert L. Thompson, CAPT, MC, USN	ASSISTANT Kenneth H. Mueller, LTCOL, USAF			X		

**CLINICAL DIAGNOSES (Including operations)**

This body (later identified as Carolyn Moore) was one of a large number of bodies discovered at Jonestown, Guyana on or about 19 November 1978 by members of the Guyanese Defense Force. The scene, as reported in various news media and by government officials of Guyana, was said to be grotesque in the extreme. A few witnesses, again reported in various news media, said that most of these people, some willingly and others unwillingly, had ingested poison(s) which fairly quickly led to their deaths.

After inquiries into the cause and manner of death by Guyanese officials, including Dr. Leslie Mootoo, forensic pathologist to the government of Guyana, the bodies, which were rapidly putrefying in the hot and humid tropical climate of Guyana, were released by the government of Guyana and transported by the United States Air Force from Jonestown, Guyana to Dover AFB, Delaware between 23 and 26 November 1978. Efforts to identify the bodies and add to the store of reliable information about the causes and manners of their deaths were carried on at Dover AFB from 27 November 1978 onward.

**PATHOLOGICAL DIAGNOSES**

- Cause of death: Probable cyanide poisoning.
- Young adult Caucasian female (embalmed) in advanced stages of post-mortem decomposition with maggot infestation.
- Manner of death: Undetermined.

*Robert L. Thompson*  
 ROBERT L. THOMPSON, CAPT, MC, USN

*K. H. Mueller*  
 KENNETH H. MUELLER, LTCOL, USAF, MC

MILITARY ORGANIZATION (None required)	AGE 33	SEX Female	RACE Caucasian	IDENTIFICATION NO.	AUTOPSY NO.
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PATIENT'S IDENTIFICATION (For typed or written entries give: Name—last, first, middle, grade, date, hospital or medical facility)

CAROLYN LAYTON (MOORE)  
 AFIP #1680344

REGISTER NO.

WARD NO.

AUTOPSY REPORT -(A002)

AFIP #1680344

Name: CAROLYN LAYTON (MOORE)  
Age: 33 years  
Date of Birth: July 13, 1945  
Sex: Female  
Race: Caucasian  
Date of Death: November 18, 1978  
Date of Autopsy: December 15, 1978  
Prosecutor: Robert L. Thompson, CAPT, MC, USN  
Witnesses: Kenneth H. Mueller, LtCol, USAF, MC  
Joseph M. Ballo, LTC, MC, USA  
Douglas S. Dixon, MAJOR, MC, USA  
Rudiger Breitenecker, M.D.

This is one of the bodies (2A) transported by the United States Air Force from Jonestown, Guyana to Dover Air Force Base, Delaware.

Body Identification:

The body is identified as Carolyn Layton (Moore) by fingerprints taken by the Federal Bureau of Investigation, and by comparing postmortem dental observations with antemortem dental records by Colonels Hooker and Perez, USAF, DC. The name "C. Layton" is printed on the panties found in place on the body. Antemortem medical records are not available.

Description of Clothing and Personal Effects:

When first seen on 26 November 1978, the body is clothed in a white knit blouse, black slacks, bra and panties. No shoes or socks are present. Two gold-colored chains are worn around the neck. Metal earrings are held in place by pierced ears; that on the right resembled a rose while that on the left contained only the metal holder for the earring. The name "C. Layton" is printed on the panties.

External Description:

When first seen on 26 November 1978 the body is received clothed (see above) and in a body bag. Postmortem decomposition is moderate to marked and notable for bloating, general discoloration, and mild to moderate maggot infestation. The height is measured at 64 inches and the weight is estimated at 115 pounds. The remains are those of a Caucasian female with dark reddish-brown long hair. Color of eyes and age cannot be determined owing to post-mortem decomposition. Upper and lower teeth are present, in good repair, and generally pink-stained.

When examined again on 15 December 1978, the body is received unclothed in a body bag. The remains have been embalmed by trocar injection, and are covered with a whitish powder preservative. The height is measured at 63 inches and the weight measured at 110 pounds. The hair is long, dark reddish-brown, and held in place by multiple large metallic bobby pins. The general appearance of the body is that of a young adult Caucasian female in which postmortem decomposition is advanced and notable for dark discoloration of the skin with "marbling" of the superficial vessels in the legs, some (but not marked) gaseous distention, and peeling of the skin of the hands and feet. The fingers and thumbs have been amputated (but are still present in the body bag) in order to obtain fingerprints.

No tattoos, scars, or moles can be seen on the body. The external genitalia are those of a normal female.

Puncture marks by a large-bore needle (1/4") are noted on the right cheek, the anterior chest and abdomen, right arm and both lower legs. These are consistent with the marks of an embalmer's trocar. Further evidence of embalming is the strong smell of formalin-like preservative about the body. No other evidence of injury is noted on careful examination of both anterior and posterior aspects of the body. In particular, the face, neck, and both forearms and hands are free from injury.

#### X-Ray Examination:

X-rays of the whole body before internal examination reveal no metallic fragments, and no evidence of recent or old bony injury.

#### Internal Examination:

The usual body incisions and scalp incision are used to expose and examine the viscera.

Body Cavities: The organs are normally located in their usual positions. They are discolored by decomposition and somewhat shrunken and reek of formalin. The pleural and peritoneal surfaces are smooth and without adhesions. Puncture marks (embalmer's trocar) are noted in most organs of the chest and abdomen.

Head: The skull is intact; no evidence of hemorrhage is seen in the scalp, or above or below the dura mater. The brain is soft, pasty, almost soupy but otherwise unremarkable.

Neck: The soft tissues are discolored. The hyoid bone and laryngeal cartilages are intact and without evidence of injury. The larynx and trachea are unremarkable.

Cardiovascular System: The heart appears to be normal sized; the coronary arteries are widely patent; the valves are normally shaped. The great vessels pursue their normal courses to and from the heart.

Respiratory System: The lungs appear normally shaped; no parenchymal lesions are seen; the tracheo-bronchial tree is patent and unremarkable.

Liver and Biliary Tract: The liver is intact though studded with a network of small holes owing to postmortem decomposition. The gallbladder is present and green-stained; the common bile duct is patent.

Gastro-intestinal Tract: The esophagus is unremarkable; the stomach is empty; the small and large intestines are in their usual positions and deflated by multiple punctures; the pancreas is difficult to recognize owing to postmortem decomposition: no lesions are noted in these organs.

Hematopoietic System: The spleen is unremarkable; lymph nodes are not enlarged; bone marrow is unremarkable.

Genito-urinary Tract: The uterus and both ovaries are present and unremarkable; there is no evidence of pregnancy. Occasional small cortical cysts are seen in the right kidney; the left kidney is unremarkable. The ureters pursue straight courses to the unremarkable bladder.

Endocrine System: The thyroid, pituitary, adrenals and ovaries are unremarkable.

Musculoskeletal System: No deformities or injuries are noted.

Specimens for Toxicology: Brain, stomach, liver kidney, spleen, and thigh muscle.

Microscopy: Representative sections from all organs except brain are examined: they all reveal advanced postmortem degeneration.

Summary and Opinion:

Postmortem examination of the body of Carolyn Moore (Layton) demonstrated advanced putrefaction and evidence of embalming. These findings are consistent with the circumstances at and after her death as reported or known to us. Morphological alterations sufficient to account for death were not seen. Toxicological examination (the specimens being taken about one month after death and about 2 weeks after embalming) revealed a mixture of phenothiazines, an anti-histamine and an anti-malarial present in the tissues at levels not thought to be lethal. Cyanide, although carefully searched for, was not recovered. This unfortunate lack weakens our argument (see below) but does not invalidate it if one keeps in mind the known rapid decline of cyanide levels after death.

In view of the above mentioned observations, the reports of seemingly reliable witnesses, the presence of cyanide in the stomach contents of at least some of the bodies studied at the scene by Dr. Mootoo, and the presence of apparently significant amounts of cyanide in other bodies studied at Dover AFB (as reported by the Toxicology Division of the AFIP), it seems reasonable to say that, in our opinion, the death of Carolyn Moore (Layton) was probably caused by cyanide poisoning. The manner of death, in our opinion, remains undetermined owing to the lack of reliable and specific information about her own intent and the possibility of coercion by others.

*Robert L. Thompson*  
ROBERT L. THOMPSON, M.D.  
Captain, MC, USN  
Chairman, Department of  
Forensic Sciences

*K. H. Mueller*  
KENNETH H. MUELLER  
LtCol, USAF, MC  
Division of Forensic Pathology



PATIENT IDENTIFICATION	PLEASE USE AFIP ACCESSION NUMBER IN ALL CORRESPONDENCE
AFIP ACCESSION NUMBER: 1680344	
MOORE, CAROLYN L.	
PLEASE INFORM US OF ANY PATIENT IDENTIFICATION ERRORS	

ADDRESS REPLY TO THE DIRECTOR  
ATTN: AFIP - CPL-T

18 April 1979

CONSULTATION REPORT ON CONTRIBUTOR MATERIAL

Specimens Submitted: Lung, kidney, brain, liver, spleen, stomach and teeth.

AFIP DIAGNOSIS:

REPORT OF TOXICOLOGIC EXAMINATION

1. All tissues submitted were putrefied; the body was embalmed prior to autopsy.
2. Acid, Neutral drugs - LIVER - None Found.
3. The following drugs were identified and quantitated by uv spectrophotometry or gas chromatography and verified by mass spectrometry. Amounts reported are in milligrams per 100 grams tissue.

	<u>STOMACH</u>	<u>LUNG</u>	<u>SPLEEN</u>	<u>KIDNEY</u>	<u>LIVER</u>	<u>BRAIN</u>
Diphenhydramine	0.98	0.02	0.02	0.03	0.54	0.02
Promethazine	1.31	0.02	0.04	0.19	0.70	0.05
Chlorpromazine	40.94	0.22	0.23	1.05	3.12	0.13
Chloroquine	NR	NR	NR	NR	8.3	NR

*William W. Manders*  
WILLIAM W. MANDERS  
LTCOL, USAF, BSC  
Chief, Division of Toxicology

**CLINICAL RECORD**

**AUTOPSY PROTOCOL**

DATE AND HOUR DIED 18 November 1978		A. M. P. M.	DATE AND HOUR AUTOPSY PERFORMED 15 December 1978		A. M. P. M.	CHECK ONE		
						FULL AUTOPSY	HEAD ONLY	TRUNK ONLY
PROSECTOR Joseph M. Ballo, LTC, MC, USA			ASSISTANT Douglas S. Dixon, MAJ, MC, USA			X		

CLINICAL DIAGNOSES (Including operations)

This body (later identified as Laurence Eugene Schacht) was one of a large number of bodies discovered at Jonestown, Guyana on or about 19 November 1978 by members of the Guyanese Defense Force. The scene, as reported in various news media and by government officials of Guyana, was said to be grotesque in the extreme. A few witnesses, again reported in various news media, said that most of these people, some willingly and others unwillingly, had ingested poison(s) which fairly quickly led to their deaths.

After inquiries into the cause and manner of death by Guyanese officials, including Dr. Leslie Mootoo, forensic pathologist to the government of Guyana, the bodies, which were rapidly putrefying in the hot and humid tropical climate of Guyana, were released by the government of Guyana and transported by the United States Air Force from Jonestown, Guyana to Dover AFB, Delaware between 23 and 26 November 1978. Efforts to identify the bodies and add to the store of reliable information about the causes and manners of their deaths were carried on at Dover AFB from 27 November 1978 onward.

**PATHOLOGICAL DIAGNOSES**

- Moderately advanced postmortem decomposition with early mummification and maggot infestation; Date and Time of Death: the evening of 18 November 1978; Place of Death: Jonestown, Guyana.
- Surgical resection of both cheeks, postmortem.
- Embalming of body with trocar wound of anterior abdominal wall, stomach and intestines; introduction of embalming fluids.

Cause of Death: Probable Acute Cyanide Poisoning.

Manner of Death: Undetermined.

APPROVED SIGNATURE <i>Joseph M. Ballo</i>		DOUGLAS S. DIXON, MAJ, MC, USA	
JOSEPH M. BALLO, LTC, MC, USA		DOUGLAS S. DIXON, MAJ, MC, USA	
MILITARY ORGANIZATION (If not required)	AGE 30	SEX Male	RACE Caucasian
PATIENT'S IDENTIFICATION (For typed or written entries give Name—last, first, middle, grade, date, hospital or medical facility)		IDENTIFICATION NO.	AUTOPSY NO.
SCHACHT, LAURENCE EUGENE AFIP #1680274		REGISTER NO.	WARD NO.

AUTOPSY REPORT - (I-054)

AFIP #1680274

Name: LAURENCE EUGENE SCHACHT  
Age: 30 years  
Date of Birth: October 2, 1948  
Sex: Male  
Race: Caucasian  
Date of Death: 18 November 1978  
Date of Autopsy: 15 December 1978  
Prosecutor: Joseph M. Ballo, LTC, MC, USA  
Witnesses: Robert L. Thompson, Capt., MC, USN  
Kenneth H. Mueller, LtCol, USAF, MC  
Douglas S. Dixon, Major, MC, USA  
Rudiger Breitenecker, M.D.

This is one of the bodies (I-054) transported by the USAF from Jonestown, Guyana to Dover Air Force Base, Delaware.

An autopsy is performed on the remains of a body having the recovery number I-054 and identified as the body of Laurence Eugene Schacht. This identification has been effected by the comparison of antemortem and postmortem fingerprints.

Description of Clothing and Personal Effects:

The following items of clothing are present on the body when first examined:

1. Short-sleeved green shirt
2. Light green undershirt
3. Heavy brown fabric pants
4. A pair of "jockey" brand shorts
5. Brown socks
6. Black oxford shoes
7. A tag around the left foot reading "LARY SCHATT"

External Description:

The body is that of a well-developed, well-nourished Caucasian male measuring 68" in length and weighing 112 lb when clothed. The remains are decomposed and the face is partially skeletonized. There is evidence of embalming with a strong odor of formalin in the tissues.

The cephalic hair appears brown and is moderately long. The ears are unremarkable. The color of the irides cannot be ascertained. The dentition is complete and in excellent repair. The nose is unremarkable. The skin is dried,



drawn and appears desiccated. The neck is supple. The thorax is unremarkable and the abdomen is scaphoid. The pubic hair is dark brown, the penis is circumcised and both testes are descended and present in the scrotum. The extremities are unremarkable.

Rigor mortis is not present. Livor mortis is not apparent. In addition to the evidence of embalming, the body has been externally preserved with lime and hardening compound. Both cheeks have been surgically resected.

#### Evidence of Embalming:

At the level of the umbilicus, 1+1/2" to the right of the midline, is a circular 1/4" perforation of the skin. Internally there is a 1/4" perforation of the anterior wall of the stomach.

#### X-Ray Examination:

X-rays of the skull, thorax, abdomen, pelvis, upper and lower extremities show no evidence of bony injury, or retained metallic fragments.

#### Internal Examination of the Body:

The body is opened with the usual Y-shaped thoraco-abdominal and intermastoid bitemporal incisions. The internal organs occupy their usual positions, and have their normal relationships. The body cavities are unremarkable.

Neck organs: The trachea, larynx and strap muscles are removed en bloc. The hyoid bone is intact. There is no hemorrhage into the strap muscles. The thyroid is soft but otherwise unremarkable. The cartilages of the larynx are intact.

Heart: The heart weighs 130 grams. The organ is flabby and there is evidence of postmortem gas production. The coronaries have a left predominant configuration and are everywhere widely patent. The valves are of normal size and configuration and the chambers are of normal size.

Great vessels: There are scattered, smooth, yellow plaques within the wall of the aorta. The carotid arteries are widely patent and the pulmonary arteries are free of clots.

Lungs: The left lung weighs 190 gms. The right lung weighs 280 grams. They are grossly normal on section. The right lung is fixed with preserving fluid and is cast-like in appearance. The pulmonary arteries and veins are normal. The bronchi are normal.

Gastrointestinal tract: The stomach is perforated and drained. The character of the mucosa is not apparent, the duodenum appears normal. The intestines are parchment-like and empty, having been perforated and drained. The liver weighs 510 gms. and is flabby and discolored. The gallbladder is present but empty.

Genitourinary system: The kidneys weigh 105 gms. in aggregate. They are pale and markedly autolytic. The ureters appear normal. The bladder is empty.

Endocrine system: The pituitary is soft and autolytic, the adrenals are soft but appear normal in character. The pancreas is markedly autolytic.

Hematopoietic system: The spleen weighs 45 gms. and is markedly autolytic.

Central Nervous system: The brain is soft and partially liquefied, putrid, and foul smelling. The dural membranes are intact and when stripped, the bones of the skull are intact.

#### Microscopic Description:

Microscopic slides prepared from aorta, heart, liver, lung and kidney show only postmortem decomposition and evidence of postmortem gas production.

#### Summary:

The autopsy performed on this individual's remains revealed no natural gross or microscopic anatomic findings responsible for his death. There was no evidence of antemortem trauma. Total body X-rays revealed no retained missile fragments. Toxicologic analyses revealed diphenhydramine (an anti-histamine) and chlorpromazine (a "major" antidepressant) in muscle, liver, spleen, stomach, brain and lung and chloroquine (an antimalarial) and salicylates in the liver. The levels reported are below commonly accepted lethal levels.

Cyanide is known to be implicated in the deaths of many, if not all, of the non-traumatic fatalities occurring in Jonestown the evening of 18 November 1978. The chain of evidence for this includes the presence of salts of cyanide in the drug inventory of the commune's medical department; photographs of open bottles of cyanide salts in association with other drugs near the vat; evidence by Dr. Leslie Mootoo, consultant pathologist to the government of Guyana, that cyanide was present in syringes found at the scene; similar evidence, from Dr. Mootoo, that cyanide was recovered from the gastric contents of 65 victims; recovery of cyanide by the Division of Toxicology, Armed Forces Institute of Pathology, from a syringe recovered at the scene and the discovery of cyanide in the tissues of two of the individuals autopsied at Dover Air Force Base.

It is deemed significant that diphenhydramine was recovered from the residue in one of the vats in which the poison was supposedly mixed. This same drug was present in the stomach (11.4 mg%). That cyanide was not recovered from the vat is consistent with the acid pH of the resulting mix (pH = 4.5). Cyanide is unstable at an acid pH. That cyanide was not recovered from the tissues may be a reflection of its not being initially present, or of its not being present at time of examination. The known lability of cyanide in the postmortem interval, the length of this interval in this case (5 days before refrigeration and one month before autopsy) and the intervening embalming introducing the presence of contaminating compounds and possibly diluting (or discarding entirely) relevant body fluids, all provide ample reasons for not finding cyanide.

Therefore, based solely on the circumstances of the death and without any direct supporting anatomic, X-ray or toxicologic findings, we have determined the cause of death in this case to be: Probable Acute Cyanide Poisoning.

Because of the bizarre circumstances surrounding this death and the lack of any information about self-intent or possible coercion, it is not possible to form a conclusion as to manner of death; hence: Undetermined.

*Douglas S. Dixon, Major, MC, USA*  
DOUGLAS S. DIXON, M.D.  
Major, MC, USA  
Chief, Division of Forensic Pathology

*Joseph M. Ballo, M.D.*  
JOSEPH M. BALLO, M.D.  
LTC, MC, USA  
Chief, Missile Trauma Pathology Branch



PATIENT IDENTIFICATION	PLEASE USE AFIP ACCESSION NUMBER IN ALL CORRESPONDENCE
AFIP ACCESSION NUMBER.	1680274
SCHACHT, LAURENCE E.	
PLEASE INFORM US OF ANY PATIENT IDENTIFICATION ERRORS	

ADDRESS REPLY TO THE DIRECTOR  
ATTN: AFIP - CPL-T

18 April 1979

CONSULTATION REPORT ON CONTRIBUTOR MATERIAL

Specimens Submitted: Lung, muscle, stomach, brain, liver, teeth and spleen.

AFIP DIAGNOSIS:

REPORT OF TOXICOLOGIC EXAMINATION

- All tissues submitted were putrefied; the body was embalmed prior to autopsy.
- Neutral drugs - LIVER - None Found.
- The following drugs were identified and quantitated by uv spectrophotometry, gas chromatography and verified by mass spectrometry. Amounts reported are in milligrams per 100 grams of tissue.

	<u>MUSCLE</u>	<u>LIVER</u>	<u>SPLEEN</u>	<u>STOMACH</u>	<u>BRAIN</u>	<u>LUNG</u>
Diphenhydramine	0.17	28.9	2.5	11.4	0.8	0.4
Chlorpromazine	0.01	2.1	0.7	3.9	0.2	0.1
Chloroquine	NR	7.8	NR	NR	NR	NR
Salicylates	NR	0.4	NR	NR	NR	NR

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Chief, Division of Toxicology