The Danger of Premature Burial Following Erroneous Pronouncement of Death on the Battlefield

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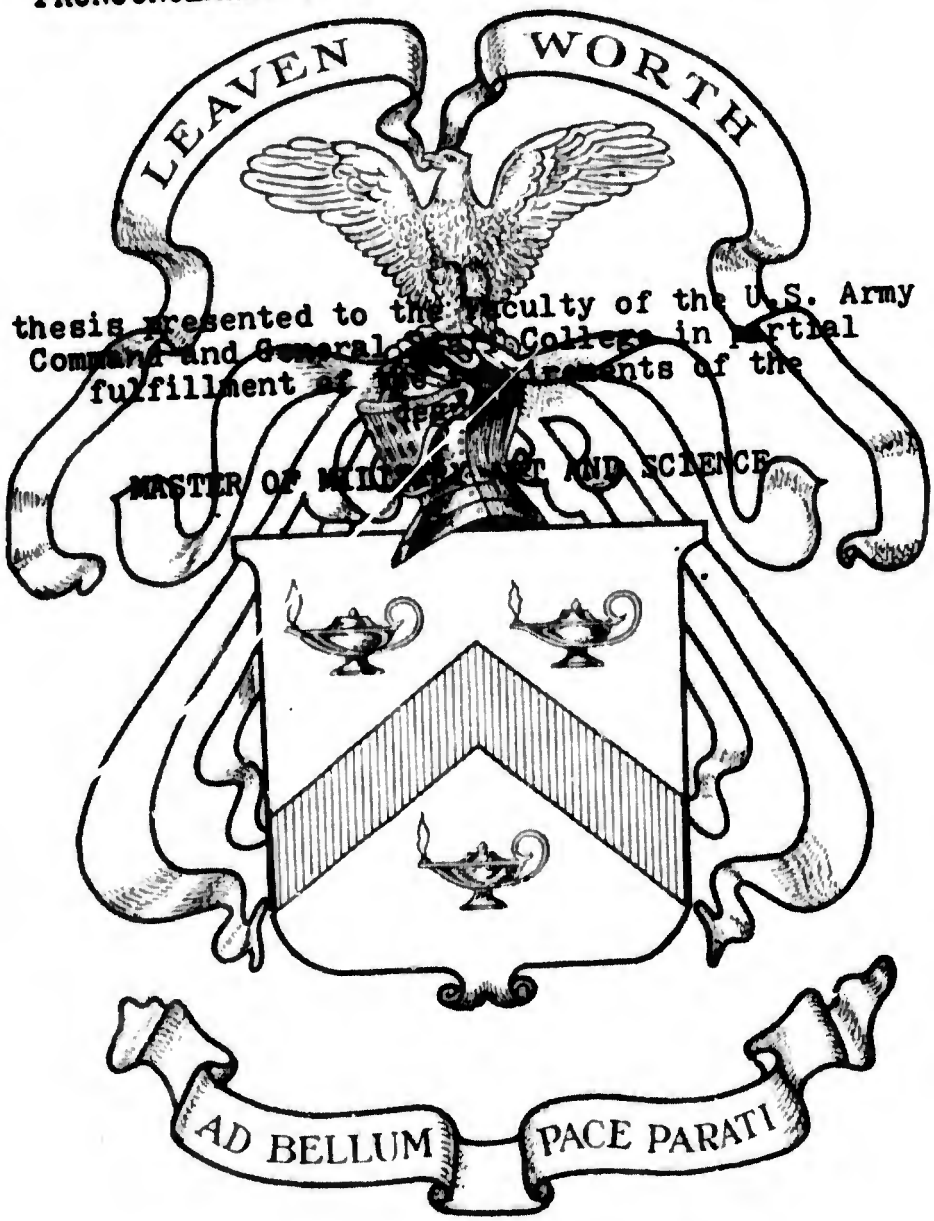
This study examines the potential for error during early separation of the wounded from the dead during combat operations. No attempt is made to criticize military medicine. Attention is focused primarily upon public attitudes and military policies which allow a significant number of apparently dead casualties to bypass medical screening entirely.

This thesis concludes that a possibility exists for wounded, but live, soldiers to be misdirected into graves registration channels without medical examination. The author recommends an end to the use of body bags and mortuary refrigerators--except in those cases where competent, medical authorities have made a legal certification of death. A further recommendation calls for reexamination of other military policies associated with graves registration operations.

THE DANGER OF PREMATURE BURIAL FOLLOWING ERRONEOUS PRONOUNCEMENT OF DEATH ON THE BATTLEFIELD



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by

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The opinions and conclusions expressed herein are those of the individual student author and do not necessarily represent the views of either the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

Battlefield casualties are summarily grouped into two categories--the dead and the wounded. Graves registration teams collect the dead, and ambulances evacuate the wounded. But who decides who is dead? On a battlefield, anyone failing to exhibit obvious signs of life can be directed into mortuary evacuation channels by virtually anyone else. Medical examination is not a prerequisite for the enclosure of casualties within air tight body bags or mortuary refrigerators. There is no clear statutory requirement for completion of a death certificate even prior to embalming.

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mortuary refrigerators--except in those cases where competent, medical authorities have made a legal certification of death. A further recommendation calls for reexamination of other military policies associated with graves registration operations.

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PREFACE

Spring 1963
Aircrew Survival Training
Travis Air Force Base, California

Sgt Riley: He's <u>not</u> dead! You proceed with closed heart massage and continue resuscitation.

Lt Carleton: But if he's obviously dead . . .

Sgt Riley: That's what I'm trying to teach you here. No one is ever obviously dead. Only a doctor can make that decision.

Lt Carleton: But suppose the man's head is lying ten feet away from his torso! The man is decapitated. What do you expect us to do?

Sgt Riley: Place the head back on the body! Control bleeding! Maintain respiration and circulation.

Lt Carleton: Sarge, that's just not realistic.

Sgt Riley: But it's not as dumb as allowing a layman to diagnose death.

Fall 1975
Army Command and General Staff College
Fort Leavenworth, Kansas

LTC Dyer: You're bringing back all five casualties in the same ambulance?

Maj Carleton: Won't it hold five?

LTC Dyer: Yes, but as a rule we don't like to transport the dead with the wounded.

Maj Carleton: Who says they're dead?

LTC Dyer: That was the original message from the squad leader. He radioed that two of the men were dead.

Maj Carleton: Is the squad leader a doctor?

LTC Dyer: (Pausing) That is a point worth considering. But for the purposes of this exercise, we're assuming that the squad leader knows what he's talking about. The point we're trying to get across here is that we normally want to arrange separate transportation for the dead.

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CHAPTER I

INTRODUCTION TO THE PROBLEM

Newspaper Clipping: The Jacky Bayne Case

STARTLED ARMY EMBALMER FINDS LIFE IN GI PRONOUNCED DEAD IN VIETNAM

Chicago Daily News Service

In Ward 35 at Walter Reed Army Hospital, there lies a shattered young soldier whose recovery began, incredibly, under the knife of a startled Army embalmer in Vietnam.

Specialist-4 Jacky C. Bayne of Fort Mill, S. C., was pronounced dead of severe boobytrap wounds near Chulai last July 16. His seemingly lifeless body was transported routinely to an Army graves-registration section nearby.

Some time later - probably a matter of hours but nobody knows exactly how long - the embalmer's knife made its initial incision. It uncovered a faint flicker of life.

Bayne's body was rushed back to a field hospital, where attempts at resuscitation were resumed. Gradually, after massive transfusions of blood, other signs of life began to return to Jacky Bayne. He now is moving toward at least limited recovery.

Army doctors at Walter Reed call the Bayne story "amazing" and "astounding." Three senior medical officers, whose experience includes World War II, Korea, and Vietnam, said today they had never heard of such an occurrence.

"Collectively," said one of the three officers, a colonel, "we represent 75 years of Army medical experience. And this is the first case we've ever heard of."

An official spokesman for Walter Reed Army Hospital emphasized repeatedly that the Bayne

case was an extreme medical rarity. As such, he said, it should cause no worry to relatives of men in Vietnam.

THE WASHINGTON POST
Thursday, Nov. 2, 1967

Separating the Wounded from the Dead

Battlefield casualties are summarily grouped into two categories - the dead and the wounded.[1] Ambulances evacuate the wounded. Graves registration teams collect the dead. But who decides who is dead?

On a battlefield, anyone failing to exhibit obvious signs of life can be directed into mortuary evacuation channels by virtually anyone else who does exhibit signs of life. One example is recorded in an account of the 1st Infantry Division's operation near Ben Suc in Vietnam. A seemingly competent combat engineer appears to make a routine death diagnosis: "The engineer leaned down, felt the man's wrist, and said, 'He's dead.'" A few minutes later, the same engineer turns to a companion and remarks, "You know, that's the first time I've ever seen a dead guy."[2]

Medical examination is not a prerequisite for the enclosure of casualties within air tight body bags or mortuary refrigerators. Although few licensed embalmers might want to risk having "formaldehyde poisoning" listed as the cause of death on a belated death certificate, there is no clear statutory requirement for completion of death certificates even prior to embalming.[3] And even where death is caused by embalming, there is little likelihood that the

event would be discovered. The laxity of military post-mortems is an accepted and well documented fact of combat operations.[4]

It should be emphasized that the quality of military medicine is not the issue for investigation in this thesis. Once a casualty does make his way into the medical evacuation chain, his treatment is generally considered to be second to none.[5] However, not all casualties go through preliminary medical screening.[6] If SGT Jones gets hit and SP4 Smith is the only witness, who will question Smith's call that "Jones is dead!"?

Some combat veterans have reported being in units where a commander insisted upon having medics look at all casualties.[7] But this attitude is by no means shared by all commanders.

> A survey of opinion of 200 experienced combat commanders revealed that a considerable number believed it desirable to have special GRS [Graves Registration Service] units or teams recover the dead in all instances. There are several good arguments for such a procedure.[8]

Graves registration personnel are the ones who are specifically trained to answer the call "Jones is dead," regardless of the source of the call. In fact, specific reports on individual deaths are not required to activate mortuary processing. During initial sweeps of a battlefield, graves registration teams are instructed to search for unreported bodies in concealed areas where shelter may have been sought by isolated soldiers.[9] Mortuary Affairs

training films portray search teams making initial post combat contacts with "remains" who appear to be intact, without visible wounds, and with healthy color showing in their complexions.[10] Yet mortuary processing is initiated immediately without medical confirmation of death.

A natural question with an elusive answer is "How many battle fatalities actually bypass medical screening?" Discrepancies in casualty reporting procedures do not allow for precise calculation of a percentage. One pair of medical authors compiling a statistical analysis of battle casualties began their work by stating that they found "medical statistics inexact" but proceeded on a premise of writing that they would "take what we've got."[11] These authors compiled a table of World War II battle fatalities showing the disparity between medical and administrative reporting. Final medical source totals of 93,000 dead fell far short of the 175,000 administrative figure. One explanation for the 82,000 shortfall in medical reporting is that 46% of the dead did not receive medical processing.

> Of course, the counts of killed in action provided by medical reports are of no particular value because there is no sure mechanism for bringing the killed into the medical reporting, whereas The Adjutant General's responsibility for personnel accounting and notification of next of kin demands that all necessary safeguards be taken.[12]

Another author states that of 4,280 U.S. battle deaths in Korea prior to 15 September 1950, only 319 were recorded in hospitals.[13]

Casualty figures from Vietnam provide similar examples of uncorrelated statistics. During one battle in the Ia Drang Valley in 1965, one author places the total of U.S. dead at 240.[14] Another account places the death toll at 79.[15] For the period January 1965 through December 1970, hospital sources in Vietnam recorded only 2,540 deaths[16] while mortuary records for the same period report processing a total of 34,894 Army dead.[17]

The differences in numbers from various sources suggest that medical doctors are not afforded an opportunity to examine all fatalities. Reliable statistics delineating the numbers processed exclusively through mortuary facilities are nonexistent. In any case, lack of medical screening violates no military directives in regard to processing of the apparent dead.

Problem Statement and Methodology

Is there a significant possibility that some battle casualties who were neither dead nor dying were erroneously placed in the wrong evacuation channel? Can such an event take place today if current military doctrine is properly enforced?

The most spectacular evidence to support an affirmative answer to the preceding problem statement would be the documentation of recent instances of spontaneous resuscitations within body bags and/or refrigerators. The absence of such evidence, however, should not necessarily

demand a negative response to the same question. Just as the widespread use of arterial embalming has reduced today's prospects for spontaneous resuscitations within sealed caskets, so the development of new body bags and the routine use of mortuary refrigerators has diminished the possibilities for complaints on the part of their occupants.

Investigation of the problem statement will include a search for documented resuscitations within mortuary evacuation channels; however, the initial method of investigation will consist of examining present procedures which facilitate de facto death pronouncements by personnel who lay no claim to having medical expertise.

Although physicians are not immune from making their own errors in legal death pronouncements,[18] this paper will not concern itself with the infrequent mistakes of a highly trained group of professional experts. Any death pronouncements which are made within established areas of medical expertise (including battlefield deaths attended by medics) will be subordinated in this study in order to focus full attention on the phenomena of de facto death pronouncements by untrained laymen.

Definitions

The phrase "de facto death pronouncement" does not appear in any military publication. The most significant aspect of the concept of de facto pronouncements is that they have no official status or statutory definitions to regulate or limit their employment.

Technically, in the military, only a physician has the authority to pronounce someone dead. This is not always the case in civil law. "In most states. . .there is no statutory requirement that actual pronouncement of death be made by a member of the medical profession."[19] But military procedures do require that a physician make a written certification as to the cause of death - prior to shipment of an embalmed body.[20] However, the placement of a battlefield casualty into either a refrigerator or a body bag is a procedure which is routinely utilized pending legal certification of death.[21] When such actions are accomplished without direct medical examination, a de facto death pronouncement has taken place.

The enormous subtlety in a de facto death pronouncement is that it does not have a prescribed format to call attention to its existence. It doesn't even need to be verbalized. On those occasions when someone does say the words "That man is dead," the speaker may not ever realize the import of his words. Such an exclamation is often divorced from any disciplined inquiry into valid objective criteria for certifying death.

"Disciplined inquiry" and "valid objective criteria" are key concepts in understanding subsequent criticism of de facto death pronouncements. Any systematic approach to determining whether or not a person is dead may be called a disciplined inquiry. Valid objective criteria are any

clearly defined measurements prescribed by any methodical diagnostic procedure. The reader should remember that none of these phrases is intended to reflect upon the comparative validity of a specific procedure; the validity of the objectivity is the crucial issue upon which attention is to be focused.

For example, in some cases of severe trauma - such as decapitation - the search for a pulse (a disciplined inquiry) may not seem to be apropos. After all, isn't a severed head a piece of objective criteria? Not necessarily![22] A disciplined inquirer may discover that the decapitated body is actually intact - perhaps a scared soldier who, like a turtle, withdrew his own head into his bulky flak jacket and passed out from shock when a severed head (from a more distant body) rolled across the ground near his own position. A casual observer who later wanders into the area and observes the severed head alongside the apparently headless body, may leap to erroneous conclusions based primarily upon strongly subjective reactions to his sensory inputs. Decapitation becomes a piece of objective data only when the observer is able to overcome his horror long enough to make an intentional observation of the specific parameters of the trauma.

Admittedly the preceding hypothetical case is far fetched; however, it is not intended as an argument <u>against</u> subjective observations. The sole purpose in choosing such

an extreme and unlikely example is only to illustrate a critical distinction between objective and subjective conclusions. Furthermore, this is not to say that subjective perceptions are invariably wrong, or that disciplined inquiries are consistently correct. The objective being sought at this point is the delineation of the terms. One of the characteristics of disciplined inquiries with objective criteria is that they are involved with intentional observations as opposed to accidental encounters.

While accidental encounters with the dead are to be expected in combat operations, they should always be followed immediately with a disciplined inquiry by a trained observer. The inherent hazards of de facto death pronouncements stem from the lack of disciplined guidance in their formulation. This lack of guidance begs a crucial question which is further aggravated by instructions to process the dead in such and such a manner without providing the faintest clue as to the who, what, when, where, or how of deciding who's dead and who's wounded.[23] Essentially, each individual soldier is left to his own devices in determining who is really dead.[24]

Notes - Chapter 1

[1]FM 100-10 Combat Service Support, (30 March 1973), chapter 17, cf chapter 19.

One Army surgeon implied that this procedure reflected a grim reality in Vietnam. "If you're going to die in Nam, you'll die straight out, right where it happens. If you don't die right out you've got a pretty good chance; the evac and surgical hospitals do anything and everything." Ronald J. Glasser, 365 Days, (New York: G. Braziller, 1971), 9.

[2]Jonathan Schell, The Village of Ben Suc, (New York: Alfred Knopf, 1967), 36-7.

One authority states, "Reports must be made from assumption . . . . Thus the reporting of casualties rightfully commences at the fire team level, and each higher unit leader in the chain of command must accept the responsibility for the correctness of all reports being forwarded by him . . . . The basic principle remains unchanged: the smallest unit leader is responsible for seeing that all his men are accounted for and that pertinent information is passed up the line." William K. Cowie, "Casualty? Be Sure!" Marine Corps Gazette, April 1953, 37.

[3]Death caused by embalming is not an unheard of occurrence. Among several cases cited by Colonel Vollum is one involving a celebrated French actress, Mlle. Rachel, in Paris, 4 January 1858. "After the process of embalming her body had already begun, she awoke from her trance but died ten hours afterwards, owing to the injuries that had been inflicted upon her." William Tebb and Edward P. Vollum, Premature Burial and How It May Be Prevented, (London: Swan Sonnenschein, 1896), 230-1.

In current military directives, no specific paragraph can be cited to authorize embalming of an unexamined body. But the fault lies not in what the regulations say; the fault lies in what they do not say - When is a person considered dead? Reference Chapter II and Appendix A.

[4]After reviewing numerous sets of medical after-action reports, one research team concluded that KIA tags contained "numerous errors," and that "Formal autopsies are rare." G. W. Beebe and Michael E. DeBakey, Battle Casualties, (Springfield: Charles C. Thomas, 1952), 179, 186.

In a summary of the first 8,000 burial reports of WWII, ". . . it was discovered that several different grave

locations were occupied by two individuals. Other anomalities were discovered. Markers had been established for graves in which no remains were interred." One of the reasons offered for such discrepancies is that the military establishment was "so preoccupied with the direction of combat operations that it could devote little attention to matters unrelated to the pursuit of victory." Edward Steere and Thayer M. Boardman, Final Disposition of World War II Dead, 1945-51, (Washington, D.C.: Historical Branch, Office of the Quartermaster General, 1957), 66, 168.

One congressman expressed indignation over the inaccuracy of post-mortem reports from Vietnam. After discovering that the death of an Ohio youth was attributed to sunstroke (discounting three bullet holes in the body), the congressman charged that the Pentagon was deliberately manipulating a "grisly numbers game." Associated Press, "Congressman Sees Deception," New York Times, 29 April 1971, 5 column 3.

Military directives clearly illustrate how the determination of correct personal identity is the paramount interest in post-mortem processing. All other interests are subordinate to the requirement for positive identification. Of 20 forms required in the processing of deceased personnel, all are concerned primarily with the discovery and preservation of correct personal identity. "DD Form 551 (Record of Interment) is the most important [italics mine] graves registration record." No reference is made to any form of a death certificate and such forms are conspicuously absent from the list of applicable forms required for processing of remains. FM 10-63, Handling of Deceased Personnel in Theaters of Operations, (6 July 1959; change 2, 5 January 1972), 89, paragraph 78.

Another directive gives several, sample case histories with illustrations of the various completed forms to accompany mortuary processing documents. Again, no illustrations of or references to death certificates are among the examples given in any of the case histories. FM 10-297, Army Graves Registration Company, Communications Zone, (9 March 1965).

In all fairness to the military, it should be mentioned that civilian procedures are not always more accurate: ". . .clinical diagnosis is at variance with the autopsy cause of sudden death in 50 to 75 per cent of cases of sudden death examined at most medicolegal agencies. . ." J. L. Luke, "Certification of Death by Coroner," New England Journal of Medicine, 280, (12 June 1969), 1364.

[5]While admiration of U.S. military medicine is often phrased in general terms, quantifiable data to substantiate the comparatively high quality of treatment received by injured GIs can be found in Bernard J. Cameron and Harry J. Older's Marine Corps Medical Evacuation Procedures in Vietnam, (Washington, D.C.: Office of Naval Research, April 1970). Also, see "First Blood" in Kenneth D. Mertel's Year of the Horse - Vietnam, (New York: Exposition Press, 1968), 205-229, and Spurgeon Neel, Medical Support of the U.S. Army in Vietnam 1965-1970, (Washington, D.C.: U.S. Government Printing Office, 1973).

[6]No written requirement exists for preliminary medical screening. Personal interviews with veteran Graves Registration Team members confirm that personnel who were deemed "obviously dead" in Vietnam were processed without medical examination. Interviews from Caber Warrior, Appendix B, B-2-12.

[7]Testimony from E-5 Lastinger, Appendix B, B-2-3.

[8]QMB Project No. 25, Graves Registration Operations Under Concepts of Future Warfare, Section II (Fort Lee, Virginia, March 1962), A-3, paragraph 7.

[9]AR 638-30, Graves Registration Organization and Functions in Support of Major Military Operations, (25 September 1974), 2-1, paragraphs 2-4, a.(5).

[10]Training Film 10-4694, Memorial Activities, Part IV, Cemetery Operations (1973), and Training Film 10-4697, Memorial Activities, Part I, Combat Search and Recovery, (1973). See synopsis of films in Appendix A, A-23, 21.

[11]G. W. Beebe and Michael E. DeBakey, Battle Casualties, (Springfield: Charles C. Thomas, 1952), xi, xii, 9-10.

[12]Ibid.

[13]Roy E. Appleman, South to the Naktong, North to the Yalu, (Washington, D.C.: Office of Military History, 1961), 547.

[14]R. T. Thompson, No Exit from Vietnam, (New York: McKay, 1970), 99.

[15]J. Albright, et al., Seven Firefights in Vietnam, (Washington, D.C.: Office of the Chief of Military History, 1970), 99.

[16]Spurgeon Neel, Medical Support of the U.S. Army in Vietnam, 1965-1970, (Washington, D.C.: U.S. Government Printing Office, 1973).

[17]The disparity in administrative and medical reports is attributable not only to nonmedical processing of obviously (apparently) dead casualties, but also to a host of other factors, many of which are discussed by Joseph Heiser. In short, no definitive figure can be computed for the percentage of KIAs processed through GRS channels without aid station examination. Joseph M. Heiser, Jr., Logistic Support: Vietnam Studies, (Washington, D.C.: Department of the Army, 1974), 204.

[18]C. J. Polson, R. P. Brittain, and T. V. Marshall, The Disposal of the Dead, (Springfield: Thomas, 1962), 281. Also, M. J. Dent, "Should Nurses Diagnose Death?," Nursing Mirror, 130, December 1969, 1, paragraph 2.

[19]Russell S. Fisher, "Pronouncement of Death," cited by Werner U. Spitz (ed.), Medicolegal Investigation of Death, (Springfield: Thomas, 1973), 88.

Military directives specify that a physician must, at least, be the one to specify which enlisted men are to be authorized to sign field medical certificates in conjunction with the operation of field medical treatment facilities. AR 40-400, Patient Administration, (1 August 1973), 7-3, paragraph 7-3, x.

[20]AR 638-40, Care and Disposition of Remains, 1 May 1971; change 6, 27 September 1975, 17-3, paragraph 17-3a (3)(c).

[21]Reference testimony of E-4 Burgess, Appendix B, B-8-10. Also, see Standing Operating Procedures, Mortuary Services Division for Hq. 1st Logistical Command, RVN, 1970, Section V, parts B and C.

[22]"When a physician is called to the scene of death of a stranger or even one of his own patients, he should suspicion that the obvious or the unexpected may not have happened. Too often there is a naive presumption of . . . death." Lester Adelson and Charles S. Hirsch, "Medicolegal Masquerades," cited by Werner Spitz, op. cit., 12.

[23]FM 100-10, op. cit. A synopsis of this directive is included in Appendix A, A-17. Also, see note 2.

[24]See synopsis of AR 600-10, The Army Casualty System, 15 January 1976 in Appendix A, A-2-3. Also, compare Schell, loc. cit. and Cowie, loc. cit.

CHAPTER II

CURRENT POLICIES AND PROCEDURES

Operational Directives

> To be sure, there are laws . . . intended to regulate the care and burial of the dead, but few of them make it certain that the apparently dead shall not be mistaken for the really dead, and treated as such.[1]

The broad spectrum of directives touching battlefield death gives specific instructions to cover almost every phase of mortuary processing except the most important and central aspect of the subject - the actual definition of death. Here, the fault lies not so much in what is said in any particular paragraph so much as what is not said in any paragraph.

For example, Army Field Manual 100-10 specifies that wounded soldiers will be evacuated in accordance with the medical evacuation policies contained in one section of the manual.[2] The dead are to be processed in accordance with another section of the manual.[3] But no guidance is offered relative to the basic question of how a specific casualty is determined to be alive or dead.

One of the most detailed guides to casualty accounting procedures is contained in Army Regulation 600-10.

A very impressive Procedure Flow Chart provides a step by step format for the casualty reporting process.[4] The decision module of step five asks the question, "Is the individual dead?" The two flow lines which exit the decision point are labeled with the answers "yes" and "no," but the seemingly exhaustive format does not specify a source or authority for selecting either one.

A detailed review of the primary documents pertaining to graves registration activities is given in Appendix A to this thesis. Only by a careful study of all of these directives can the reality of the diagnostic gap be demonstrated clearly. Throughout all of these pertinent military directives, the word "remains" begs the fundamental question of death.

It may be argued that de facto pronouncements are unauthorized in the sense that they are not specifically sanctioned. But neither are they prohibited. The lex non scripta does encourage action to allow the "obviously dead" to enter graves registration channels without requiring any expenditure of time from medical personnel.

Interviews with Vietnam combat veterans disclosed divergent opinions on the subject of de facto death pronouncements.[5] However, discussions with the personnel who were actually engaged in retrieval of the dead revealed that there was no hesitancy on their part to initiate mortuary processing prior to any medical screening. In fact,

there was universal agreement among these men that such early processing of the dead (prior to medical screening) was a "routine" and "common" occurrence.[6]

In reviewing the Standing Operating Procedures for U.S. Mortuary Services in Vietnam, it is interesting to note that Section V anticipated the receipt of some remains unaccompanied by death certificates[7] and with no visible wounds or evidence of apparent cause of death.[8] In such cases, embalming was to be delayed and the remains were categorized as "Hold for Post." But this procedure was not designed to allow for possible resuscitation from apparent death. The holding process involved refrigeration of remains pending determination of whether or not an autopsy would be accomplished.[9]

Training Directives

A wide variety of subjects are included in the published training guides for GRS (Graves Registration Service) courses at Fort Lee, Virginia. Trainees are taught how to perform isolated and hasty burials.[10] They are instructed in mass burial procedures.[11] They receive lengthy training in how to set up temporary cemetery records along with a wealth of other useful administrative procedures.[12] But no mention is made of the possibility of discovering a live casualty. The current training syllabus does not include even a short class on elementary first aid.[13]

The applicable Subject Schedules seem to reflect the objective voiced by a GRS Field Service Supervisor during exercise Caber Warrior, that the sole purpose of graves registration activities is to identify and evacuate remains.[14] At no phase of search and recovery operations are the GRS teams instructed to look for vital signs.

The Military Contract Mortuary Affairs Representative for the Fort Bragg Military Area defended the omission of resuscitation training in military GRS operations by noting that even after a body has been embalmed, any suggestion that the person is really alive will result in imagined detection of breathing if one stares long and hard enough at the chest area; human imagination could create nonexistent movements that could cause a serious backlog in medical channels during mass casualty situations.[15]

Two of the graduates of the Fort Lee GRS course noted that their military training had taught them to accept body movements, sweating, and even audible moaning as being normal, post-mortem events brought about by rigor mortis and the expansion of trapped gas.[16]

Further discussion of the GRS training directives and training aids is included in Appendix A of this thesis. Particular attention is invited to the discussion of GRS training films on pages A-21-3. These films may be ordered for official viewing from most military film libraries.

Summary of Current Policies and Procedures

On the battlefield, somewhat apart from hospital operating rooms, there is no prerequisite for enclosing a casualty into a body bag, storing him in a refrigerator, or finally embalming his remains. True, a death certificate is eventually required prior to shipment of embalmed remains (in accordance with the Army's Concurrent Return Program) but an embalmer violates no Army Regulation if he accomplishes his work prior to the issuance of a formal death certificate.[17]

Current directives do virtually nothing to stimulate awareness of the fact that the apparent dead are not always, in fact, dead. Furthermore, the training of personnel currently assigned graves registration functions in the U.S. Army does not correct the deficiencies in such awareness. Why has so little progress been made on such a fundamental problem?

Perhaps the lack of progress stems from a lack of concern. An Army historian working for the Quartermaster General commented on the irregularities attending World War II post-mortem procedures by observing that the military was "so preoccupied with the direction of combat operations that it could devote little attention to matters unrelated to the pursuit of victory."[18] Such an attitude is still evident in current policies and procedures. The dangers

inherent in this attitude will become more apparent in the following chapters on The Ambiguities of Death and The Significance of Public Awareness.

Notes - Chapter II

[1]William Tebb and Edward P. Vollum, Premature Burial and How It May Be Prevented, (London: Swan Sonnenschein, 1896), 12.

[2]FM 100-10, Combat Service Support, 30 March 1973, chapter 17.

[3]Ibid., chapter 19.

[4]AR 600-10, The Army Casualty System, 15 January 1976 Table 2-1. Copy included in Appendix A, A-4.

[5]Reference Appendix B, B-2-17.

[6]Reference testimonies of E-7 Henderson and E-4 Burgess, Appendix B, B-6, 8-10.

[7]Hq 1st Logistical Command, Standard Operating Procedures, Mortuary Services Division (RVN:AC/S Services, 1970), par 2.11.

[8]Ibid., par 2.13.

[9]Ibid., par 5.

[10]Army Subject Schedule 10-16, Graves Registration Activities in a Theater of Operations, 4 May 1971, Section II, Master Schedule, Period 7.

[11]Ibid., Period 10.

[12]Ibid., Section II, 4-13.

[13]Interview with E-4 Burgess, Appendix B, B-8-10. Also, reference Appendix A, A-29.

[14]Interview with E-7 Henderson, Appendix B, B-6.

[15]Interview with Mr. Ray Adcock, Appendix B, B-12-3.

[16]Interviews with E-4 Burgess and E-4 Maddox, Appendix B, B-8-10, 11.

[17]AR 638-40, Care and Disposition of Remains, 1 May 1971; change 6, 27 September 1975, 17-3, par 17-3a (3)(c).

[18]Edward Steere and Thayer M. Boardman, Final Disposition of World War II Dead, 1945-51, (Washington, D.C.: Historical Branch Office of the Quartermaster General, 1957), 168.

CHAPTER III

THE AMBIGUITIES OF DEATH

> And he said unto me, Son of man, can these bones live? And I answered, O Lord God, thou knowest.[1]

Comments on Carnage

Although catastrophic disintegration of the human body is an event which may dominate all other death scenes within the memory of a witness, medical records indicate that only a small percentage of battlefield deaths do result from people being literally blown apart.[2] Collection of partial remains may be one of the most gruesome tasks assigned to graves registration personnel, but it is certainly not one of the most common tasks. Most battle fatalities are recovered physically intact.[3]

Few people realize, however, the massive amount of damage which the human body can sustain without forfeiting the possibility for full recovery. Especially in cases of apparent disembowelment, huge masses of internal organs may spill out from seemingly empty body cavities although there is excellent potential for restorative surgery and uneventful convalescence.

> The most significant approach to massive multiple injuries in the right upper quadrant of the abdomen is to remember that virtually all defects can be managed by a careful, well planned, expeditious operation. Initially the task may seem overwhelming but good results are likely if priorities and principles as outlined are practiced.[4]

Even when the exposed organs themselves are obviously traumatized, death is by no means inevitable. "When blunt or penetrating injuries to the duodenum alone occur, there should be minimum mortality."[5]

Although trained medical personnel are aware of the fickle nature of gross appearances as indicators of chances for survivability, it is surprising how quickly a layman will assume that a bloody body is a dead body. A classic illustration of this point can be found in a report from the Korean war where:

> A concussion grenade knocked High down. The rest of his men, believing him dead, straggled back to the platoon base. Within a minute or two, however, High regained consciousness and returned to the platoon base where he reorganized his men - about twenty in all.[6]

Even head wounds with penetrating injuries of the brain had a mortality rate of only 7.9% in the Vietnam War.[7] One doctor, reporting on a total of 92 cases of penetrating cranio-cerebral missile injuries revealed that only 4 of his patients died - a mortality rate of 4.3%.[8]

Contrary to popular opinion, permanent impairment of mental faculties is not an inevitable consequence for the survivors of such wounds.

> A 13 year-old Vietnamese boy received a gunshot wound from a carbine to the left frontal region while working in the rice fields. He was admitted to the Eighth Field Hospital with blood clots, brain, and cerebrospinal fluid coming from the wound of entrance. . . In the operating room, the wound of entrance was excised, and approximately 30 ml of pulped brain and blood clot were removed under pressure. . . .After an uneventful recovery, the patient returned to school in 1 month, having no detectable neurological deficits.[9]

This same doctor reports on three more cases involving injuries requiring removal of bone fragments and devitalized brain tissue from tangential head injuries. "Two were frontotemporal, one occipital. All had excellent postoperative recovery."

The numerous drawings and photographs accompanying such articles bear a striking similarity to the post-mortem photographs encountered in other literature.[11] A layman has extreme difficulty understanding why one wound causes sudden death while another results in "no neurological sequaelae."

Post-Mortem Appearances

In a book entitled Post-Mortem Appearances, a physician outlines the progressive appearances of death under the following headings:

1. Cessation of Respiration and Circulation;
2. Dilation of the pupils (with subsequent contraction);
3. Post-mortem Cooling;
4. Post-mortem Staining (livor mortis);
5. Rigor Mortis; and
6. Putrefaction[12]

However, within the next few pages it will be shown that even putrefaction is no certain sign of death for the untrained observer. Post-mortem appearances may develop in which visible maggots infest seemingly decomposed flesh although the afflicted individual is very much alive with an excellent prognosis for recovery.[13]

The above list of six developments is typical of other descriptions by other authors.[14] But although these developments are universally accepted as being inevitable post-mortem events, they never provide conclusive proof that death, in fact, has taken place. For example, all dead bodies will exhibit cessation of respiration, but not all bodies that exhibit cessation of respiration are dead. In order to illustrate the inconclusive nature of such signs to untrained observers - especially in combat situations - each development will be discussed individually within the following paragraphs:

Cessation of Respiration and Circulation. Some law books still hold that cessation of respiration and circulation constitute the legal definition of death.[15] Such a definition has proven to be grossly inadequate - especially since the discovery that both respiration and circulation may contine for hours after they both appear to cease completely.[16] Ample evidence indicates that respiration and circulation can continue at a level undetectable even by some sophisticated diagnostic equipment.[17] Jacky Bayne was

connected to an EKG device when he was pronounced dead by the attending physician,[18] and the stethescope has been fooled in numerous other cases.[19] What does this signify for an untrained layman's search for a pulse on a battlefield?

Even where total cessation of heart and lung action does occur, death is by no means inevitable if prompt resuscitation is initiated.[20] In combat, a wide variety of basically nonlethal wounds can cause cardiac and respiratory arrest for reasons still unknown to pathologists.[21] Moreover, in the absence of actual wounds, simple fright or emotional stress (not uncommon in battle) can also result in breathing and heart stoppage.[22] In many cases, resuscitation alone may be the only treatment required to effect full recovery.[23]

In some communities, resuscitation attempts are routinely applied to even the obviously dead, pending certifications of death by a medical examiner. The results have been very gratifying:

> Checking for pulse and respiration, and finding neither, he pulled me from the car. . .and immediately started cardio-pulmonary resuscitation. . .
>
> From his car Sena yanked an oxygen tank and an apparatus with a mask which is used to force air into the lungs. . .Donnellan continued with heart massage. Sena later told me, "I was sure we were just going through the motions. I would have bet my job that you were gone." . . ."I tried the carotid pulse - you had no pulse," McCann later said. "There was no breathing. Your eyes were open, and your pupils were dilated - a bad sign."[24]

Mass casualties have always presented a high potential for concealing wounded among the dead.[25] Concealed beneath bulky fatigues or flak jackets, normal respiration may go completely unnoticed in subsequent searches through the adjacent carnage. In Vietnam, one of the first mass casualty situations for U.S. troops was in the Ia Drang Valley during 1965. Elements of the 1st Cavalry Division were overrun by North Vietnamese troops. SP5 Daniel Torres, a 26-year-old medic from Corpus Christi, stayed behind in the Valley to care for 15 wounded after his patrol pulled out. He soon discovered that there were other living casualties among those who had been left for dead. While searching for medical supplies on the bodies of other medics, Torres heard enemy patrols "mopping up within 100 yards of him."

> "Six or seven times," he recalled later, "I heard some G.I. out there yell 'Help, help!' or 'No, no, don't!' and then brraap and the yelling would stop. I figured they were coming back to pick up their own wounded and were shooting our guys whenever they found them."[26]

But the North Vietnamese made their own mistakes in inspecting the U.S. dead. PFC Toby Braveboy was one of the living corpses who escaped detection.

> Wounded severely, he played dead. The enemy decapitated a soldier lying next to him, and he was splattered by the blood.[27]

Despite bullet wounds in his chest, arms, and hands, Braveboy managed to survive and signal a U.S. helicopter which picked him up out of the jungle almost a week later.

SGT John Eade was not quite as convincing in his initial role as a corpse. But he got a chance to try again:

> I was shot about 1 o'clock in the afternoon. Then about 4 o'clock, this Vietcong officer came up. I was only about half conscious and was leaning up against a tree. He took his pistol and shot me again, right in the face. Then he left me for dead. It was 11 o'clock the next day before the Americans came and got me.[28]

These men might have had considerably more difficulty surviving early graves registration processing than they did surviving an enemy coup de grace.

Dilation of the Pupils (with subsequent contraction). Although dilation of the pupils does accompany death, it also accompanies a wide variety of conditions found in life. Especially in an army where "illegal drug use is widespread,"[29] changes in the pupils of the eye may be as common as those experienced by movie patrons entering and leaving a dark theater.

Like cessation of pulse and respiration, dilation of the pupils is an unreliable indication that death has occurred - even when it appears in concert with other symptoms. A very recent case of mortuary revival occurred in a woman who

> . . .was lying in the front seat of her car with her mouth and eyes open, her pupils dilated. . . . She was checked for pulse, breath, and other signs of life, but none was found and she was presumed to be dead.

Even after a mortuary attendant noticed latent life signs and rushed the woman to a hospital, doctors and nurses were still unable to detect life signs for a period of time.

Eventually, however, the woman was resuscitated. Why were professional medical personnel unable to detect vital signs in a hospital emergency room?

> Authorities said the extreme cold could have slowed the woman's breathing and heartbeat to a point where her pulse was not detectable.[30]

Cooling of body temperature introduces the next post-mortem appearance, which is probably the most insidious and universal element of all apparent death states.

Post-Mortem Cooling. Hypothermia, or abnormal lowering of body temperature, is often virtually indistinguishable from death even to trained observers using electronic diagnostic aids. The similarities between death and hypothermia are very confusing even to doctors. One medical description of hypothermia symptoms is that "The skin feels like that of a cadaver."[31] Until recently, accidental hypothermia was regarded as a cold weather phenomenon associated primarily with elderly people in unheated apartments. But current research indicates that hypothermia can occur in any climate to any age group.[32] It may result from a very wide variety of physiological abnormalities associated with disease, injury, or drug use (including the use of alcohol or heroin).[33] It certainly is not restricted to cold climates.[34] The basic indications of hypothermia remain unchanged even in relatively hot climates.[35] Any time human body temperature drops abnormally, for any reason, hypothermia is present.

Hypothermia results in drastic curtailment of metabolic requirements for oxygenated blood.[36] Pulse and respiration may become undetectable for extended periods, although "degrees of depression short of death do exist from which recovery can be virtually complete."[37] One experimenter has demonstrated "safe total circulatory arrest for 60 minutes at 18 to 19 degrees C. in infants and dogs."[38] Another group of researchers state:

> . . .in all liklihood many such cases remain undiagnosed and the victims do not seek medical attention. The victims of deeper levels of accidental hypothermia are often not discovered until too long after their deaths for any method of treatment to be effective, so that reports of successful treatment have been understandably few.[39]

While some reports indicate that death rates from hypothermia may be as high as 2,000 per year in Great Britain, another research team suggests that, "This increase probably represents a greater awareness of the problem rather than an increased incidence." This same research team also reports:

> It has been our experience, in dealing with the alcoholic Bowery population of New York City, that hypothermia is indeed common. . .The mortality of 6.5 per cent among hypothermic alcoholics approaches the mortality of pure, uncomplicated hypothermia. We conclude that mortality rates of 60 to 100 per cent in other studies represent mortality due to underlying disease and not hypothermia.

In summarizing their report, the researchers emphasized three points for the benefit of diagnosticians:

> First, no conclusion can be drawn on the effect of complicating disorders until rewarming is attempted. . .

> Second, the usual criteria that indicate irreversibility of disease are not valid in evaluating the prognosis in hypothermia. Patients may present in deep coma with no reflex activity, fixed dilated pupils, agonal respiration, marked bradycardia, without blood pressure and still make a complete recovery, as did one of our patients.
>
> Third, life may be sustained for long periods even after complete cardiac arrest because of the marked decrease in oxygen requirement.

The researchers concluded their dramatic report by citing a case where:

> A 24-year-old woman was found following barbituate intoxication with a temperature of 69.8 F (21C) with no evidence of cardiac action and only weak respiratory attempts. During rewarming, she was maintained with external cardiac massage for 1 hour before electrocardiographic activity returned. The patient recovered completely. We conclude that any hypothermic patient with evidence of cardiac or respiratory function, no matter how depressed, has the potential for full recovery.[40]

Post-Mortem Staining. Sometimes called cadaveric hypotases, cadaveric ecchymoses, post-mortem lividities, or suggilations,[41] this development is due to the settling of the blood into the capillaries of the skin as they become dilated after circulation ceases.

> Since it depends on gravity it will be absent in areas of the body where the weight produces pressure and occludes the capillaries. The usual purple color is that of the unoxygenated blood pigment hemoglobin.[42]

The onset of post-mortem staining varies from four to twelve hours after cessation of circulation. Because of its similarity to bruises in appearance, it is not a recommended criterion for ascertaining the certitude of death.[43]

Rigor Mortis.

> The process begins at death, usually becomes manifest within two to four hours and advances until approximately twelve hours when it is generally complete. . . .Fully developed rigor mortis persists for a variable period and then slowly disappears, with once again, softening of the muscles so that the arms, though rigid during the persistence of rigor, are again readily flexible.[44]

According to one author, sudden death in battle may produce what is known as "instantaneous rigor" which takes place immediately upon mortal injury.[45] Yet once again, a variety of wounds and diseases may also cause muscular rigidity which easily could be mistaken for rigor mortis.[46] Various forms of epilepsy can be induced by emotional stress or trauma, resulting in general rigidity of the body.[47] Because of accompanying rigidity, the term "hysteria" was used to describe several cases of apparent death in 19th Century medical journals.[48]

Rigidity is also associated with various cranio-cerebral injuries of the type commonly encountered in modern warfare.[49] When it occurs concurrently with other so called signs of death, the overall appearance of the body may cause witnesses to question the sanity of anyone attempting resuscitation in such a situation.

Shakespeare painted a dramatic picture of a fallacious death diagnosis based upon drug induced rigidity:

> Nurse: She's dead, deceas'd, she's dead; alack the day!
> Lady Capulet: Alack the day, she's dead, she's dead, she's dead!

Capulet: Ha! let me see her. Out, alas! she's cold;
Her blood is settled, and her joints are stiff.
Life and these lips have long been separated.

But Shakespeare's heroine was neither dead nor dying. She just looked dead. Her father's initial skepticism was quickly dissolved by one look at her deathlike appearance. Soon, she became a "poor living corpse, clos'd in a dead man's tomb!"[50] Shakespeare's awareness of post-mortem ambiguity is especially clear in the final scenes of King Lear where the audience is hard pressed to determine the exact moment of death for the King, and the curtain closes on the final act with Cordelia's death certification still an unresolved mystery.[51]

Putrefaction. Although some medical authorities have expressed confidence that putrefaction is the one unmistakable sign that death has taken place,[52] other authorities still urge caution.

> In respect to the first - putrefaction - a professional man is not likely to make a mistake; but nothing is more possible than for non-professionals to confound hospital rottenness (gangrene) with true post-mortem putrefaction.[53]

Another author cites an instance where approximately 350 maggots were removed from a living patient. He goes on to suggest that:

> The observation of the beneficial effect of the development of maggots in infected wounds has led to their being utilized in the treatment of osteomyelitis and carbuncles.[54]

Living human beings serve as satisfactory hosts for several varieties of maggots, many of which can appear almost instantaneously on open wounds.

> The eggs are deposited upon the clothing or skin, the fly being attracted by body odors and filth. The larvae hatch promptly, in some instances within the body of the parent fly, and penetrate the skin without causing any appreciable pain. Subcutaneous growth of the maggots may, however, produce considerable discomfort and result in the formation of boil-like lesions.[55]

Nowhere is man's imagination less aligned with logic than in confrontation with the prospect of post-mortem decomposition in his fellow man.[56] At the tomb of Lazarus, when Jesus commanded, "Take away the stone," Martha responded, "Lord, by this time he stinketh; for he hath been dead four days."[57]

Martha's allegation that an unpleasant odor existed seems to have been based primarily upon her personal fears as opposed to empirical investigation. In Giotto's painting, "The Raising of Lazarus," the artist captures the apprehension of witnesses who cover their noses as Lazarus appears at the mouth of the tomb. In Vietnam I have seen similar situations where emotionally drained aircrews spoke of partially decomposed remains as "stinking horribly" even though the remains were hermetically sealed in plastic pouches from which no real odors could escape.

Summary of Post-Mortem Appearances. There is no common indicator upon which an untrained layman can invariably rely. Even trained laymen are prone to make grave errors.

One doctor suggests that trained nurses may be qualified to certify death in terminal cases where the death is anticipated by the physician. But even in these cases, he recommends waiting for one hour prior to laying out the corpse to reduce the "chance of a person being sent prematurely to the mortuary."[58] On the rare occasions where fragmentary or skeletal remains are encountered, there is still a danger of setting a precedent to bypass medical certification of death in the presence of the average combat soldier. Colonel (now General) William E. DePuy once remarked that the average squad leader suffers a number of handicaps among which the following may be very significant:

> He usually commands men who are not the most imaginative members of the military establishment - in other words, men who are not as fast with an abstraction as their former colleagues who have been promoted or assigned technical or administrative jobs. Also, the squad leader must practice his art only after his mind is numbed with fatigue and fright, his body weakened by hunger and exposure, and the receptiveness of his squad partially dulled by casualties. Add to this the fact that battlefields are noisy and otherwise distracting and you have set up a requirement to try the mettle of any man.[59]

Is it unreasonable to suspect that some of these men might perceive exposed tissue, muscles, or bones to be evidence of death in a casualty who is only wounded?

In conclusion, all the factors cited above tend to reinforce the belief that at the outer limits, the matter of life and death cannot be determined infallibly by any man.

> Thus saith the Lord God unto these bones,
> Behold, I will cause breath to enter into you,
> and ye shall live.[60]

Notes - Chapter III

[1]Ezekiel 37:3.

[2]Reference Tables 6 and 7, with footnote to Table 7 on multiple wounds. Spurgeon Neel, Medical Support of the U.S. Army in Vietnam 1965-1970, (Washington, D.C.: U.S. Government Printing Office, 1973), 54-5.

[3]Graves Registration Services standard operating procedures invariably discuss the processing of partial remains as requiring exceptional treatment which deviates from "normal" processing procedures. For example, reference SOP Mortuary Services Division for Hq 1st Logistical Command, RVN, 1970, Section V, part C, par. 6.

[4]Robert Tully Chambers, "Massive Upper Quadrant Intraabdominal Injuries," The Journal of Trauma, 8(15), August 1975, 718.

[5]W. D. McInnis, et al, "Traumatic Injuries of the Duodonum," The Journal of Trauma, 10(15), October 1975, 847.

[6]Russel A. Gugeler, Combat Actions in Korea, (Washington, D.C.: Combat Forces Press, 1954), 227.

[7]William E. Mathews, "The Early Treatment of Craniocerebral Missile Injuries: Experience with 92 Cases," The Journal of Trauma, 12(11), November 1972, 939.

[8]Ibid., 950.

[9]Ibid., 9 and 8-9.

[10]Ibid., 947.

[11]Comparing photographs of survivors of gunshot wounds in The Journal of Trauma to post-mortem photographs in Werner Spitz' Homicide Investigation. Also, reference Appendix C, C-3-11.

[12]J. M. Ross, Post Mortem Appearances, (London: Oxford Press, 1948), 5.

[13]Reference discussion on putrefaction, 32-3.

[14]Compare C. J. Polson, et al, "The Changes after Death" in Disposal of the Dead, (Springfield: Thomas 1962), 281-5. Also, Lemoyne Snyder, "Immediate Signs of Death," Homicide Investigation, (Springfield: Thomas, 1972), 38-47. Also, Russell S. Fisher, "Time of Death and Changes after Death," cited in Werner U. Spitz (ed.), Medicolegal Investigation of Death, (Springfield: Thomas, 1973), 11-23. Each of these books conform to the outline in J. M. Ross, Post Mortem Appearances, (London: Oxford Press, 1948) on the

progressive development of post-mortem indications. The latter two books contain profuse illustrations of each symptom.

[15]Henry Campbell Black, Black's Law Dictionary, Revised Fourth Edition, (St. Paul: West Publishing Company, 1968), 488. Also, Leslie Brainerd Arey, et al. (eds.), Dorland's Illustrated Medical Dictionary, 23rd Edition, (Philadelphia: W. B. Saunders Co., 1957), 355.

[16]A. E. Weyman, et al., "Accidental Hypothermia in an Alcoholic Population," American Journal of Medicine, 56, January 1974, 19.

[17]One author has reported "several cases of patients recovering from drug overdose whose EEG had been 'flat' for up to 48 hours . . . even in skilled observations signs of life can be overlooked . . . very shallow diaphragmatic breathing often goes unnoticed . . . ," M. J. Dent, "Should Nurses Diagnose Death?," Nursing Mirror, 130, December 1969, 28-9.

Dr. Charles E. Brackett, Chief of the section of neurosurgery at the University of Kansas Medical Center cautions against heavy reliance on electronic diagnostic aids. He cites instances where persons "appear clinically to have all the symptoms of brain death and low body temperature, yet they make a normal recovery." Thus, "in determining brain death it must be made certain the patient is not instead suffering drug toxification." Phillip S. Brimble, "Doctor's View: Death Not an Issue for Court," The Kansas City Star, 22 October 1975, 6A, column 1.

"There is no agreement as to the duration of time during which the EEG should be isoelectric, the suggestions varying from one hour to days to 'a long enough period'," Leonard Scherlis, "Death: The Diagnostic Dilemma," Maryland State Medical Journal, 17, December 1968, 78.

Also, see M. Weiss, et al., "A Study of the Electroencephalogram During Surgery with Deep Hypothermia and Circulatory Arrest in Infants," Journal of Thorasic Cardiovascular Surgery, 70(2), August 1975, 319.

[18]Anonymous, "Back from the Dead," Newsweek, 13 November 1967, 99.

[19]Personal involvement with the patient has caused some physicians to ignore the evidence of their stethoscope in death pronouncements. ". . . the stethoscope told me, and a medical friend who was present, that my little boy had ceased to exist; but a liberal application of ice to his head and cardiac region, together with violent friction and artificial respiration vigorously applied for forty

minutes, restored the child to me, and I thanked God that I had refused to accept the evidence of the stethoscope as final." Personal account by William Tebb and Edward P. Vollum, Premature Burial and How It May Be Prevented, (London: Swan Sonnenschein, 1896), 262.

[20]"There have been instances where active immediate resuscitative techniques have been very rewarding if accomplished without too much delay after the cardiac arrest has occurred. . .every means available should be used until it is obvious that success is impossible." C. T. Reilly, "The Diagnosis of Life and Death," Journal of the Medical Society - New Jersey, 66, November 1969, 602.

". . .if nothing is done for a person whose heart and lungs have really stopped, death is sure." Warren R. Young, "CBR - The Lifesaving Technique Everyone Should Know," Reader's Digest, January 1973, 146.

[21]"Here is a largely ignored area for significant clinical investigation. . ." Editorial, Anonymous, "Sudden Unexpected Death," Journal of the American Medical Association, 209, 1 September 1969, 1358.

"Deaths from inhibition are defined as sudden deaths which occur. . .after minor trauma or peripheral stimulation of relatively simple and ordinarily innocuous nature. . . Neither the pathologist nor the toxicologist can, by the methods available to him today, establish either the extent or the nature of the responsible changes, even though the changes result in death." Lester Adelson and Charles Hirsch, as quoted by Spitz, op. cit., 93-4.

[22]D. L. Howie, "Scared to Death," Journal of the Florida Medical Association, 55, September 1968, 861-2.

[23]Dr. Archer Gordon, chairman of the American Heart Association's committee on CPR, warns citizens not to presume upon this fact, however. Follow-up medical care is recommended to guard against complications which might follow due to undetected physiological damage, cited by Young, op. cit., 146.

[24]Victor D. Solow, "I Died at 10:52 a.m.," Reader's Digest, October 1974, 179.

[25]Chronicles of large scale combat actions are seldom found without at least one story of a dazed soldier or civilian crawling out of a pile of bodies where he had been left for dead. Immediate burial of mass casualties carries a high risk for premature interment of such personnel.

The mass casualties resulting from the Tet offensive of 1968 produced at least one episode of premature burial in Hue, although the reporter cites evidence to suggest that the early burial was an intentional atrocity perpetrated by the Viet Cong. Don Oberdorfer, Tet, (Garden City: Doubleday, 1971), 229.

Victor Hugo's Les Miserables notes, "Cemeteries take what is given to them," and what is given to them is not always void of life. Subsequent observations from real life have confirmed Hugo's literary figure of speech.

[26]Daniel Torres as quoted in "National Affairs," Newsweek, 6 December 1965, 28.

[27]Anonymous, "Wounded U.S. Soldier Rescued after Week in Midst of Reds," The Washington Post, 25 November 1965, A-33.

[28]United Press International, "G.I. Tells of Receiving Vietcong Coup de Grace," The New York Times, 26 November 1965, 3, column 1.

[29]"Comprehensive statistics are not available, but preliminary work based upon sample surveys of soldiers entering and leaving the combat zone indicates that illegal use is widespread, especially among younger, lower ranking enlisted men, and that many individuals started using drugs while in Vietnam. One study, done in 1969 at the Cam Ranh Bay replacement depot by Captain Morris Stanton, MC, reported that, of a population of 994 outgoing enlisted men, 53.2 percent had tried marijuana sometime in their lives, 21.5 percent for the first time in Vietnam. The same study reported that the use of opium among the soldiers sampled nearly tripled during their stay in Vietnam, rising from 6.3 percent to 17.4 percent." Neel, op. cit., 47.

[30]Associated Press, "Woman Revived after 'Death'," Topeka State Journal, 8 January 1976, 14, column 1.

[31]R. E. Irvine, "Hypothermia in Old Age," Practitioner, 213(1278), December 1974, 797.

". . .life may be sustained for long periods even after complete cardiac arrest because of the marked decrease in oxygen requirement." Weyman, et al., op. cit., 19. Also, see E. L. Lloyd, et al., "Diagnostic Problems and Hypothermia," British Medical Journal, 3, 12 August 1972, 417.

[32]Editorial, Anonymous, "Episodic Hypothermia," Lancet, 2, 4 August 1973, 246.

[33]Hypothermia has also been observed in conjunction with brain tumors, uremia, pulmonary embolus, diabetic ketoacidosis, acute myocardian infarction, septicemia, and gastrointestinal hemorrhage. Weyman, et al., 265-70. Also, reference Appendix D in this thesis, D-44-5.

Some evidence exists to suggest that simple restrictions on normal body movements - even without the presence of disease or trauma - can induce hypothermia in some test animals. Russel D. Squires, et al., Hypothermia in Cats During Physical Restraint, DDC Report Bibliography, AD-735 883.

[34]F. Sadikali, et al., "Hypothermia in the Tropics, A Review of 24 Cases," Tropical and Geographical Medicine, 26(3), September 1974, 265-70.

[35]D. J. Thomas, "Episodic Hypothermia," Lancet, 2, 25 August 1973, 449.

[36]H. Mohri, et al., "Oxygen Utilization During Surface-Induced Deep Hypothermia," Annals of Thorasic Surgery, 18(5), November 1974, 502.

[37]W. D. Meriwether, et al., "Severe Accidental Hypothermia with Survival after Rapid Rewarming. Case Report, Pathphysiology and Review of the Literature," American Journal of Medicine, 53, October 1972, 508.

[38]Mohri, op. cit., 494.

[39]D. G. Truscott, et al., "Accidental Profound Hypothermia. Successful Resuscitation by Core Rewarming and Assisted Circulation," Archives of Surgery, 106, February 1973, 216.

[40]Weyman, et al., op. cit., 13, 17 and 19.

[41]Ross, op. cit., 4.

[42]Spitz, op. cit., 15.

[43]Although lividity is not normally used as a diagnostic aid in the confirmation of death, it is a commonly used observation in criminal investigation to reveal whether or not the corpse was moved during some period after death. Fisher, cited by Spitz, op. cit., 16.

[44]Ibid., 13.

[45]Ross, op. cit., 5.

[46]This is not a recent discovery. In an era where people were familiar with the problem of premature burial, stiffness was acknowledged to be a common culprit in facilitating erroneous death pronouncements. Several instances were quoted from the British Medical Journal and the Edinburgh Medical and Surgical Journal in Tebb and Vollum, op. cit., 184-7.

American medical journals of the same period confirm that American physicians were also aware of the problem. Lancet, 1, 1970, 436.

[47]A. Nuutila, et al., "Epilepsy Among Brain Injured Veterans," Scandinavian Journal of Rehabilitation Medicine, 4, 1972, 81-4. Also, see J. B. Harrison, "Faints and Spells," Dental Clinics of North America, 17, June 1972, 75-9.

[48]F. J. Sebastianpillai, "Hysterical Paralysis," Ceylon Medical Journal, 17, June 1972, 75-9. Also, A. Adeloye, "Hysterical Deaf-Mutism in a Nigerian Soldier," Lancet, 2, 2 December 1972, 1200-1.

[49]Transventricular wounds are especially prone to producing rigidity. Mathews, op. cit., 943.

[50]Romeo and Juliet IV.vi. See also, Adelson and Hirsch cited by Spitz, op. cit., 87.

[51]King Lear V.iii.

[52]Ross, op. cit., 5.

[53]Tebb and Vollum, op. cit., 271.

[54]Russel L. Cecil (ed.), Textbook of Medicine by American Authors, Fifth Edition, Revised, (Philadelphia: W. B. Saunders, Co., 1942), 493.

[55]Ibid., 494. Also, see Russell S. Fisher, "Decomposition," cited by Spitz, op. cit., 20.

[56]"We perceive the transition from the living state to the corpse, that is, to the tormenting object that the corpse of one man is for another. For each man who regards it with awe, the corpse is the image of his own destiny. It bears witness to the violence which destroys not one man alone but all men in the end. The taboo which lays hold on the others at the sight of a corpse is the distance they put between themselves and violence, by which they cut themsleves off from violence."

. . . . . .

"Death is a danger for those left behind. If they have to bury the corpse it is less in order to keep it safe than to keep themselves safe from its contagion. . . .The corpse will rot; this biological disorder, like the newly dead body a symbol of destiny, is threatening in itself. We no longer believe in contagious magic, but which of us could be sure of not quailing at the sight of a dead body crawling with maggots?"

. . . . . .

"The taboo relating to the corpse does not always appear intelligible. . . ."

. . . . . .

"In the presence of a corpse, horror is immediate and inevitable and practically impossible to resist." Georges Bataille, Death and Sensuality: A Study of Eroticism and the Taboo, (New York: Walker, 1962), 44, 46-7, 47.

[57]John 11:39.

[58]Dent, op. cit., 28.

Another physician states, "No single technological criterion is entirely satisfactory in the present state of medicine, nor can one technologic procedure be substituted for the overall judgement of the physician." D. Silverman, et al., "Cerebral Death and the Electroencephalogram. Report of the Ad Hoc Committee of the American Electroencephalographic Society on EEG Criteria for Determination of Cerebral Death." Journal of the American Medical Association, 209, 8 September 1969, 1507.

[59]William E. DePuy, "11 Men, 1 Mind," Army, 8(8), March 1958, 24.

One combat medic expresses similar sentiments. "For one thing, a combat medic doesn't know what's happening. Especially at night, everybody screaming or moaning and calling out, 'Medic, medic.' I always saw myself dying, my legs blown off, my brains splattered all about, shivering in shock, and talking madly. . .

. . . . . .

"One time, up North, south of Danang, in Chu Lai, a guy stepped on an antipersonnel mine and blew off his leg below the knee as well as his other foot. I was watching from the perimeter; it was daytime. Suddenly his buddy went into shock. He started shivering, his eyes became dilated, and he started screaming 'Medic, medic,' all the time drawing enemy fire. Meanwhile the other guy, whose legs were

gone, was also in shock; he was trying to get up and walk away. The area was full of mines, I had these two guys to help, there was a fire fight on, and in the midst of everything there was another nightmare - by mistake our area was hit by five howitzer American rounds. Three of our men were killed and twenty-two wounded. I got away with the two guys but it was a wild scene." Murray Polner, No Victory Parades, (New York: Holt, Rinehart & Winston, 1971), 100-1.

[60]Ezekiel 37:5.

CHAPTER IV

THE SIGNIFICANCE OF PUBLIC AWARENESS

Attitudes Prior to 1900

Colonel Edward Perry Vollum was a U.S. Army Medical Inspector toward the close of the 19th Century. As a physician, he collaborated with a member of the Royal Academy of Medical Sciences in London to produce a book entitled Premature Burial and How It May Be Prevented.

A rebuttal was written by another author in 1898, some two years following Vollum's publication. In Premature Burial: Fact or Fiction?, Dr. David Walsh attempted to prove that "nobody ever was or ever will be interred until after the extinction of life." A newspaper review made it clear that Walsh's book was "intended chiefly to dispute alarming statements . . . compiled by Drs. Tebb and Vollum."[1]

The main thrust of the Walsh rebuttal, however, did not deny that many living persons were delivered to mortuaries and sealed in caskets. On the contrary, Dr. Walsh spent a large percentage of his argumentation in comforting readers with the thought that they would die of suffocation long before they could be buried (i.e. buried in the ground).[2]

A modern reader may have difficulty appreciating Dr. Walsh's attempts at comforting a 19th Century audience. But his attitude is typical of the opinion of his day that there was always a possibility for error in the certification of death. Several notable people included provisions in their wills that the services of reputable physicians would be obtained to accomplish post-mortem processing - not to confirm diagnostic procedures, but to sever arteries or remove vital organs to render resuscitation impossible in the tomb.[3]

Prior to the 20th Century, literally hundreds of scholarly works had been published on premature burial and associated subjects; over 350 of these writings are listed in the bibliography of Colonel Vollum's book. No attempt will be made here to improve upon Vollum's canvassing of the most famous authors of antiquity (including Plutarch, Asclepiades, Celsus, Plato, and Pliny) who recognized the dangers in early burial of the apparent dead. The list of subsequent eyewitnesses to erroneous determinations of death reads like a list from Who's Who in the History of Western Civilization.

Much of the reputable research in "death trance" phenomena was compiled by physicians who, like Colonel Vollum, personally experienced the horror of being pronounced dead by their own colleagues. There is no dearth of well documented cases to weigh against the admittedly

spurious reporting of some sensational tabloids.[4] Colonel Vollum collected most of his own material from medical journals and similar professional publications. Official military histories of the period also indicate that determinations of death were quite susceptible to error.

Residents of Fort Leavenworth can find some local color in the official History of the Fort on file in the Library of the Command and General Staff College: one of the former post commanders (1844-1847) left instructions that he was "not to be put underground when death came." Therefore, when he died in 1848, his remains rested in the fort's magazine until a regular cemetery vault could be prepared. The Colonel's request probably stemmed from his experiences on this same post a few years earlier. According to the officer's son,

> In his extreme illness my father fell into a cataleptic state; could neither speak nor move, and was given up as dead. He said that he heard and understood everything that was said and all that was going on around him, but was utterly powerless to make known to the people of the house in any way that he was still alive. At last a woman came to measure him for his shroud, noticed a tremor in one of his eyelids, and insisted that he was alive. Restoratives brought back his strength and some days later, Clagett told me, he was astounded to have my father order him to bring his clothes and put them on, and have him placed in a wagon to go with a party starting for the Fort (Leavenworth) towards which he had been journeying. Remonstrances on account of his extreme weakness were unavailing. My father peremptorily repeated his orders to Clagett, was placed in the wagon, and arriving at the Fort astonished his brother officers when he rose, tall and emaciated, his own ghost as they thought for a moment, for he had been reported dead and his successor congratulated on his promotion.[5]

Evidence of resuscitation in graveyards was a favorite theme of early humane societies organized to promote awareness of the problem of premature burial. When the Army cemetery at Fort Randall had to be moved to make room for urban expansion, there was some evidence to indicate that two of the soldiers had revived shortly after their burial.

> We found among these remains two that bore every evidence of having been buried alive. The first case was that of a soldier that had been struck by lightning. Upon opening the lid of the coffin we found that the legs and arms had drawn up as far as the confines of the coffin would permit. The other was a case of death resulting from alcoholism. The body was slightly turned, the legs were drawn up a trifle and the hands were clutching the clothing. In the coffin was found a large whisky flask, showing that those who buried him were not his friends, or else that they too were afflicted with the disease that had cut short the life of their companion.
>
> It occurred to us at the time that this was a great argument in favour of incineration. Nearly two per cent of those exhumed here were, no doubt, victims of suspended animation. Once before in our experience have we noted this: and while not believing in as large a percentage of live burials as the radical advocates of cremation claim, yet we know that the percentage is larger than most scientists give.[6]

In short, the episodes of spontaneous resuscitation were not unknown to our ancestors. But a more recent author has noted that "the widespread introduction of embalming in this country gradually removed the pathological fear that pervades much of the nineteenth century burial literature - the terror of being buried alive."[7] Although arterial embalming removed much of the grisly evidence that had generated man's morbid fears for many centuries, it did

nothing to lessen the original diagnostic problems. But as the evidence vanished, so did the fears. In the meantime, the basic ambiguity of death confronts doctors and laymen alike with the same counterfeits which prompted the resolution of a medical convention in Chicago, June 3, 1893. Physicians from all over the world joined together in passing the following resolution:

> Whereas we believe that many persons in the past, in the condition simulating death from various causes, have been buried alive; therefore,
>
> "Resolved - That it should be the duty of all governments to pass laws prohibiting the burial of bodies without positive proofs of death: that the nature of these proofs should be taught in all schools and printed in all newspapers throughout the world."[8]

Attitudes After 1900

After the 19th Century, a marked change of attitude can be observed in newspaper reports relative to premature burial. My search through microfilmed copies of the New York Times uncovered numerous articles pertaining to premature burial. These articles are consolidated in Appendix D of this paper.

When reading through each article in chronological sequence, a reader becomes quite prepared for the story dated April 30, 1889, where a funeral service is delayed, upon the advice of physicians, until firm evidence of death can be obtained.

> To-day the watch was still being kept up and no change had become manifest in the appearance of the corpse. . . .The girl's prospective husband has been an attendant at the bier during all this time.[9]

Such a story seems radically out of place, however, within the pages of 20th Century reporting. A new tone is evident and outrage is felt by people who wake up in mortuary facilities.

In the 19th Century, a routine death watch in Munich mortuaries purportedly saved 34 people over a period of 50 years.[10] In the 20th Century, such a story is once more out of place. Today, the prospect of waiting at a funeral bier for sure signs of death seems ludicrous. People expect that the ambiguities of death should be resolved, and that erroneous certification of death can only result from gross incompetence or rare freaks of nature.[11]

However, the rising expectations for medical certitude are far easier to understand and explain than another phenomenon: by the mid-1950s, laymen seem to have lost their inhibitions about deciding who is dead and who is still alive. A researcher in California became concerned when he discovered that:

> A little reflection is sufficient to realize that the subjectively perceived death of a person does not necessarily coincide with his biological death but may precede or antedate the latter.[12]

A new phrase may be added to the vocabulary of thanatology: "social death" occurs "when an individual is thought of as dead and treated as dead, although he remains

medically and legally alive." Distinctions between biological death and social death could be illustrated in any century, but the difference becomes especially evident in 20th Century America. The California researcher conducted a poll of 100 college students to ascertain what it was that generated their own subjective perceptions of death. The following results were obtained:

> Fifty-five, slightly more than one-half, of the students stated that death, for them, occurred when the heart stopped beating.[13]

But for some of these 55 students, heart stoppage was indicated to be not so much of a minimum criterion as it was an ultimate criterion signifying an event which could have preceded cessation of circulation.

> . . . it seems significant that over half of the respondents could accept the premise that 'death' can precede the cessation of the heartbeat.[14]

One respondent stated, "Alive 'to me' means the ability to talk to me, recognize me, discuss things." On the battlefield this might be a poor prerequisite for stuffing bodies into bags or refrigerators - or for performing a hasty burial. Military policy makers should give some thought to the ease with which today's young people accept death as a fact independent of objective physiological examination. Only a few students demanded additional proof, such as a medical examination or evaluation.

After mankind has gone through centuries of a common and pervasive fear of premature burial, what has happened to

the historical reticence of laymen to diagnose death without consultation from the medical profession? Several significant factors come to mind. Arterial embalming has put an end to the dramatic disruption of funeral services by revived victims. The elimination of contemporary examples of graveyard resuscitations has removed a source of indignation from current medical journals as the spotlight is turned toward the other end of a macabre continuum - being allowed the right to die without the intervention of modern machines.[15]

But the most significant reason for the attitudes of today's generation may lie in the rich diet of television drama upon which the average American youth has been feasting. During any evening of television, several death scenes from assorted westerns, police dramas, war movies, and historical pageants can be observed. How many of the dramatized deaths involve a close examination of the corpse by a medical doctor? Usually no suggestion is given that further examination might be advisable in order to decide positively that death has taken place. Death is usually instantaneous and obvious.

Although medically trained personnel are intimately aware of the complex diagnostic problems associated with death pronouncements, a generation of laymen from the 20th Century television audience has observed death as a consistently obvious condition requiring no detailed determination. Dramatic conventions have been highly

developed to allow theatrical portrayal of death without the encumbrance of EEG devices or even a primitive stethoscope. For example -

Sheriff: "Who shot you, Dan?"

Dan: "It was. . .it was. . .unghh!"

A number of dramatic gestures, gasps, jerks, or a simple anonymous voice from off screen - "Don't bother with him, Lieutenant! He's dead!" - help to reinforce the myth that death is usuall, obvious and instantaneous. Those few scenes which do depict hesitation in the recognition of death always portray the hesitant observer as a naive or sentimental ignoramus to be patronized by a wiser and more competent hero: "It's no use, son. Your friend is dead!"

U.S. News and World Report expressed concern over television's ability radically to alter American standards of behavior in some other areas:

> Researchers have found that by the time an American child reaches 18, he has spent 20,000 hours before the TV set - more than he does in the classroom. . . .In studying the responses of 120 boys from 5 to 14 years old, reserachers found clear evidence that "heavy TV watchers" were no longer shocked or horrified by violence. Prof. Victor Cline of the University of Utah, who directed this project, observed that the study "means that they have developed a tolerance for it, and possibly an indifference toward human life and suffering."[16]

How many de facto death scenes are included in 20,000 hours of television viewing?[17] Perhaps the answer to this question might explain why only a few students demanded medical testimony prior to developing their subjective perceptions of death in the California State College survey.

Impact Upon Military Thinking

The combat soldiers of today's Army come from the population at large and are a product of their environment. It is reasonable to assume that the average members of a graves registration collection team are no more enlightened than the selected group of college students in California previously mentioned.[18] Thus, today's soldiers might be expected to exercise the same cavalier attitude toward death that is evidenced by their civilian counterparts. Since it has already been shown that most combat deaths do not occur in hospitals,[19] the bulk of *de facto* death pronouncements remain in the hands of citizen soldiers who are ill equipped to make such decisions.

Several researchers have observed how difficult it is for people to reverse their judgement once they are led to believe that someone is dead.[20] This reluctance to accept latent life signs from GRS customers may soon be sanctioned and codified in the procedures outlined for graves registration operations under concepts of future warfare. A recently concluded study at the Army Quartermaster School made some startling recommendations for expediting GRS procedures on future battlefields. Entitled QMB Project No. 25,[21] the study calls for accelerated collection and disposal of all battle casualties. But in the environment where chemical and biological agents are forecast to have unpredictable results on casualty/mortality rates,[22]

no plans are contemplated for improving present procedures in the initial sorting of the wounded from the dead. In fact, the study would prohibit even the most cursory check of the most elementary life signs (i.e., pulse and respiration) during some mass casualty situations.[23]

The study envisions prompt burial of mass casualties through the use of earth moving equipment to shove large piles of bodies into holes blown by explosives.[24] In a final summary paragraph, the study concludes by stating:

> Military policy recognizes that mass deaths will tend to be a frequent and normal occurrence in CBR warfare and will force a requirement for mass burials on the battlefield with a minimum of conventional GRS procedure.[25]

It is therefore possible that personnel may be bulldozed into mass graves simply on the basis of their lifeless appearance. For a more detailed description of QMB Project No. 25, a synopsis is included in Appendix A to this thesis.

Current Medical Concepts of Death

Although the concepts put forth in the QMB Project may be a natural extension of the current attitudes prevalent in American society today, they clash with the concepts seen in current medical thought on the subject of death and its diagnosis.

During this century, a scientific search for a reliable, standardized definition of death received little attention until recently when advances in transplant surgery

focused attention on the need for a uniform understanding of death and dying.[26] A lack of standardization still hampers litigation in various state courts. Legal definitions of death vary according to locality, presenting a ludicrous potential for an accident victim to alternate between legal life and death simply by being transported across state lines.[27]

Many critics have observed that lawyers and scientists display an irrational reluctance to get involved in death research.[28] Their reluctance notwithstanding, experienced physicians are still aware that "many old ideas about determining death are valueless." The absence of heartbeat, pulse, and respiration still constitute legal death in some states, but the inadequacies of such definitions have been illustrated repeatedly:[29]

> An individual may appear clinically dead, but may still be considered totally salvageable or retrievable despite a total lack of respiration and circulation for as long as five to ten minutes.[30]

Some spectacular exceptions to the five to ten minute time criterion have been well documented, to include one highly publicized case where a 5 year-old boy recovered fully after being submerged for 22 minutes in a partly frozen river.[31] Resuscitation of newborn infants has provided equally spectacular exceptions to the normal expectations of brain damage following extended periods of oxygen deprivation.[32]

Soviet scientists have made even more dramatic claims in the science of "reanimatology." In discussing their progress with retrievability of clinically dead subjects, "Negovsky's group claims that they have managed to prolong this period for up to two hours in experimental animals."[33]

Earlier, another Soviet journal announced that:

> USSR researchers have been experimenting with anabiosis - artificial lowering of metabolism or apparent death - and applying it to counteract the effects of weightlessness in extended space flights.[34]

With the abundance of research currently being conducted in the area bordering life and death, the ambiguities have not been diminished. One observer commented that the root of the problem in diagnosing death is that:

> . . . there is no "moment of death" as we like to think of it. Death is a process. This causes difficulties in our thinking.[35]

One approach to resolving such difficulties is to differentiate between various stages of death. Separate reference is made to biologic death, clinical death, brain death, somatic death, organ death, cellular death, molecular death, or theologic death.[36] However, such an approach does not eliminate the difficulties for anyone seeking to establish a precise moment of death. Even brain death is merely one end of a continuum of progressive brain damage.[37]

But regardless of the difficulties surrounding precise definition of the subject, the need for a precise criterion for the recognition of death is not diminished.

The ultimate question involves the point at which resuscitative attempts are abandoned in favor of embalming.[38]

The definition of death in Black's Law Dictionary (based on observations of respiration and pulsation) is being rejected by increasingly large segments of the world's legislative bodies. Examples of the new views are:

> In many countries specified criteria are evolving, most of which advocate that the definition of death be ultimately based on "brain death," rather than the irreversible cessation of respiration and circulation.
> . . . . . .
>
> A "dying score" has been suggested with points given in evaluating cerebral function, reflex action, respiratory effect, circulation, and cardiac action. The evolving philosophy has been succinctly expressed by various individuals as, "A dead brain is a dead person," and "Life ends with the death of the brain."[39]

Among the many medical recommendations for standardizing death's diagnostic criteria are those of the Harvard group,[40] the Allegheny Ad Hoc Committee,[41] the Rosoff and Schwab criteria,[42] and a World Medical Assembly (The Declaration of Sydney).[43] A common element employed in most of the technical conventions is the insistence upon prolonged observation. Instantaneous readings or observations are not considered satisfactory. For example, the Allegheny protocol lists six general criteria and ten specific responses necessary for infallible determination of death. But none of the criteria or responses is to be considered conclusive until all of them have been present for a minimum of two hours. Some observers might call this a case

of overkill, but "the committee believes that these criteria are realistic in light of today's medical knowledge . . ."[44]

For administrative purposes, the law still insists upon specification of time of death. Physicians normally comply with the legal requirements by making their decisions in retrospect, following some period of observation.

> When you and I as physicians sign a death certificate we are asked to record the time of death. What we actually record, however, is the time at which the individual is pronounced dead. One looks for vital signs. After some time has elapsed and no vital signs are noted the patient is pronounced dead and an arbitrary time is selected.[45]

The phrase "after some time has elapsed" is still a key element in the employment of sophisticated diagnostic aids - including the electroencephalogram.

> There is no agreement as to the duration of time during which the EEG should be isolectric, the suggestions varying from one hour to days, to "a long enough period."[46]

In summary, the nonmedical researcher can become quite confused in seeking to find a consensus of medical opinion on the definition of death. One author states that there is no real consensus of opinion, and that:

> Even if medical men could reach a consensus of the criteria for death, it would be impossible to formulate a specific and reasonably well defined piece of legislation which could have satisfactory applications to all possible clinical situations.[47]

Conclusions

When the time comes to decide whether or not someone is still alive,

"The decision is properly one for a physician . . ."[48]

". . . it is improbable that any substitute can be found for the judgement of doctors dealing with particular cases."[49]

". . . the time of death must remain a matter of medical judgement and knowledge."[50]

"Society cannot take the duty of decision away from the physician."[51]

". . . is the legal responsibility of the physician and should remain so . . ."[52]

"Resuscitation, when possible, must be continued until death is certified by a doctor."[53]

". . . yet even experienced physicians may not always be certain of it until some hours have elapsed after death."[54]

Notes - Chapter IV

[1]Anonymous, "You Cannot Be Buried Alive," The New York Times Magazine, 24 July 1898, 10.

[2]"The ordinary coffin is air-tight, and any defect in that particular would be regarded as bad workmanship. The capacity for an adult varies, say from eighteen to forty cubic feet, but the greater amount of that space is occupied by the body and its wrappings. Suppose a living person to be shut up in an air-tight chamber of the capacity mentioned, a few minutes, probably ten or fifteen at the outside, would exhaust all the available air, and suffocation would occur. The tales, then, of unhappy individuals who have come back to consciousness hours after being shut up in a coffin may be dismissed as physically impossible. The only ways in which life could have been maintained under such circumstances would be: (1) the free admission of air into the coffin - a most unlikely thing, considering the methods of manufacture usually adopted by undertakers, or (2) the assumption that life had been maintained for some hours without respiration, a supposition that cannot be for one moment seriously entertained." Ibid., 10.

[3]Such practice was discussed, without censure, in the American medical journal, Lancet, March 17, 1866.

Monsieur Theiurey, Doctor Regent of the Faculty of Paris, was of the opinion that "one third, or perhaps half, of those who die in their beds are not actually dead when they are buried." Walter White, A Dissertation on the Disorder Called Suspended Animation, 362, as quoted by William Tebb and Edward P. Vollum, Premature Burial and How It May Be Prevented, (London: Swan Sonnenschein, 1896), 222.

Such alarming statistics were widely believed by a great number of well known and highly intelligent people.

"'Francis Douce, the antiquary, requested, in his will, that Sir Anthony Carlisle, the surgeon, should sever his head from his body, or take out his heart, to prevent the return of vitality; and his co-residuary legatee, Mr. Kerrick, has also requested the same operation to be performed in the presence of his son.'" Ibid., 153-5.

[4]"The books on apparent death by Winslow (1740) and Bruhier (1742) brought with them an abundance of studies on apparent death. Documented cases in which people were

buried alive and in which dying people were maltreated were present at this time." D. M. Borel, "Defining Death," General Practitioner, 39, January 1969, 172.

One book designed to teach sound methods of research and documentation used the substantiation of a premature burial as an exemplary case of good methodology. Reference the exhumation of Giertrud Birgette Bodenhoff by 20th Century investigators. Tyrus Hillway, Introduction to Research, 2nd Edition (Boston: Houghton Mifflin Co., 1956), 76.

[5]Henry Shindler, Manuscript of the History of Fort Leavenworth, undated, 76.

[6]T. M. Montgomery, "Removal of Fort Randall Cemetery," The Casket, 2 March 1896, as quoted in Tebb and Vollum, op. cit., 351.

[7]H. Y. Bernard, Law of Death, (Oceana, 1966), 26.

[8]Quoted by Tebb and Vollum, op. cit., 362.

[9]"Not Sure She Is Dead," The New York Times, 30 April 1889, 8. Copy included in Appendix D, D-20.

[10]John A. Mulcahy, "Letter to Hartford Times," The New York Times, 18 August 1890, 9. Copy included in Appendix D, D-25.

[11]Ironically, such an attitude only exascerbates the problem today. As people become less aware of the inherent ambiguities of death the potential for mistakes increases. Various "humane societies" were active in the United States as early as 1780 to promote public awareness of apparent death states, although interest has waned in the 20th century outside of medical circles. Reference "Historical Background" paragraphs in Borel, op. cit., 172.

[12]Richard A. Kalish, "A Continuum of Subjectively Perceived Death," Gerontologist, 6, 1966, 73, 75, 76.

[13]Ibid. [14]Ibid.

[15]William D. Poe, "Do We Need Restraint in Medicine?" Christian Century, 19 September 1973, 914-8. Also, J. R. Guyther, "The Right to Die," Maryland State Medical Journal, 22, June 1973, 44-5. Also, Anonymous, "The Right to Live - or Die," Time, 27 October 1975, 40-5. Also, Associated Press, "Death with Dignity Sought for Daughter," The Kansas City Star, 22 October 1975, 6A, column 1.

[16]Anonymous, "What's Happening to American Morality?," U.S. News and World Report, 13 October 1875, 40.

[17]"Everyone yaks about violence on TV, but few ever cite specifics. So just for the heck of it several weeks ago, we began keeping track of the number of folks bumped off in network series.

"With three TV sets aglow, we logged a kind of doom count while watching post-family hour shows the evenings of March 1, 2 and 3.

"The findings: a total of 17 persons killed in three nights, expiring on 11 shows about private eyes or law and order. Ten died on NBC, five on ABC and two on CBS.

. . . . . .

"Artillery of varied calibers accounted for the deaths of nine of the 10 male characters who died on camera the evenings of March 1-3.

. . . . . .

"Gunfire accounted for the last two deaths, a villain slain by a rich matron on City of Angels and a wicked scientist winding up on the wrong end of an M16 on an Army base on Cannon." Anonymous, "Death Prevails in Nightly Fare," The Kansas City Star, 22 March 1976, 25, column 8.

[18]Kalish, op. cit.

[19]Roy E. Appleman, South to the Naktong, North to the Yalu, (Washington, D.C.: Office of Military History, 1961), 547.

[20]Tebb and Vollum comment at great length on the reluctance of seemingly intelligent observers to question any pronouncement of death - formal or otherwise. Even the most obvious evidence of life is casually ignored once an assumption of death has been verbalized. Tebb and Vollum, op. cit., 105-12.

[21]QMB Project No. 25, Graves Registration Operations Under Concepts of Future War, Section II (Fort Lee, Virginia, March 1962).

[22]Ibid., Annex B.

[23]Ibid., B-16 - B-18.

[24]Ibid., B-1, paragraph 3.b. and 17, paragraph 7.g.

[25]Ibid., Summary, x, paragraph 10.g.(1).

[26]Russell S. Fisher, "Pronouncement of Death," cited by Werner U. Spitz (ed.) Medicolegal Investigation of Death, (Springfield: Thomas, 1973), 11.

[27]Lorraine S. Isham, Survey of State Laws Governing the Disposal of the Dead and Regulating Those Who Work with the Dead: A Critical Look at the Laws, (Hanover, N. H.: Billings Lee, 1966).

"One might say in that event the laws could be changed. But laws once passed have a tenacious hold many times defying attempts to remove them in spite of the apparent need to do so. The problem remains, however, that existing legal definitions which cling to traditional criteria for death are inadequate." Borel, op. cit., 177.

[28]Herman Feifel, "Scientific Research in Taboo Areas - Death." American Behavioral Scientist, 5, 1962, 28-30.

[29]Snyder, op. cit., 38. Also, Fisher, cited by Spitz, op. cit., 11.

[30]L. Scherlis, "Death: The Diagnostic Dilemma," Maryland Medical Journal, 17, December 1968, 78.

[31]Knittingen and Naess, "Recovery from Drowning in Fresh Water," British Medical Journal, 5341, May 1963, 1315, cited by Fisher, cited by Spitz, op. cit., 11.

[32]C. T. Reilly, "The Diagnosis of Life and Death," Journal of the Medical Society - New Jersey, 66 November 1969, 602.

[33]Vladimir Negovsky, "Resurrecting the Dead," Moscow News as quoted by Irene Agnew, "Bringing Back the Dead," Science Digest, 69, April 1971, 30.

[34]Agnew, ibid., 30. [35]Reilly, op. cit., 601.

[36]Ibid. Also, see Fisher, "Pronouncement of Death," cited by Spitz, op. cit., 12.

[37]Poe, op. cit., 915.

[38]". . . clinical interest lies not in the state of preservation of isolated cells but in the fate of a person. Here the point of death of the different cells and organs is not so important as the certainty that the process has become irreversible by whatever techniques of resuscitation that may be employed." "Declaration of Sydney," from the 22nd World Medical Assembly in August, 1968, as published in Pennsylvania Medicine, 72, March 1969, 20.

[39]Scherlis, loc. cit. Also, reference Appendix E, E-7.

[40]Reilly, op. cit., 603. Included in Appendix E, E-3.

[41]"Protocol for the Determination of Death endorsed by the Allegheny County Ad Hoc Committee on Tissue Transplantation," Pennsylvania Medicine, loc. cit. Copy included in Appendix E, E-4.

[42]Borel, op. cit., 174-5. Included in Appendix E, E-5.

[43]D. Silverman, et al., "Cerebral Death and the Electroencephalogram. Report of the Ad Hoc Committee of the American Electroencephalographic Society on EEG Criteria for Determination of Cerebral Death," Journal of the American Medical Association 209, 8 September 1969, 1505-10. Included in Appendix E, E-6.

[44]Reference note 41.

[45]Reilly, op. cit., 601.

[46]Scherlis, loc. cit.

[47]Borel, op. cit., 177.

[48]C. J. Potthoff, "First Aid: Determination of Death," Today's Health, 47, September 1969, 74.

[49]Borel, op. cit., 177.

[50]Reference note 41.

[51]Church Assembly Board for Social Responsibility, "Decisions about Life and Death," as quoted by Jerry Salen, "Death: The Diagnostic Dilemma," Maryland State Medical Journal, December 1968, 78.

[52]Silverman, et al., loc. cit.

[53]Madeline M. Cotter, "Sudden Death in the Work Situation," Occupational Health, February 1970, 41.

[54]C. J. Polson, R. P. Brittain, and T. V. Marshall, The Disposal of the Dead, (Springfield: Thomas, 1962), 281.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Danger of De Facto Pronouncements. Although it is not specifically sanctioned, the de facto death pronouncement has become an integral part of the Army's casualty evacuation system. Almost half of the battle fatalities in any given war appear to have been subjected to such de facto pronouncements in the early stages of their evacuation from the battlefield.[1] Entry into mortuary evacuation channels almost guarantees a lack of further interest in checking for vital signs. If medical checks are omitted in preliminary processing, they are extremely unlikely to be performed within GRS channels. Some directives expressly require the use of body bags[2] and mortuary refrigerators[3] without establishing either medical or administrative prerequisites for assuming that a casualty is dead.

The possibility for erroneous consignment of viable casualties into potentially lethal mortuary processing channels is ignored not only in the mind of the average soldier, but also in existing written directives. Unquestionably, some military casualties have been consigned

prematurely to mortuary processing as evidenced by their subsequent resuscitation.[4] The fact that such events have occurred without a concurrent violation of existing directives would indicate that an even larger number of casualties have been allowed to expire undetected within the legal sanctions of the present casualty evacuation system.

Problem of Undetermined Magnitude. An unanswered question remains as to the frequency with which erroneous determinations have been made. A significant amount of evidence has suggested that such errors are not infrequent;[5] they are just unpublicized.[6]

Eighty years ago, an opinion by a General Staff Medical Officer that "one third of mankind are buried alive,"[7] was investigated by Colonel Vollum. Assuming that such an estimate was exaggerated, Colonel Vollum interrogated other military surgeons and civilian physicians who provided additional numerical estimates varying from a high of 50%[8] down to a conservative low of one tenth of 1% (one case of premature burial per 1000 interments).[9]

The two per cent post-interment resuscitation rate discovered in the Fort Randall Cemetery[10] falls reasonably well in between the extremes in statistical estimates. It should be acknowledged, however, that the modern battlefield fatality is no longer afforded the same opportunities for spontaneous resuscitation that were given to the unembalmed soldiers at Fort Randall. The disappearance of the wake

has been coupled with the introduction of some other innovations which have inhibited the number of successful recoveries in today's military morgues.[11]

Specifically, the introduction and widespread use of the body bag (human remains pouch) considerably reduces the available oxygen supply to any occupant. Then, the new mortuary refrigerator quickly drains off vital body heat during preliminary storage and processing. Finally, embalming fluid eliminates whatever remote chances for survival might exist following clearance of the previous hurdles, and destroys any evidence which could later reveal the earlier mistakes. Invariably, "an embalmed body is a dead body,"[12] Today's well embalmed soldiers no longer break out of their caskets to disrupt their own funerals.[13] Consequently, today's soldiers are not as apt to question the ambiguous appearances of death which they have been taught to accept so casually in modern television dramas.

Undesirable Future Trends. Written proposals for future operations will only exacerbate the problem.[14] Future wars are projected to entail dramatic increases in casualty rates with proportionate decreases in processing time for each battle casualty. Whatever the magnitude of the problem may have been yesterday, it is certain to be multiplied significantly tomorrow.

Although the proliferation of new, self sealing plastic bags for widespread use by untrained personnel may

succeed in preventing "contamination of vehicles by body fluids that tend to leave a permanent objectionable odor,"[15] at the same time, such a program will finally eliminate further evidence to support Pliny's ancient dictum that:

> Such is the condition of humanity, and so uncertain is men's judgement, that they cannot determine even death itself.[16]

Proposed Solutions

Public Reeducation. A massive, public reeducation program would be required to counteract or remedy the false conceptions of death diagnosis brought about by excessive exposure to television dramatizations. Some doctors believe that the electroencephalogram holds great promise as a standardized diagnostic aid in the determination of death, but public acceptance of such a major change in thinking would not come easily.

> Public education will be necessary if there is a movement to upgrade the diagnosis of death by electroencephalogram since it has been demonstrated that most people think of death in terms of cessation of cardiac function.[17]

Such an education program has been conducted on a city wide basis in Seattle, Washington. More than 100,000 persons (about 5% of the municipal population) have received special training offered by the Seattle Fire Department and taught by the University of Washington Medical Center. The program, called "Medic Two," has resulted in increased survival rates for heart attack victims who receive prompt resuscitative efforts from their neighbors prior to the arrival of a doctor or an ambulance.

> On one occasion a Medic Two volunteer went to the aid of a person with whom he worked. He instructed one person to call for an ambulance and then gave mouth-to-mouth resuscitation to the victim. Another individual was shown quickly by the volunteer how to massage the chest in a way that keeps blood circulating. The victim survived.[18]

A Seattle Fire Department official claims that "the survival rate [for heart attack victims] has increased from 11 to 26 per cent since 1971."[19] While improvements in medical technology may account for some of this improvement, "much of the credit is being given to . . . Medic Two."[20]

Combat First Aid Training. Cardiopulmonary resuscitation should be a mandatory part of basic and recurrent first aid training for every soldier.[21] Of course, a combat soldier cannot be expected to terminate his primary duties in the middle of a fire fight to begin cardiopulmonary resuscitation on every fallen comrade. But after hostile contact has been broken, the possibility exists that many of the dead will not yet have evolved into somatic death, and some of these casualties may be retrievable.

Inevitably, the question is asked, "Do we really want to retrieve someone when the death processes may have evolved to the point where severe mental impairment may be the result of even the most valiant resuscitative efforts?" Such a question is not without substance; however, is it a valid excuse for withholding resuscitative treatment when the prognosis is in doubt?

> One reason why doctors often hesitate is the natural apprehension lest they revive a person to live out the rest of his days as a 'vegetable.' This is a real and understandable attitude, about which it is not useful to be dogmatic. On present evidence, however, there would seem to be a clear case for attempting resuscitation in all young people, in all hypothermic patients and in as many as possible of the others as can be justified by one's own judgement.[22]

As a minimum, combat first aid training should address the fact that death seldom occurs as depicted in the movies and on television. The basic trainee needs to be taught the art of skepticism in dealing with apparent death. He should be taught to check for a pulse or heartbeat and in the absence thereof he should attempt external cardiac massage.

Present combat first aid training appears to be inadequate even in simple artificial respiration.[23] Throughout the numerous accounts of combat deaths reviewed in preparing this thesis, not one case could be discovered where any combat soldier attempted any kind of resuscitation on any apparently dead comrade. Instead, the myth of "sudden death" prevails, as in the following account of a Vietnam combat experience by a U.C.L.A. college student:

> Stone dead, he was. Eyes wide open, staring at nothing. A thin veneer of blood curling at the corner of his lips. Two gaping holes in his chest. Right leg half gone. My first combat fatality. A lifeless body where only moments before a heart beat its customary seventy pumps in one orbit of the minute hand. It is one thing to hear about death; to watch it happen is quite another. I went over to the nearest tree and vomited my guts out. Combat training had never prepared me for anything like this.[24]

Such scenes might have much happier endings if all soldiers are given some pragmatic training in the mechanics of death and resuscitation. Resuscitation should be attempted on apparently dead casualties whenever the exigencies of combat do not preclude the practice. In other words, when a fire fight is terminated, a soldier might make more constructive use of his time attempting to resuscitate the dead instead of smoking a cigarette while waiting for the arrival of a medic or a graves registration team.

No Bagging Without Tagging - No Cooling Without a Ruling. Many casualties may revive spontaneously without any medical intervention or first aid treatment if they are not summarily smothered in a human remains pouch. The platoon leader who returned to combat within minutes of his "death" (page 22) illustrates the ease with which some resuscitations can occur. Had he been placed in an airtight human remains pouch, he might not have regained consciousness. Those who witnessed his being hit by a grenade might never have learned of their mistaken diagnosis.[25]

The use of the human remains pouch (and the mortuary refrigerator) should be restricted to the processing of those casualties who have been certified dead and legally tagged by a physician or other competent technician who has been specifically trained for such duties. Of course, there will be times when trained technicians are not available immediately, or when mass casualties present a workload

exceeding the capacity for normal processing of remains. Should bodies be allowed to remain in an environment where they can decompose in the meantime?

Here, the choice is between the lesser of two evils. One principle has been firmly established: "When lay persons attempt to certify death the chances of error are increased."[26] Surely, the temporary exposure of the apparent dead should be preferred to risking the hasty suffocation of survivors. In many societies, exposure of the dead has been a routine which has saved numerous people without endangering the health of the remainder.[27]

Exposure of the dead has been a life saving expedient in relatively recent warfare. One doctor recalls the following story from World War II:

> After an air raid in Europe during the last war, I was asked by a civilian if I would examine someone who appeared to be alive in a pile of corpses. I not only confirmed that this body was alive but also removed two other 'live corpses' from the heap. The deaths of all persons in the heap of corpses had been certified by the local air raid wardens, who had certified death rather by a visual examination of the injuries than as a result of any clinical examination.[28]

Flexible Transportation Modes. Medical evacuation assets should be used whenever there is any doubt about the possibility of life remaining in a casualty. Such a statement becomes a superfluous platitude, however, in the light of past combat experience. Medical evacuation is normally used in all cases of legitimate doubt whether or not the patient is dead. The real problem lies where erroneous

perceptions of death have left no room for doubt. Personnel who have appeared to be dead have been regarded fallaciously as being void of all life and of any chance for life.

Therefore, the current bias against mortuary utilization of medical evacuation assets needs to be relaxed to allow for routine, space available removal of the apparent dead during the initial search for and collection of remains from a battlefield. Where the number of ambulances are insufficient to accomodate all casualties, then available transportation will have to be utilized with more regard given to the potential for life within apparently dead soldiers.

Prior to evacuation, bodies should be afforded environmental protection conducive to resuscitation. Whenever utility vehicles are utilized for early removal of the apparent dead, protection from extremes in climate should also be provided during the transportation phase. Air tight bags should not be utilized solely to protect a 2½ ton truck from the body fluids of a casualty whose death has not been legally certified by competent authority.

Disavowal of QMB Project 25. Finally, there should be an immediate disavowal of the conclusions and recommendations of QMB Project 25[29] regarding the treatment and handling of CBR mass casualties during future conflicts. As it stands, the Project 25 study group did not even consider the possibility of leaving mass casualties exposed long enough to

allow the onset of putrefaction. Such exposure of the dead appeared to be ruled out not so much on the basis of health hazards as it was on an irrational antipathy for witnessing decomposition of the human body. However, if the basic assumption of the study is correct (i.e., that future wars will be as shortened in duration as they are heightened in intensity) then the temporary exposure of mass casualties should at least be considered among the options available for dealing with the dead and the apparent dead.[20]

Suggestions for Further Study

A large amount of research has already been done on the hypothermic effects of several CBR (chemical, biological, and radiological) weapons.[31] There is an urgent need to correlate such research with the future proposals for graves registration operations under concepts of future warfare. The relevance of hypothermic lethality to GRS problems in death certification cannot be overestimated.

> At the moment there are no known criteria to distinguish [hypothermic] cardiac arrest from death, except the irreversibility of death. The former condition is a state of suspended animation which will proceed to death in an undetermined time of hours, or perhaps days. There is therefore a clear case for attempting to resuscitate all patients found in cold cardiac arrest, especially when the previous history is not known.[32]

Hypothermic coma is more than just a possibility in future warfare: it is a certainty. It is already a factor in the complication of diagnosis within both temperate and tropical climates.[33] Obviously, it will be a key factor in arctic warfare (or winter warfare in most European areas).

In addition to the physiological hypothermic reactions associated with diseases,[34] injuries,[35] drug abuses,[36] and climatological extremes, hypothermia may be especially insidious during the employment of CBR warfare.

CBR agents have a very unique potential for producing hypothermic reactions in their victims.[37] But such reactions are not invariably fatal.[38] In discussing the mechanism of hypothermic death, certain principles are generally acknowledged:

> In most cases the heart simply stops. The critical period takes place when the body temperature is between 82 and 91 degrees. At this point the heart may fibrillate - flutter its muscles rapidly in a vain effort to pump more blood. Then, the heart fails.
>
> But, if a person survives this critical period, the body goes into a deeper hypothermia or "suspended animation."
>
> The heart rate is cut in half, respiration is down to a third, the body virtually shuts down.[39]

In some cases, this may have caused exaggerated estimates of the lethality of some agents during early tests and evaluations where test animals were discarded after they appeared to "die" from exposure to chemical weapons.

In a series of experiments employing chemical warfare agents on dogs, the lachrymotor agents (CA, CS, and CN) were discovered to be reliable killers when administered intravenously. But when the conventional delivery method (aerosol spray) was employed, hypothermia and apparent cessation of breathing was only temporary. "Recovery by these dogs even from high doses . . . is the rule."[40]

Chemically induced hypothermia is still considered to have "a very high mortality rate" estimated to be between 37 to 73 per cent.[41] Clinically speaking, such a rate is indeed high. But on a battlefield, the most pessimistic mortality rate can be translated into terms with a different emphasis: over 25% of the apparent dead will be very much alive and capable of being resuscitated, even though they may display a total absence of heart beat, respiration, or even brain wave activity.[42]

Anthrax toxin, a primary biological weapon, results in hypothermia which is invariably fatal in cold climates (below 4° Centigrade). But death becomes less certain in temperate climates or on warmer battlefields where higher body temperatures can be maintained by ambient air temperature. Normally fatal dosages of anthrax toxin have had to be doubled to assure mortality in rats held at ordinary room temperatures.[43]

QMB Project 25 advocates burning of all bodies infected by anthrax.[44] Although rapid rewarming is one of several resuscitation techniques recommended for victims of hypothermia,[45] the victims may be less than grateful for resuscitation executed in such a vigorous fashion. Plato relates an account of an apparently dead soldier reviving on a funeral pyre in the 3rd century B.C.[46] Such scenes may become commonplace in our own century if current concepts for CBR warfare and graves registration service policies are

not carefully correlated prior to another outbreak of major hostilities.

Final Summary

Current military policy appears to sanction any expedient for removal of apparently dead casualties from the view of living soldiers. Regulations must be established to provide firm, statutory supervision of such expedients. The use of bags and refrigerators should be prohibited prior to legal certification of death.

Casualties who are apparently dead may be shielded from public view without being encased in individual wrappings prior to medical examination. Whenever possible, resuscitation should be attempted. When resuscitation attempts are impractical, the bodies should be held at collecting points where room temperature is conducive to spontaneous resuscitation.[47] Combat expedience should never include premature burial as an alternative to allowing exposed bodies to putrefy. The words of Colonel Edward Perry Vollum seem as applicable today as they were eighty years ago:

> . . . the need for immediate action is urgent and imperative . . . . May we hope for the cordial co-operation of all classes and of all sections on a question in which the whole community has a deep and vital interest, and on which procrastination will certainly be fatal to some of its members? It is not an academic question, but one of the gravest practical character, the earnest consideration and treatment of which cannot be neglected with impunity.[48]

Notes - Chapter V

[1](Reference Chapter I, page 4.)

[2]Reference Appendix A, A-7 for a synopsis of AR 638-40, Care and Disposition of Remains, 1 May 1971.

[3]Reference interview with E-4 Gary A. Burgess, Appendix B, B-8-10.

[4]An English physician gives several military examples of legal but premature burial (or near burial) from antiquity on down to the recent U.S. military experience in Vietnam. He concludes by comparing many of these cases to the physiological state of patients undergoing heart surgery with modern techniques. ". . . circulation and respiration have ceased to function spontaneously owing to the low body temperature which is below that compatible with life. By the older definitions the patient is dead, but he is in fact in a state of artificially induced hibernation or suspended animation. Both the E.C.G. and E.E.G. recordings show that neither the brain nor the heart is functioning, but when the body is re-warmed . . . the vital functions start to operate spontaneously and normal function is restored." A. Keith Mant, "Definition of Death" in Arnold Toynbee, Man's Concern with Death. (New York: McGraw-Hill Book Comapny, 1968), 22.

[5]During a recent five year period, Dr. Raymond A. Moody, Jr. conducted a study in which he interviewed more than fifty subjects who had experienced "clinical death" and then been revived. The availability of so many revived subjects to a single researcher suggests that hasty mortuary processing could be a key factor in expediting the demise of a significant number of people. Raymond A. Moody, Jr., Life After Life (Atlanta: Mockingbird Books, 1975), 19.

Another researcher, commenting on the reports published by Dr. Moody, stated, "This very much coincides with my own research, which has used the accounts of patients who have died and made a comeback, totally against our expectations and often to the surprise of some highly sophisticated, well-known and certainly accomplished physicians." Elisabeth Kubler-Ross, as quoted by Moody, op. cit., 7.

[6]The lack of publicity stems primarily from the consistent aversion to notoriety expressed by nearly all recovered victims. Tebb and Vollum observed this phenomenon widely in the 19th century. William Tebb and Edward P. Vollum, Premature Burial and How It May Be Prevented, (London: Swan Sonnenschein, 1896), 19, 64.

Modern survivors continue to express the same desire for anonymity. Typical comments are as follows:

"It's just that I don't like telling people about it. People just kind of look at you like you're crazy."

"I was afraid that nobody would think I was telling the truth, that they would say, 'Oh, you're making up these things.'"

"And after this happened to me, and I tried to tell people, they just automatically labeled me as crazy, I think."

"You learn very quickly that people don't take to this as easily as you would like for them to. You simply don't jump up on a little soapbox and go around telling everyone these things." Moody, op. cit., 62-3.

[7]Tebb and Vollum, op. cit., 220.

[8]Ibid., 222.

[9]Ibid., 223.

[10]Ibid., 351. Also, reference thesis Chapter IV, 46.

[11]Dr. Mant suggests that the trance-like states which were encountered frequently in the 19th century have only "appeared to have disappeared" in the 20th century. Once a person is certified dead today, "his chances of resurrection would be diminished because bodies are not usually kept at home but transferred to refrigerators in public mortuaries or undertakers' chapels, where any trance-like state would rapidly become permanent!" Toynbee, op. cit., 17.

[12]H. Y. Bernard, Law of Death, (Oceana, 1966), 26.

[13]Such cases have occurred prior to the widespread employment of arterial embalming for military casualties. Among the cases documented are those of a U.S. Army Colonel on 18 January 1894, and a British Army Captain in 1896. Tebb and Vollum, op. cit., 90, 97.

A British Lieutenant General is quoted as urging cremation in order to prevent such occurrences. Ibid., 278.

[14]Reference Appendix A, A-25, QMB Project No. 25, QMCCD Project 56-9, Graves Registration Under Concepts of Future Warfare, 1 May 1962, (Quartermaster Poard, U.S. Army, Fort Lee, Virginia, March, 1962).

[15]Ibid., c-1, paragraph 3.

[16]As quoted by Tebb and Vollum, op. cit., 1.

[17]Christopher T. Reilly, "The Diagnosis of Life and Death," The Journal of the Medical Society of New Jersey, November 1969, 603.

[18]Anonymous, "Quick Aid for Heart Victims," The Kansas City Star, 25 February 1976, 14, columns 1 and 2.

[19]Ibid. [20]Ibid.

[21]Some medical authorities would like to see this technique taught routinely to laymen in all walks of life. This was the theme of an article featured in a recent issue of Reader's Digest. Warren R. Young, "CPR - The Lifesaving Technique Everyone Should Know," Reader's Digest, January 1973, 144.

[22]Anonymous, "Dying and Death," Resuscitation, 1, July 1972, 88-9.

[23]A master training schedule and lesson outlines are provided in Army Subject Schedule 21-4 for the eight hours of first aid instruction which is currently a part of basic combat training. Mouth to mouth resuscitation is included in a two hour block of instruction during period 2. Army Subject Schedule 21-4 First Aid, 4 August 1969, 2-5.

[24]Joel Baruch, "Combat Death," as published in Death and the College Student, ed, Edwin S. Shneidman, (New York: Behavioral Publications, 1972).

[25]"The prevailing belief in the existence of sudden deaths is one of the chief causes of the terrible mistakes that lead to live burials. If this delusive idea were removed, those concerned, such as physicians, undertakers, relatives, and friends, would treat a person who unexpectedly took on the appearance of death as one needing careful attention by physician and nurse to bring him around to health again, as is usually done in cases of fainting. If trance were understood, doctors would be on the lookout for it; but, as it is not understood, it is called death, and we bury our mistakes." Tebb and Vollum, op. cit., 175.

[26]Mant, as quoted in Toynbee, op. cit., 14.

[27]Tebb and Vollum devote an entire chapter of their work to the "waiting mortuaries" concept and how it has been employed successfully throughout many countries in many climates. Tebb and Vollum, op. cit., 285-315.

"Owing to the fallibility of the diagnosis of death many writers advocated a delay between death and burial. Bruhier advocated four days or until putrefaction had commenced. In France burial could not officially take place until 24 hours after the death certificate had been issued, and in certain parts of the continent regulations insisted that bodies should be left in a mortuary which was under the direction of a cemetery inspector with medical knowledge until unequivocal signs of post-mortem decomposition had appeared. A special room was attached for the resuscitation of those who were only apparently dead." Mant, as quoted in Toynbee, op. cit., 15.

[28]Ibid., 14-5.

[29]Reference notes 13 and 14.

[30]"The Prix Dusgate, a quinquennial prize of 2,500 francs, was awarded in 1890 to Dr. Maze who considered, as others had done before, that putrefaction was the only sure sign of death, and advocated the provision of mortuaries in cemeteries where bodies could be placed until putrefaction commenced." Mant, as quoted in Toynbee, op. cit., 20.

Reference note 23 and the Dubiae Vitae Refugium of Europe where dozens of people have been revived while awaiting the prescribed time interval prior to interment. Tebb and Vollum, loc. cit.

[31]See Special Bibliography for diagnostic problems associated with CBR (chemical, bacteriological, radiological) warfare, 105.

[32]Anonymous, "Editorial: Hypothermia - Two Syndromes, the Early Hypothermic and the Late Hypothermic Cardiac Arrest," Resuscitation, 1, September 1972, 177-81.

[33]F. Sadikali, et al., "Hypothermia in the Tropics," Tropical and Geographical Medicine, September 1974, 265-70.

[34]R. H. Kampmeler, et al., "Hyponatremia, Hypothermia, and Disease of the Pituitary Gland in a Schizophrenic Patient: A Diagnostic Problem," Southern Medical Journal, October 1974, 1155-65.

[35]Ibid.

[36]Mark Roffman, et al., "Control of Morphine-Withdrawal Hypothermia by Conditional Stimuli," Psychopharmacologia, 29, 1973, 197-201.

Also, E. A. Day and E. B. Morgan, "Accidental Hypothermia: Report of a Case Following Alcohol and Barbituate Overdose," Anaesthesiology and Intensive Care, February 1974, 73-6.

[37]Harold F. Hardman, et al., The Chemistry and Pharmacology of Certain Compounds Affecting the Central Nervous System of Animals and Man, Progress Report No. 1 November 1955, DDC Report Bibliography, AD-707 668.

[38]Frederick Klein, et al., Effect of Temperature and Drug Therapy on Anthrax Intoxication, Technical Manuscript 310, July 1966, DDC Report Bibliography, AD-487 273.

[39]Anonymous, "About Hypothermia - A Quiet Killer," U.S. News and World Report, 26 January 1976, 81.

[40]Samuel A. Cucinell, et al., Biochemical Toxicology of CA, CS, and CN. DDC Report Bibliography, AD-387 111.

[41]Day and Morgan, op. cit., 73.

[42]M. Weiss, et al., "A Study of the Electroencephalogram During Surgery with Deep Hypothermia," The Journal of Thoracic and Cardiovascular Surgery, August 1975, 316.

[43]Klein, op. cit., 6.

[44]QMB Project No. 25, op. cit., paragraph 6.b.

[45]L. Wislicki, "A Biblical Case of Hypothermia - Resuscitation by Rewarming (Elisha's Method)," Clio Medica, Vol. 9, No. 3, 1974, 213.

[46]Republic, Book x.

A similar account is related by Pliny, Natural History, Book vii, chapter 52.

[47]A temperature of eighty-four degrees Fahrenheit is recommended by one expert with experience in the subject of "waiting mortuaries." Sir Benjamin Ward Richardson as quoted by Tebb and Vollum, op. cit., 285-6.

[48]Tebb and Vollum, op. cit., 323-4.

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APPENDIX A

SYNOPSIS OF MILITARY PUBLICATIONS

Army Regulation 600-10, The Army Casualty System, 15 January 1976

"This regulation establishes policies and outlines responsibilities and procedures for the efficient operation of the Army casualty system." One definitive answer to the question of when someone may be considered dead is attempted in paragraph 2-5 which lists three prerequisites for reporting a person as dead:

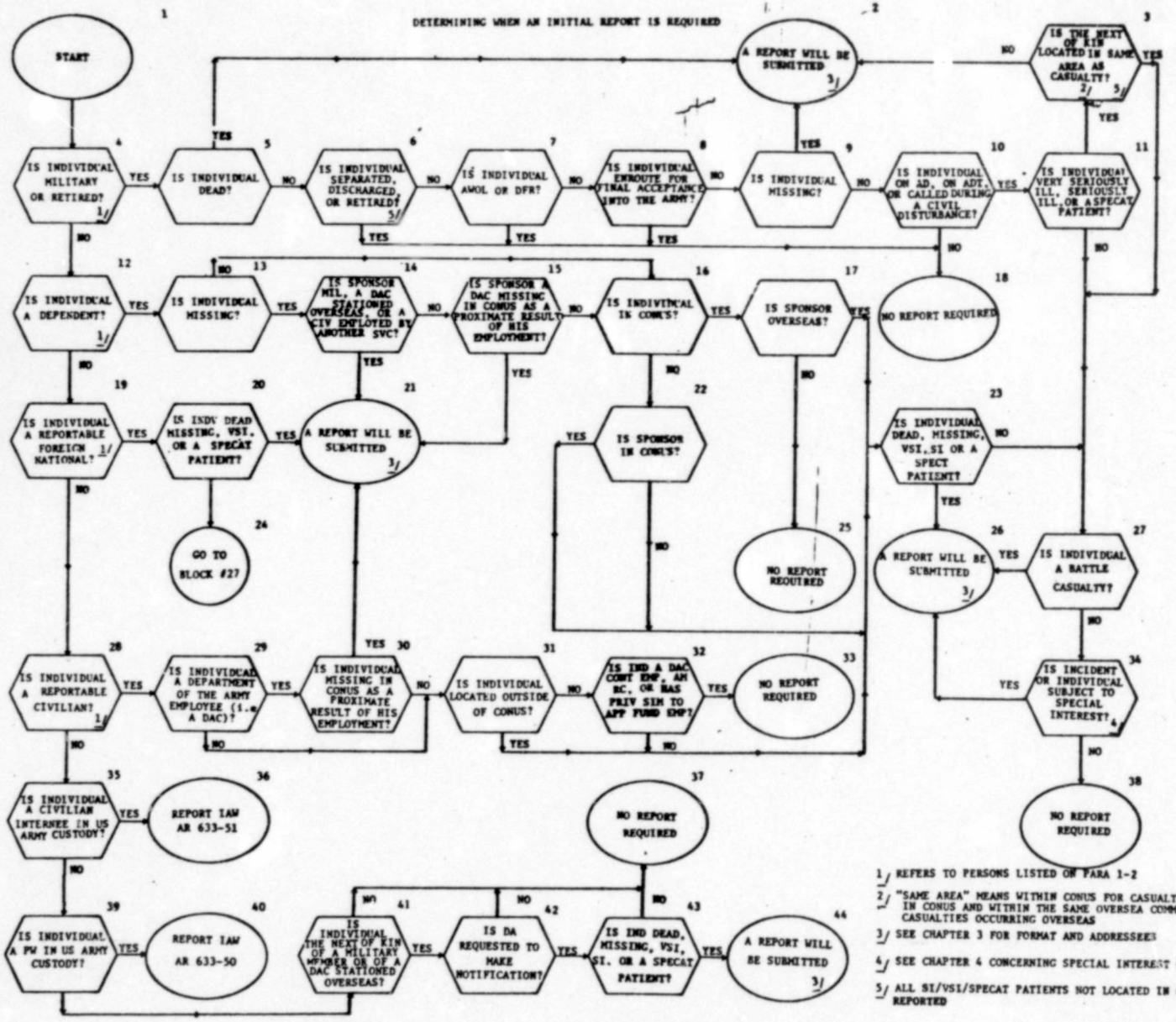
> 2-5 Reporting a person as dead. a. A person will be reported as dead only when -
>
> (1) Remains have been recovered which have been positively identified as those of the individual in question.
>
> (2) Remains have been recovered which, while not positively identified, are believed to be those of the individual in question based on the following circumstances -
>
> (a) The reported individual can be established without question as having been involved in the casualty incident; and,
>
> (b) There were no known, suspected, or possible survivors of the incident.
>
> (3) Remains have not been recovered, but conclusive evidence of death exists ((a) and (b) above apply).

The word "remains" begs the fundamental question of death. No authority is specified to determine the point at which a living human being becomes a set of "remains." A Procedure Flow Chart appears in Table 2-1 of the regulation, designed to determine "When An Initial Report is Required." The decision module of step 5 asks the question "Is the individual dead?" The two flow lines which exit the box

are labeled with the answers "Yes" and "No," but the seemingly exhaustive format does not specify a source or authority for selecting either one.

TABLE 2-1

DETERMINING WHEN AN INITIAL REPORT IS REQUIRED



1/ REFERS TO PERSONS LISTED IN PARA 1-2

2/ "SAME AREA" MEANS WITHIN CONUS FOR CASUALTIES OCCURRING IN CONUS AND WITHIN THE SAME OVERSEA COMMAND FOR CASUALTIES OCCURRING OVERSEAS

3/ SEE CHAPTER 3 FOR FORMAT AND ADDRESSEES

4/ SEE CHAPTER 4 CONCERNING SPECIAL INTEREST CASUALTY MATTERS

5/ ALL SI/VSI/SPECAT PATIENTS NOT LOCATED IN CONUS WILL BE REPORTED

Army Regulation 638-30, Graves Registration, Organization and Functions in Support of Major Military Organizations
25 September 1974

This regulation states that "in time of war or (major) military operations, the disposition of deceased personnel is a command responsibility." The word "responsibilities" forms a paragraph or sub-paragraph heading in each of the regulation's two chapters, but responsibility for actual death determination is not discussed.

Paragraph 2-3 is entitled "Search, recovery, and evacuation - combat phase." This paragraph states that each unit commander is responsible for the initial battlefield search for remains of deceased personnel. Although detailed administrative procedures are discussed for a wide variety of actions (including "hasty burial" procedures), the actual determination of death is a question which is left begging throughout the entire discussion. The phrase "initial search" indicates that any searcher who finds a body will probably be the first man on the scene, perhaps ahead of any medics, in discovering the casualty.

Paragraph 2-4 describes the post-combat phase of search and recovery procedures, the purpose of which is to "locate remains that were not recovered prior to the movement of combat elements from the battle area." This phase is accomplished by teams composed of graves registration personnel who utilize some very unique procedures which are discussed in the synopsis of TF 10-4697 toward the end of

this appendix (A-21). Again, this is no guarantee that any medic has made an earlier discovery and examination of the same bodies uncovered by the graves registration teams. Each time the words "deceased" or "remains" appears in the text, the question of death is a foregone conclusion, although it remains unclear who made such conclusions.

Army Regulation 638-40, Care and Disposition of Remains, 1 May 1971

This regulation contains the basic authority for recovery, identification, care, and disposition of remains. Paragraph 3-6a(1) states that "remains will be placed in a human remains pouch or securely [emphasis mine] wrapped in a shelter half, mattress cover, or blanket . . ." Medical examination of remains is not stipulated as a prerequisite to enshrouding of the body.

Appendix F to AR 638-40 contains an interesting checklist for inspection of remains in the mortuary facility, but there is still no requirement for the previously unrequired check for a pulse or a heartbeat.

Appendix H to the same regulation contains a long list of mortuary supplies and equipment which is rather long on cosmetics and void in resuscitation equipment. The entire text of AR 638-40 indicates that death is a foregone conclusion throughout graves registration processing from the initial discovery of a body at the scene of presumed death until embalming is complete in the nearest mortuary.

Field Manual 10-63, Handling of Deceased Personnel in Theaters of Operations, 6 July 1959

This manual is a joint publication with NAVMED P-5016, AFM 143-3, and NAVMC 2509-A. Cross references with NATO STANAG No. 2070 are included to outline "Emergency War Burial Procedures."

The manual attempts to assure that battle fatalities are

> . . .promptly evacuated from place of death, cared for in a reverent manner, properly identified, and, following an appropriate religious service, interred in a temporary cemetery pending final arrangements for the disposition of remains.

The manual makes no attempt to assure that battle fatalities are really fatalities. Medical examination is not required, and early mortuary processing of current remains is encouraged. Embalming is not required.

Field Manual 29-3, Direct Support Supply and Service in the Field Army, 27 May 1965

This manual provides general guidance on the operation of the Supply and Service Battalion to include Graves Registration Operations. Paragraph 62 outlines several points which are "most important to graves registration personnel," but ascertaining the actual fact of death is omitted from the list.

Paragraph 64 directs shrouding or pouching of the remains, then paragraph 65 discusses the significance of Emergency Medical Tags (DA Form 8-26) which are normally attached to remains which have been examined by medics. "If the remains have not been previously tagged. . .a note containing the essential information should be attached to the remains." Essential information does not include specific certification that all vital signs have terminated.

Field Manual 29-3-1, Direct Support Supply and Service in Theaters of Operation, 27 November 1972

This manual also provides information on Supply and Services Operations in the field. Basically, it contains the same information as contained in FM 29-3. Once again, the possibility is covered that remains may arrive without medical tags or evidence of prior medical examination. After the remains have been shrouded or pouched (para 5-14), the subject of a death certificate is finally raised in paragraph 5-15. "If the remains have not been previously tagged, a U.S. Field Medical Card, DD Form 1380, must be prepared as required by AR 40-400." Although AR 40-400 does state that all DD Forms 1380 will be reviewed by medical officers, there is no requirement for the medical officer to personally examine each casualty. FM 29-3-1 states that the form may be prepared "by any responsible member of the military designated to perform this function." Designation authority is not specified, however, and is presumably a function of the Supply and Service Company Commander. (FM 29-114 paragraph 4a, states: "The Company Commander is responsible for everything his unit does or fails to do.")

Field Manual 29-45-1, General Support Supply and Service in the Field Army, 31 March 1967

> This manual provides commanders, staff officers, and other interested personnel with a doctrinal basis for general support supply and service in the field army. . .

Paragraph 26 reviews routine procedures for collection and disposition of fatalities without any reference to medical participation in these operations.

Field Manual 29-50, Supply and Services in Divisions and Separate Brigades, 24 September 1968

Even at Division level, remains are processed without any prerequisite for formal determination of death. A surprising statement in paragraph 5-3 seems to allow for diversion of casualties who were initially being sent to medical aid stations.

> Personnel who die at, or en route to [emphasis mine], division clearing stations are evacuated to the division collecting point. . .Remains in transit should be shrouded.

Field Manual 29-114, Field Service Company, General Support, Forward, 15 July 1970

This manual outlines one of the most comprehensive views of Graves Registration activities in forward combat areas. Numerous procedures are given for the earliest phases of search and recovery operations and for hasty burial of casualties who cannot be processed due to combat emergencies. The primary concern associated with hasty burial appears to be the accomplishment of adequate paperwork to assure positive identification during subsequent disinterment for relocation to permanent cemeteries.

In the concluding paragraphs of the section on Graves Registration Operations, the statement is made "If remains have not been tagged, a field medical card should be prepared by medical personnel and attached to the remains." (Para 26a) This statement is made under the heading "Identification of Remains," and the word "should be prepared" has no directive authority. The purpose and scope of the entire manual "is neither mandatory nor restrictive." (Para 1)

Field Manual 29-147, Supply and Service Company, Direct Support, 24 March 1970

> This manual does not present inflexible rules of employment. It is neither mandatory nor restrictive. Rather, it suggests direction and offers guidance to the officers and key enlisted personnel. . .
>
> Paragraph 54a(1) states that:
>
> Extreme care should be taken to insure that all personal effects including the medical card and identification tags are adequately secured to the remains at the time of recovery."

However, a subsequent paragraph still acknowledges the arrival of untagged remains in the Central Collection Point. ". . .if remains have not been previously tagged, a field medical card is prepared by medical personnel and attached to the remains." Here again, the procedure is not directive in nature, and there is no requirement for medical personnel to personally examine the remains even if they comply with the administrative requirement for filling out an identification tag.

Field Manual 38-1, Logistics Management, 15 March 1973

> This manual describes Army logistics management doctrine. It is designed to be used as a reference handbook by commanders, staff officers, and logistics operating personnel. It may also be used for development of doctrinal or training literature. . .

Paragraph 17-7 describes the initial search of the battlefield as the first step in graves registration procedures. "The most vital aspect" of prompt recovery of remains is to "deny intelligence to the enemy" and facilitate "positive identification" of the deceased.

This manual provides the sole military reference to the possibility of finding living among the dead. In urging prompt searches of the battlefield, the statement is made that such searches "may result in the recovery of some seriously wounded who would die if not given immediate attention." However, subsequent paragraphs recommend routine usage of refrigeration facilities at collection points without specifying responsibilities or precautions in sorting the wounded from the apparent dead.

Field Manual 54-3, The Field Army Support Command, 14 December 1971

This manual discusses graves registration activities without any reference to an interface with medical facilities.

> . . .The graves registration platoon in the field service GS company, forward, can provide for collection, identification, and evacuation of deceased personnel in the corps area. In the field service GS company, army, this platoon is a cemetery platoon.

Field Manual 100-10, Combat Service Support, 30 March 1973

> This manual prescribes doctrine for use by commanders and staff officers at division and higher levels in providing combat service support (CSS) to the army in the field.

The basic dichotomy of casualty evacuation procedures is evident in the contrast between Chapter 17, Section V, "Medical evacuation and hospitalization" and Chapter 19, "Graves Registration." The living are processed in accordance with Chapter 17. The dead are processed in accordance with Chapter 19. There is no middle ground. Since this manual is prescriptive in nature, there is some legal basis for the rerouting of casualties who die en route to medical clearing stations. Graves Registration teams are encouraged to search the battlefield as soon as possible in order to achieve the earliest possible recovery of remains.

> Prompt evacuation and burial normally satisfies the requirement of preserving adequate sanitation of the area and morale of the combat troops.

Technical Manual 10-286, Identification of Deceased Personnel, 31 January 1964

Although this manual is primarily concerned with specifying criteria for determining the personal identity of remains, paragraph 14a(1) also indicates that some remains may arrive in a processing center with a Field Medical Card or Death Tags in addition to other official identification forms. When such evidence of prior medical examination is found with the remains, it is retained only as a means of confirming other evidence of personal identity. It has no significance regarding de jure proof of death.

Eighty pages of this manual are devoted to examples of administrative processing of specific case histories (Appendix V through Appendix IX). In reviewing the volumes of paperwork associated with each case, the manual reproduces illustrations of 71 different forms to include everything from initial reports of MIA status to final record of interment. But not one example of a death certificate appears within the several cases documented.

Army Subject Schedule 10-13, Graves Registration Collection Point Operations Training for Section and Selected Personnel, 1 May 1974

"This subject schedule provides guidance for instruction and training in grave registration collection point operations." This publication gives instructional outlines for classes in graves registration procedures. Some of the subjects taught include supply economy, tent pitching, map reading, but no pretense is made of addressing the problems of certifying death prior to the processing of remains.

Army Subject Schedule 10-16, Graves Registration Activities in a Theater of Operations, 4 May 1971

This subject schedule provides uniform guidance for the presentation of instruction and training in graves registration activities in a theater of operations for all components of the Army.

A wide variety of subjects are included in the guidance for conducting classes in graves registration activities. Trainees are supposed to be taught how to perform isolated and hasty burials, mass burial procedures, and the administrative requirements for setting up temporary cemetery records, but no mention is made of the possibility of discovery of a live casualty.

TF 10-4697 Memorial Activities, Part I, Search and Recovery (28 minutes, color, 1973).

This film is one of several training aids used in the training of graves registration teams at Ft Lee, Virginia. As in all films within the Memorial Activities series, the word "remains" appears frequently and is presumptively applied to all personnel appearing in the film in a prone position. These "remains" are invariably portrayed by neatly clad soldiers who have healthy color in their faces and no visible wounds on their bodies.

This first film of the series begins with a battle scene which is followed immediately by a Graves Registration Service search of the battlefield. The procedures outlined following initial contact with a prone body do not include a check for vital signs or for medical tags. The steps shown are as follows:

1. Attach a rope to the remains and tug on it (from a distance) to check for booby traps;

2. Search the immediate area for documents which may help establish identity of remains;

3. Fill out administrative reports;

4. Place the remains in a remains pouch;

5. Transport the remains to a collection point (a 2½ ton truck is utilized in the film).

TF 10-4158 Memorial Activities, Part III, Concurrent Return Program (22 minutes, color, 1970).

This film begins with a combat scene in which a soldier is hit with small arms fire. As he falls, two other soldiers rush across the battlefield to his position. One soldier places his ear to the chest of the fallen soldier. Without a stethoscope, in the midst of gunfire, and through several layers of combat clothing, the listening soldier is unable to detect a heartbeat during his 3 second examination of the "body."

A non-medical helicopter arrives and transports the casualty to a graves collection point. The rest of the film shows the processing and embalming of the body for shipment back to CONUS. At no point in the film is there any suggestion that a medic should have looked at the body.

TF 10-4694 Memorial Activities, Part VI, Cemetery Operations (42 minutes, color, 1973).

This film is the last in the series of six Mortuary Affairs training films. In the previous films of the series, remains were progressively processed from initial discovery on the battlefield to various destinations for further processing. At no point in the procedures was there any check for vital signs other than the cursory check in TF 10-4158.

In one of the concluding scenes in this last film of the series, the same rosy cheeked soldiers of the earlier films are laid to rest in a temporary cemetery. They are not embalmed. They are left in their original clothing. A shroud or poncho is taped tightly around their body and then they are "buried as rapidly as possible, but never at the expense of dignity."

STANAG 2070, Emergency War Burial Procedures, 22 Feb 1974.

> The aim of this agreement is to standardize the procedures to be used when the forces of one NATO nation perform emergency burials on land for the dead of another NATO nation and of the enemy. (Para 1)

This publication urges haste in burial without the slightest hint of caution to avoid premature interment. Allies and enemy alike are given carte blanche to bury any suspected remains of U.S. soldiers without compulsory checks for either pulse or respiration. Group burials and trench burials are authorized. (Para 6)

> Graves are normally located as near as convenient to the scene of death. (Para 7)

> Whenever practicable, a brief burial service of the appropriate religion is to be held. (Para 10)

The Emergency Burial Report Form contains a small space entitled "Date and Cause of Death If Known." This form is accompanied by instructions which state:

> This is not a prescribed format, but shows generally the information most nations consider essential to have, provided is is available. (Para 14)

QMB Project No. 25, QMCCD Project 56-9, Graves Registration Under Concepts of Future Warfare, 1 May 1962

> What at first glance may seem callous and repugnant proposals in this study, will, upon serious reflection, be recognized as the best that can be accomplished in terms of realism and military necessity. (Foreword, p. iii)

QMB Project No. 25 makes it clear that no additional precautions are planned to prevent premature burial - in spite of the acknowledgement that chemical and biological agents may affect the central nervous system in unpredictable (and not always fatal) ways.

> Military policy recognizes that mass deaths will tend to be a frequent and normal occurrence in CBR warfare and will force a requirement for mass burials on the battlefield with a minimum of conventional GRC procedure. (Summary, p. x, para. 10.a)

The chief concerns expressed throughout the study do not include fears of premature burials. Attention is focused primarily upon the collection of correct names and serial numbers, and for promoting battlefield sanitation. A recurring recommendation throughout the study is that all GRS units should be equipped with "a lightweight, disposable, wrap or sheet to shroud and seal remains during evacuation." (Summary, p. x, para 10.g (1))

> There is an urgent requirement for a lightweight, self sealing, disposable wrap to be used to shroud and seal remains during the period of evacuation. The wrap should be made of a single sheet of plastic, or other suitable material; be opaque, moistureproof, puncture resistant, and capable of forming an airtight package when wrapped about a remains. (p. 15, para. 6.h. (2))

Detailed specifications for the new wrap are given in Appendix 1, Annex C, QMR For Wrap, Human Remains (U)

toward the end of the publication. Emphasis is placed on economical construction and good sealing characteristics. Indiscriminate distribution of the new pouches is implied in paragraphs 1.e. and 1.f., page C-7:

> e. Training implications. None.
>
> f. Personnel implications. None.

Another recommendation for new GRS equipment is found in the following paragraph:

> i. Commercially available mechanical earth moving attachments (of the Back-hoe type) for use on organic vehicles be made organic to GRS comemtery platoon for use in digging graves or trenches at army cemeteries. (p. xi)

> 7.d.(3) Mass deaths can be expected to be a frequent occurrence. This will necessitate burial on the battlefield in mass graves. (p. 17)

> 7.g. . . .The trench method of interment should be the normal means of burial. Where mass casualties result from the unrestricted use of mass casualty weapons, it will probably be necessary to dispose of the remains in mass graves employing mechanical earth moving equipment. (p. 17)

While acknowledging that graves registration personnel will be unable to perform their tasks adequately in mass casualty situations, the recommendation is given that

> The commanding officer of the lowest organizational troop element (company) be responsible for initial recovery, identification, and evacuation of remains to the extent permitted by tactical requirements of his mission.

However, extensive training of combat soldiers in graves registration activities is not considered to be conducive to high morale. (p. 12, para. 6.g. (1)) The obvious

implications are that the new, plastic pouches for sealing human remains will be distributed and utilized by personnel who have no medical expertise and no pretense of formal training in the determination of death.

The emphasis on haste in the burying of large piles of bodies (presumably dead bodies) is nowhere more evident than on page B-1, in the following statement: "The use of explosives, perhaps a small shaped charge, has been considered for expediting hasty burials under the above conditions." (para 3.b.)

Referring to biological weapons, the following comments are offered:

> Biological agents, like CW agents, will not destroy or mutilate bodies and will not cause any special identification problems. Neither do they cause immediate death. . . .This might result in deaths outside of hospitals due to overburdening of medical facilities and could involve GRS recovery, identification, and evacuation. The hazard in handling BW contaminated bodies would arise from inhalation of the BW agent. A properly fitted protective mask affords adequate protection against this. (p. B-4, para 6.a.)

The real headache associated with these situations should be the new and increased difficulties associated with separating the dead from the inanimate wounded. It becomes all too easy to visualize that unconscious or paralyzed casualties will become just another "contaminated body" among a pile of "contaminated bodies."

> For disposition of bodies, burial is effective with the possible exception of bodies infected by anthrax which may require burning. (p. B-5), para 6.b.)

In conclusion, it seems strange that when the original problems of determining who's dead are going to be magnified, attempts at finding a solution are going to be minimized.

Program of Instruction for 492-57F20 Memorial Activities, U.S. Quartermaster School, April 1975

This publication gives a detailed outline of the six weeks instruction afforded to students in the Graves Registration Services Course for MOS:57F20.

A total of 240 hours of instruction covers almost every subject having any relationship to GRS procedures. The only subject conspicuously missing from the program is a discussion of when one should assume that someone is dead. The basic recognition of death constitutes a question which is both unasked and unanswered throughout the entire course.

This syllabus contains no instructional periods in resuscitation techniques, elementary first aid, or administrative checks to guarantee that "remains" are either technically, legally, or in reality "dead."

Graves Registration SOP, 364th Supply and Service Company (DS), Fort Bragg, North Carolina. Undated publication but current as of September 1975. Reference interview with E-4 Burgess, Appendix B,

DEPARTMENT OF THE ARMY
364th SUPPLY AND SERVICE COMPANY (DS)
Fort Bragg, North Carolina 28307

GRAVES REGISTRATION SOP
(Quoted Verbatim)

I. PURPOSE: The purpose of this Standard Operating Procedure is to explain the organization, safety, and sanitation of the Graves Registration platoon.

II. REFERENCE: FM 10-63, TM 10-286

III. MISSION: The mission of the Graves Registration Section is to operate collection, evacuation, and identification points of divisional and nondivisional direct support Graves Registration activities.

IV. RESPONSIBILITIES, COMBAT OPERATIONS:

A. Section Headquarters
1. Directs Identification
2. Directs Recovery
3. Directs Disposition
4. Provides supervision for the section
   a. Section Leader; provides technical and administrative guidance
   b. Assistant section Leader; assists section leader; however during separate operations, the assistant section sergeant may be assigned to control one of the operating sites.

B. Identification Section
1. Processes remains for identification media.
2. Inventories, examines and records, personnel effects of the deceased.
3. Insures that Emergency Medical Tag is on remains, or is prepared by medical personnel.
4. Insures that all personnel effects stay with remains.
5. Section Chief Supervises the following:
   a. Identification of remains
   b. Classification of remains
   c. Inventory of personnel effects
   d. Preparation of records

6. Identification Specialist is responsible for the following:
   a. Techniques of identification
   b. Readiness to assume duties of operating site-section chief
7. Identification Helpers Assisting in Identification

C. Collection and Evacuation Section is Responsible for the following:
1. Recovering and Evacuating remains
2. Collecting remains
3. Processing remains for evacuation
4. Safeguarding remains and personal effects

D. Evacuate

E. The Section Chief is Responsible for the following:
a. Plans recovery operations
b. Supervises the processing of remains
c. Prepares remains for evacuation
d. Classifies remains
e. Inventories personnel effects
f. Prepares records

F. Collection and Evacuation Specialist performs the following:
a. Assists the section chief
b. Prepares the remains
c. Assembles identifying media and personnel effects for evacuation

5. POST COMBAT SITUATIONS
Will be assigned search and recovery missions, such as Air Crash recoveries, Area Search Recoveries, and Areas known to be recent battle area

6. SANITATION AND SAFETY
   A. Strict adherence will be made to general sanitary measures
   B. Personnel working on the remains will be wearing gloves
   C. Odors will be counter-re-acted by using spray disinfectant.
   D. All personnel working on remains will be washed thoroughly with soap and water immediately after handling any remains.
   E. Rubber gloves will be washed with soap and water and hung out to dry.
   F. Litters, Work tables, Human remains, Pouches, and items of equipment coming in contact with remains will be scrubbed thoroughly with liquid disinfectant.

BILL G. BELCHER
MAJ, QM
Commanding

APPENDIX B

PERSONAL INTERVIEWS

The following summaries of interviews are provided to add some depth in appreciating how written directives (reference Appendix A) are interpreted and carried out.

The first few interviews were conducted in conjunction with the visit of a group of Fort Leavenworth CGSC students to Fort Bragg, North Carolina, on 16 September 1975 to observe a corps level Command Post Exercise called Caber Warrior III. Students observed the various operations of XVIII Corps assets throughout a three-day period, terminating on 19 September.

Other interviews recount personal experiences relevant to the subject. Dates and places of these interviews are cited in each interview title.

Interview with E-5 Lastinger, Clinical Specialist in charge of a Battalion Aid Station, adjacent to COSCOM Headquarters, 17 September 1975

Sergeant Lastinger stated that he believed present safeguards were adequate to preclude false assumptions of death in handling battlefield casualties. To the best of his knowledge, medics are routinely assigned to graves registration teams conducting search and recovery missions. All casualties receive treatment as though they were only wounded until pronounced dead by a medical doctor. Even in a mass casualty situation, body bags are not used until after a death pronouncement by a physician.

Certification of death is indicated by the placement of appropriate tags on the right thumb and right big toe of the deceased. A third tag is tied to the chest area of the bag in which the body is then placed. Ambulances are used routinely between the FEBA and the Battalion Aid Station to transport all categories of casualties.

On the date of the interview, SGT Lastinger was the senior representative present from the 44th Med Bde Hq & Hq Company for exercise Caber Warrior III.

Interview with Capt Bynum, Commander of Hq & Hq Company for 1st COSCOM. COSCOM Headquarters, 17 September 1975

Captain Bynum escorted me to his CP where I was able to review all of the field documents pertaining to graves registration. The subject was addressed fully in Appendix 4 to Annex E (Services) to Admin/Log Plan 2-75 Caber Warrior III. The entire plan was classified "confidential." No reference was made regarding any possibility of mistaking wounded for dead. All references to graves registration activities presumed heavily upon some predetermination of death prior to the arrival of graves registration teams. Medics do not accompany GR teams during any phase of operations.

First COSCOM Field SOP, dated 1 January 1973, contained an appendix listing 19 ACSSVD reports utilized by personnel from graves registration in order to document identification of remains (appendix 3). Although extensive control measures are obvious relative to the determination of correct identity of the remains, no mention is given of any possibility for life among those collected as dead. There is no word of prohibition or caution regarding the bagging of untagged remains other than to assure confirmation of correct names and serial numbers.

Interview with Major Land, Field Services Staff Officer for the 593rd Support Group, Corps Headquarters, 17 September 1975

Major Land stated that each battalion commander is responsible for evacuation of his own dead to a common collecting point. Safeguards against premature assumptions of death lie wholly with each tactical commander prior to the delivery of remains to GR collection points. Mobile Graves Registration collecting points normally follow brigade level tactical headquarters, and each collecting point retains all bodies until receipt of a casualty report from the delivering unit.

Interview with E-7 Henderson, Field Service Supervisor over Graves Registration Activities for the 593rd Support Group. Corps Headquarters, 17 September 1975

Sergeant Henderson personally participated in actual graves registration operations in Vietnam between January 1968 and January 1969. He was associated with graves registration collection points adjacent to the 24th Evac Hospital at Long Binh, and the 30th Evac Hospital at Vung Tan. Some deaths occurred in the hospitals, and remains from these sources arrived at the collection point with death certificates attached. But bodies were routinely received from the field, already placed in body bags, with no indication of preliminary examination by either medics or fellow soldiers. Doctors would periodically visit the collection points to issue death certificates as required.

Sergeant Henderson denied that medics were ever assigned to grave registration details. He further stated that grave registration teams are not instructed to look for vital signs during any phase of search and recovery operations. The sole purpose of graves registration activities is the proper identification and evacuation of remains. Initial determination of death is a tactical problem for each combat commander, but such preliminary determinations are invariably confirmed through later examination by medical doctors. He has no personal knowledge of any mistakes being made in this area. The dead are obviously dead. Post mortem muscle contractions may cause suspicions

to the contrary on the part of untrained laymen, but SGT Henderson doubts the veracity of any rumor regarding premature burial.

Interview with E-4 Gary A. Burgess, Graves Registration Platoon, Specialist in the 364th S&S Company of the 530th S&S Battalion. Task Force 530 Logistic Support Area, 18 September 1975

Specialist Burgess was the most talkative interviewee during the visit to Caber Warrior III. He has spent one tour in Vietnam in Graves Registration during 1970-71, and he went back to participate in final search and recovery operations during October and November 1974. He is a graduate of the Graves Registration School at Ft Lee, Virginia, and he is currently supervising the only graves registration platoon operating in conjunction with Caber Warrior III.

Specialist Burgess gave me a copy of his unit's Graves Registration SOP, which is included in Appendix A. He also conducted an extensive tour of his facility, to include each piece of TOE equipment, and gave me one of the Army's latest models in body bags. Of primary interest, the mortuary refrigeration unit at this collection point was set up in working order. The unit is designed to handle five bodies, although Specialist Burgess states he has seen as many as 15 placed inside during periods of peak activity. Operating temperatures vary according to Division policy, but the normal internal temperature is set between 30^{o} and 36^{o} F.

Specialist Burgess confirmed that the sole mission of graves registration personnel is the collection and identification of remains. Although the school at Ft Lee lists

first aid in its published curriculum, the subject was omitted during his period of attendance. No one had ever suggested that graves registration teams look for signs of life prior to sealing remains in body bags. The only time he was ever personally accompanied by a medic was during the final search and recovery operations of 1974 when badly decomposed remains required medical examination to distinguish human from animal remains.

During his tour with the 25th Infantry Division in 1970, Specialist Burgess recalls that untagged remains often arrived at his collection point in body bags. Traumatic wounds were not always evident, and doctors did visit the collection point to issue death certificates every two-to-three hours. Although bodies were never embalmed prior to the issuance of death certificates, routine refrigeration of remains was a common event prior to medical examination. This practice of early refrigeration was questioned by one WAC commander, and the policy was temporarily changed to allow storage in a CONEX in back of the hospital emergency room. Early refrigeration was reinstituted after a few weeks of unsuccessful attempts to maintain the CONEX in a sanitary condition. 25th Infantry Division policy sought to complete embalming procedures within 24 hours of death. Normally, this goal was accomplished.

Specialist Burgess cited three types of events that could erroneously lead someone to believe that a corpse was still alive:

a. Post mortem muscle contractions - especially in the extremities causing slight movement of the arms or legs.

b. Sweating - caused by continued function of the sweat glands after physiological death but prior to cellular death.

c. Moaning - caused by the passage of trapped gases through constricted vocal cords.

Interview with E-4 Willis Maddox, Graves Registration Platoon, Specialist in the 364th S&S Company of the 530th S&S Battalion, Task Force 530 Logistic Support Area, 18 September 1975

Another member of the Caber Warrior III Graves Registration Platoon, Sergeant Willis Maddox, stated that he had firsthand knowledge of a 5th Special Forces soldier reviving on the embalming table at Da Nang in 1967, but he could not recall the exact date or the name of the soldier. Sergeant Maddox also stated that he had personally witnessed all three of the pseudo-indications listed by Sergeant Burgess, and he felt that all such occurrences in graves registration collection points were correctly evaluated by attending supervisors to resolve any doubts regarding latent life functions.

Interview with Mr. Ray Adcock, Funeral Director and Military Contract Mortuary Affairs Authority for the Ft Bragg Military Area. Spring Lake, North Carolina 18 September 1975

Mr. Adcock spoke candidly about the anxieties he had heard expressed by some physicians regarding the possibility for mistakes in pronouncing someone dead. But during his 15 years as a mortician, he has never experienced any body reviving in his own mortuary. One of his associates experienced such an episode where a lady revived inside the embalming room. She was rushed back to the hospital where she subsequently died some four hours later.

Mr. Adcock states that morticians are well aware of the possibilities for overlooking vital signs during death pronouncements. His own professional training emphasized the importance of continual scrutiny for signs of life, and he has continued to assure himself regarding each case he handles by careful incision to observe possible weak circulation in main arteries or veins.

Mr. Adcock does see some difficulty in asking a layman to search for vital signs. Even after a body has been embalmed, any suggestion that the person is really alive will result in imagined detection of breathing if one stares long and hard at the chest area. Human imagination will create nonexistent movements that could cause a serious backlog in medical channels during mass casualty situations.

Mr. Adcock also acknowledged that cellular death may not be complete until several hours after somatic death.

Although the situation is extremely rare, some body cells may react to internal chemical changes (or to the embalming fluid) with obvious movement of the extremities. However, stories about gross muscle contractions (bodies sitting up in a casket) are imaginative fabrications having no basis in fact.

Interview with Major Phil Sandifer, Clinics Administrator at Munson Army Hospital, Fort Leavenworth, Kansas. 13 November 1975.

Major Sandifer was a helicopter pilot during two tours in Vietnam. He flew numerous med-evac missions carrying battle casualties from combat areas. On some occasions, he picked up casualties who had already been placed in human remains pouches on the battlefield. In his words, "We certainly did not look into the bags."

He recalled one night mission in May 1967 when he was flying for the 283rd Medical Detachment at Long Binh, RVN. His Crew chief, SP5 Treat, was assisting the medic, Sgt. Beckett, in caring for 8 casualties evacuated from a fire fight. Beckett determined that one of the men was dead and turned his attention to the others. Treat insisted that he had seen the dead man move, and attempted to convince the medic that the man was still alive. Beckett was confident that he had "certainly seen enough dead men to know," and he ignored Treat's arguments. Finally, the "dead" man grabbed the medic's ankle. Major Sandifer recalls that Beckett "almost jumped out of the helicopter."

Major Sandifer's recollections concerning early separation of the wounded from the dead include some cases of dead personnel being classified as wounded by units calling for medical evacuation. But he has no first hand knowledge of mistakes being made by combat units erroneously assuming their own people to be dead.

Interview with Mr. Craig Morley, Certified Respiratory Therapy Technician at Alta Bates Hospital, Berkeley, California. Interview occurred at Letterman Army Hospital at the Presidio, San Francisco, California on 27 December 1975.

Mr. Morley is a specialist in the resuscitation of victims of total cardiac and/or respiratory arrest. On the average, he comes into contact with 35 to 40 such cases a year due to his unique situation in a large metropolitan area. He states that 8 to 10 per cent of such cases are resuscitated successfully.

Mr. Morley can be contacted at Alta Bates Hospital or at his home at 1890 11th Avenue, San Francisco, California 94122. His home telephone is area code 415, 655-6822. He has 14 years of experience in resuscitation and enjoys discussing the subject with interested parties.

Interview with Captain William J. Wilson, Former Student in the Reserve Components Course of USACGSC during Fall 1975. Interview took place at Fort Leavenworth, Kansas on 8 January 1976.

Captain Wilson related an account of the death of a personal friend and close acquaintance, Lt. "CAP" Woenker, who had served with him in the 4th Bn/80th Artillery at Fort Carson. Although Captain Wilson was not serving in the same unit with "Cap" in Vietnam, the same relationship and personal interest was maintained, and Captain Wilson recalls following the story of Lt. Woenker's being hit by an AK-47 round during June or July of 1968. The round shattered and Lt. Woenker suffered head injuries which appeared to have been fatal. His unit, a field artillery outfit for the 1st Cavalry Division in I Corps, evacuated him through graves registration channels. Captain Wilson does not know who, if anyone, pronounced the man dead.

During graves registration processing, "Cap" revived and was rushed to a hospital. He lived for "several months" following his resuscitation, but subsequently died of his wounds.

Captain Wilson is currently working in a civilian occupation. His present address is 114 South Jane Lane, Enid, Oklahoma 73701.

Telecom with Capt Ray Gentilini, Captain Assignments Officer, Quartermaster Branch, Washington, D.C., 4 May 1976

Captain Gentilini served as a GRS Platoon Leader in Vietnam from February 1967 through September 1968. He worked primarily in the delta around Vung Tau, Can Tho, Dong Tam, and Ca Mau. He recalled one episode near or during the Tet offensive of 1968 when three live casualties from one helicopter lift were misdirected to his GRS collection point. The mistake was discovered when he saw the bodies sweating; this was the only observable evidence of life. "They were in pretty bad shape; it was easy to see how the crew chief could have thought they were dead." When informed that some GRS teams report that they are trained to accept sweating as post-mortem events, Captain Gentilini replied, "I never had any of that training!" In the case just cited, Captain Gentilini's GRS Collection Point was located adjacent to an emergency hospital receiving ward. All three men were rushed to the ward, but none of them survived.

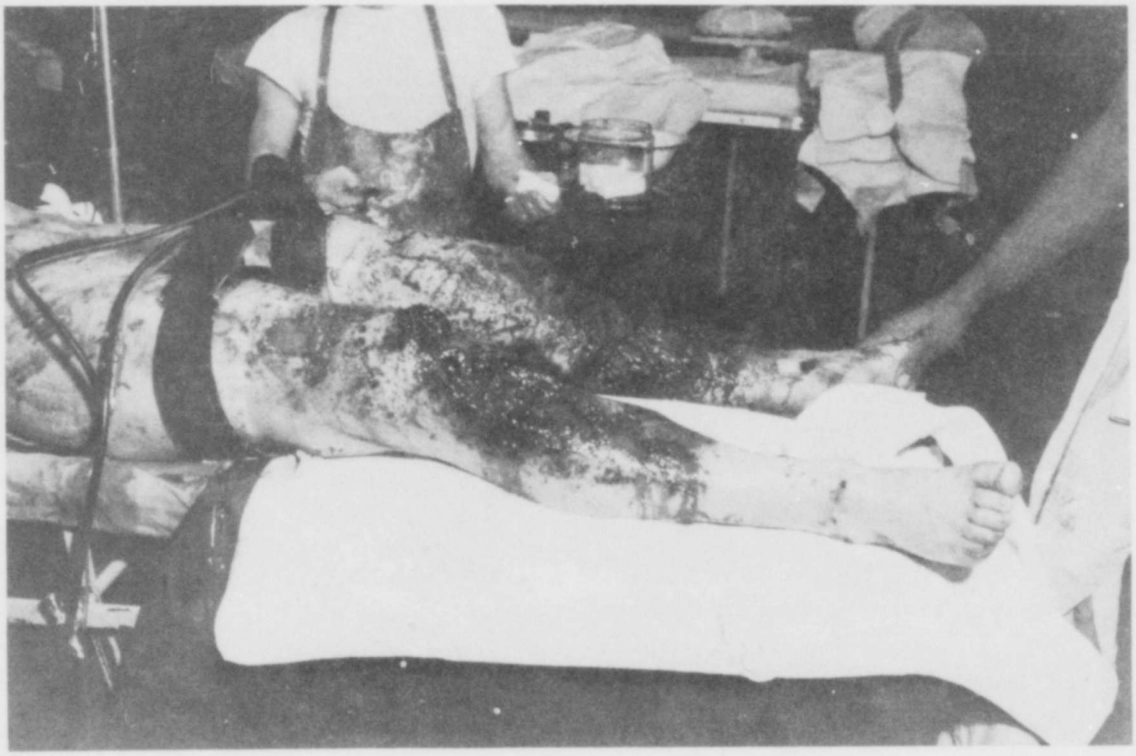
Captain Gentilini also recalls hearing "utterances" such as burps and gas passing from remains. Such events were always followed by a closer examination for vital signs on the part of his own personnel. However, medics never accompanied any of his teams on any of the numerous search and recovery missions with which he was associated while in Vietnam.

APPENDIX C

CASUALTY PHOTOGRAPHS

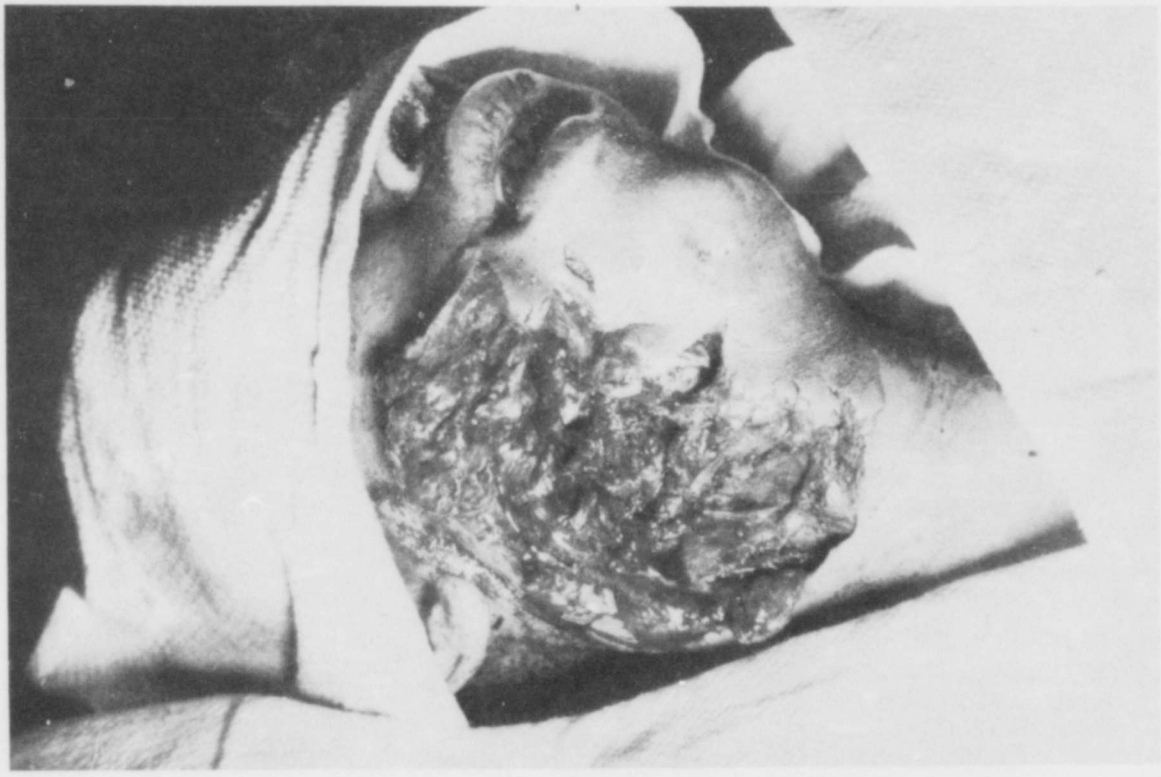
The nine photographs on the following pages were obtained from the Armed Forces Institute of Pathology as illustrations of severely traumatized battle casualties who survived their wounds.

Individual case histories may be investigated by writing to The Director, Armed Forces Institute of Pathology, Washington, D.C. 20305. Reference negative file #56-8078, extracted for this thesis on AFIP Form 35 work order number 1688, dated 2 April 1976.



Publication of this photo is not authorized unless approved by The Director, Armed Forces Institute of Pathology, Washington, D.C. 20305. Its use in commercial advertising must be approved by the Public Information Division, Office of the Chief of Information, Department of the Army, The Pentagon, Washington, D.C. 20310.

6P6-2408



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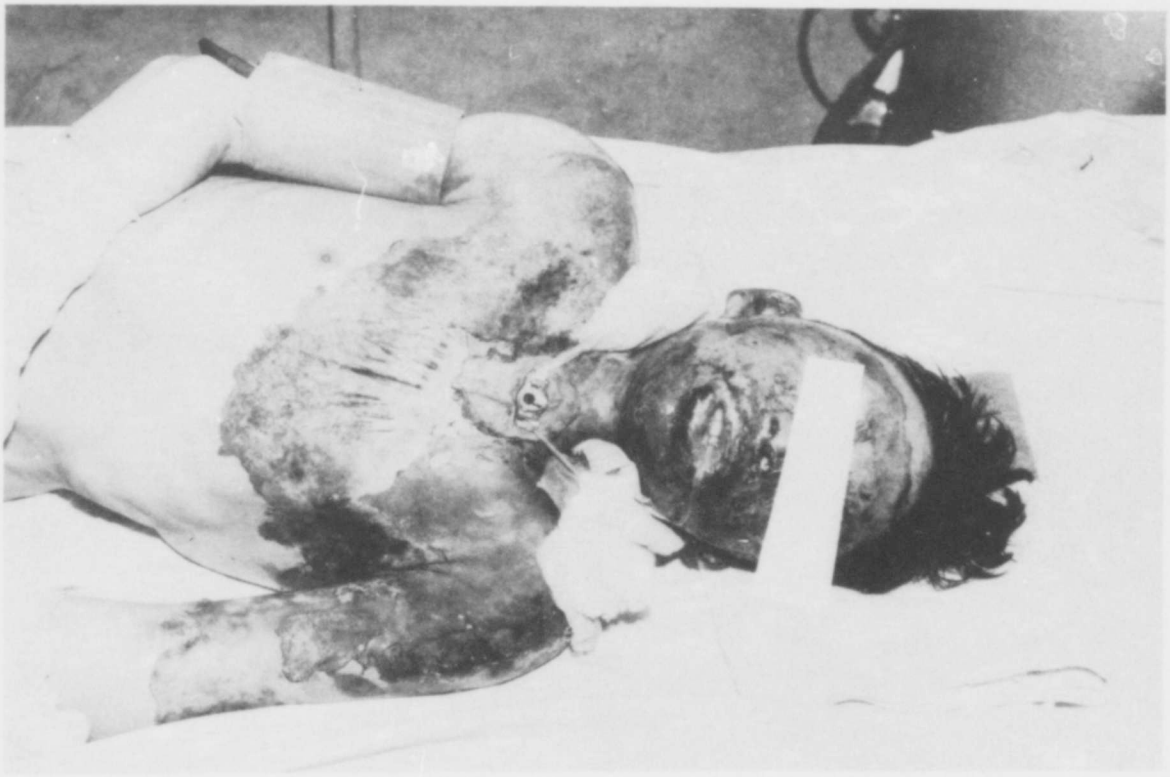

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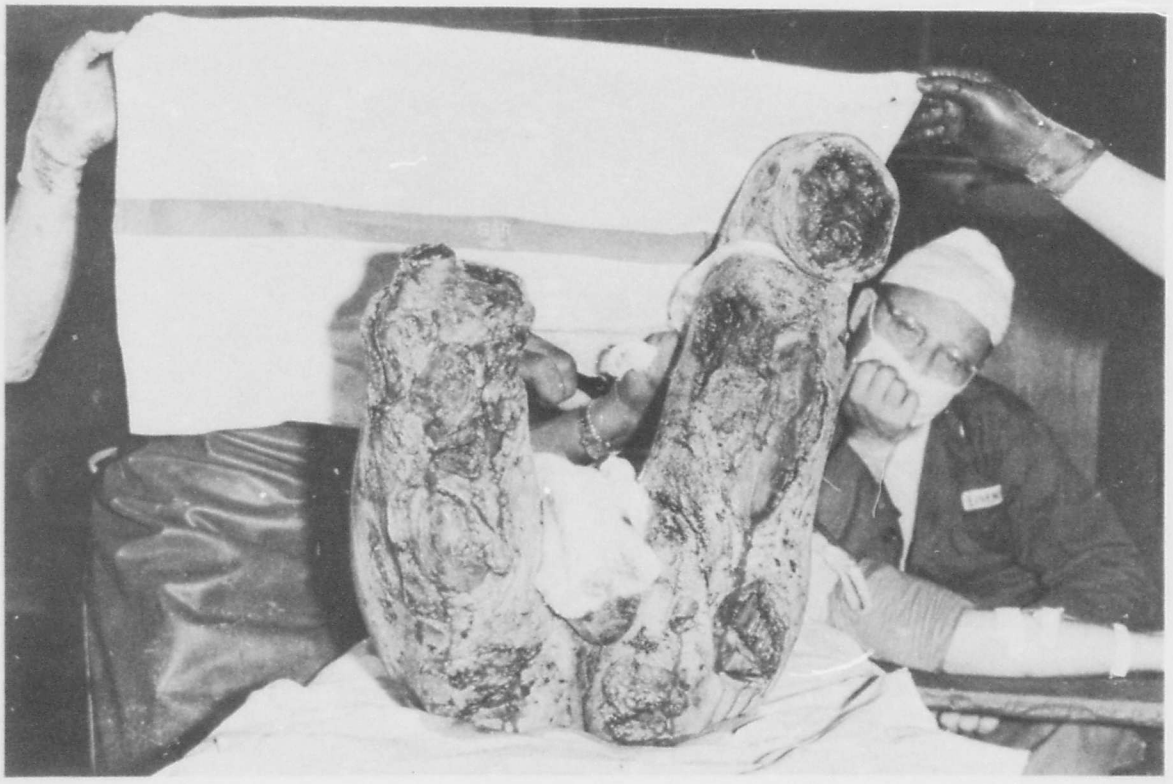

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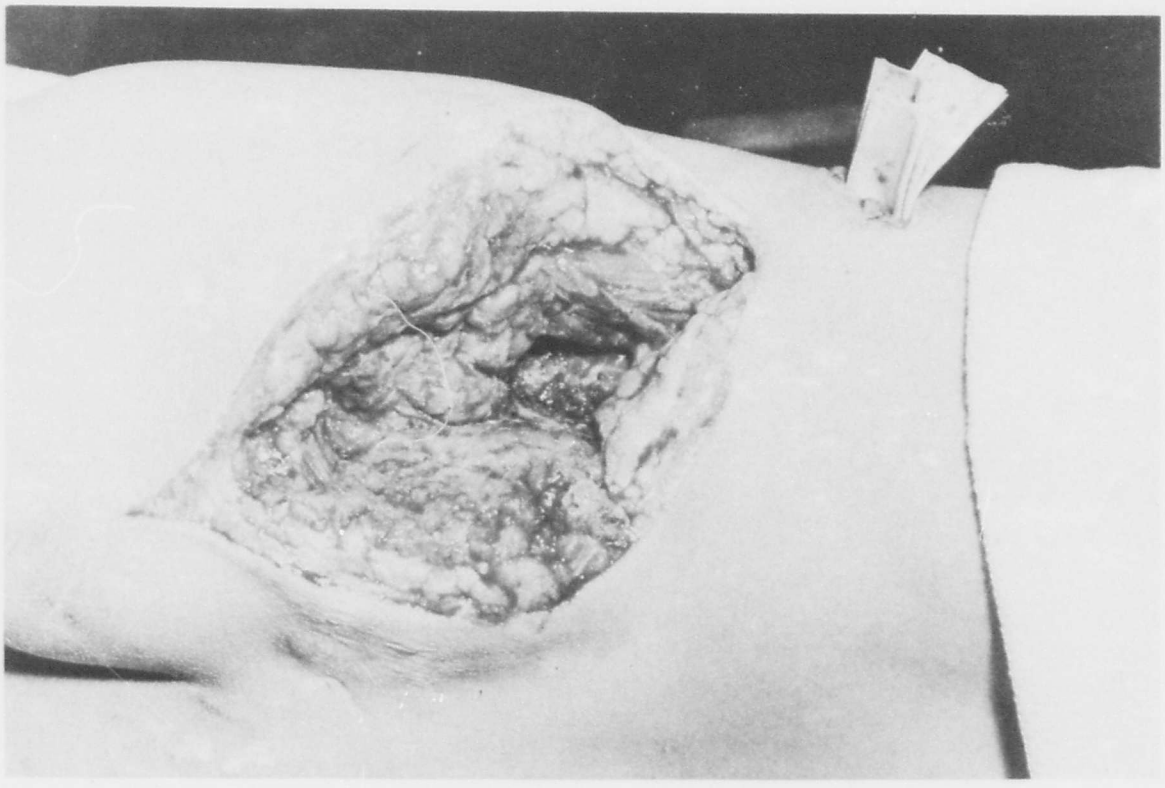

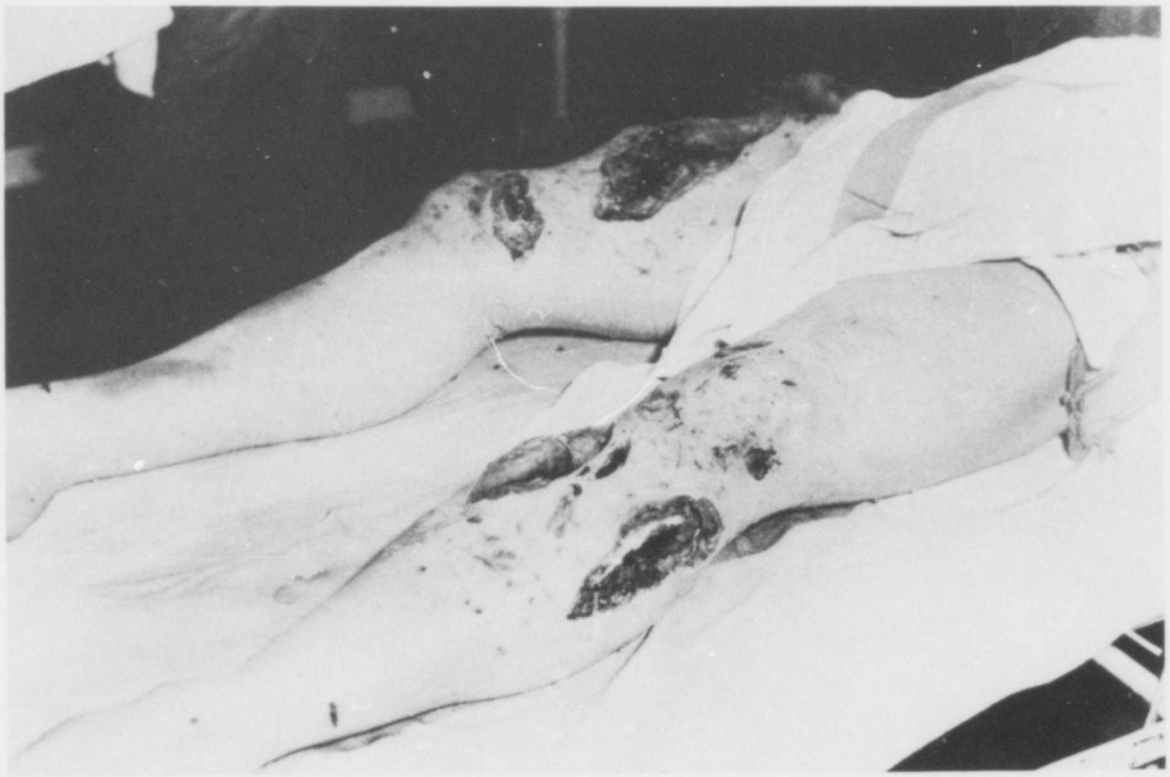

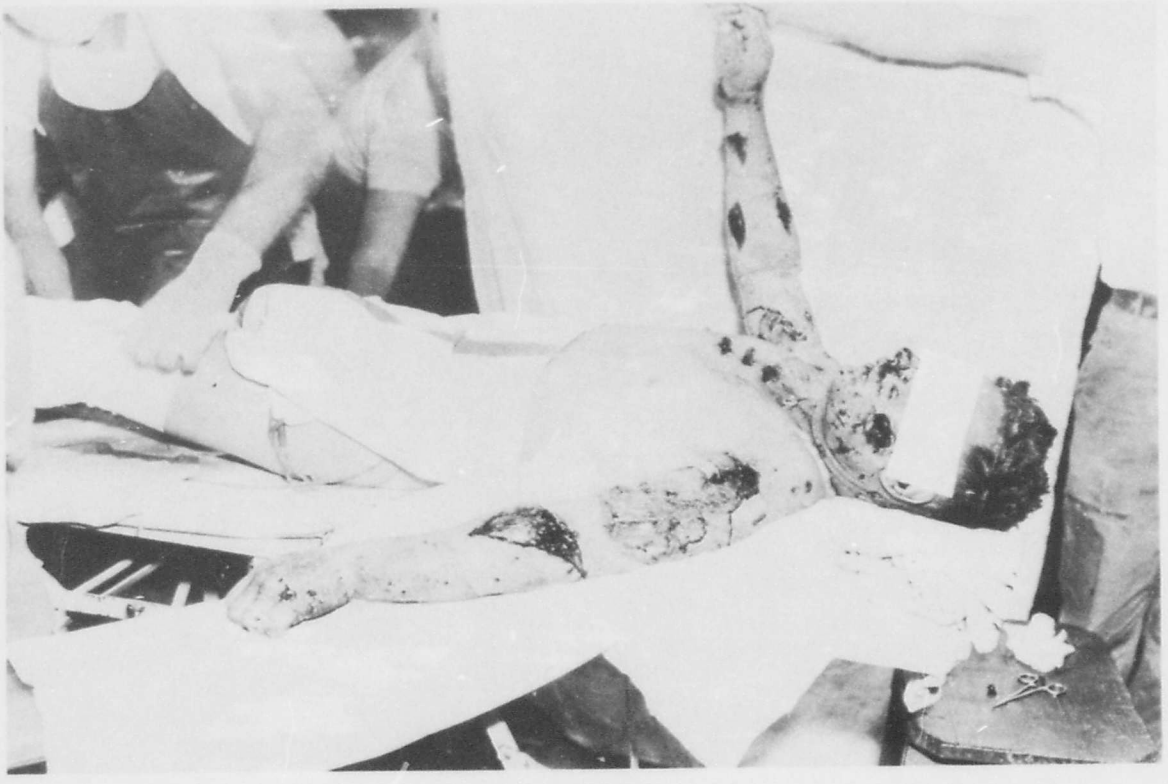

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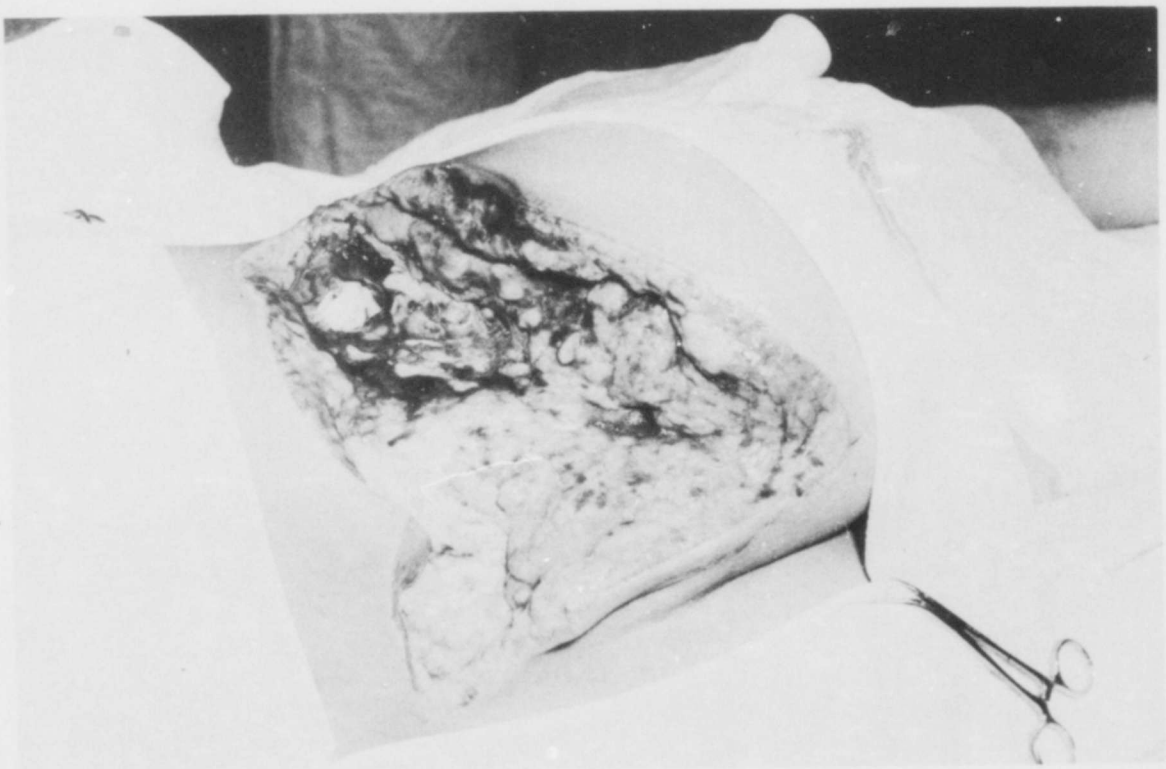

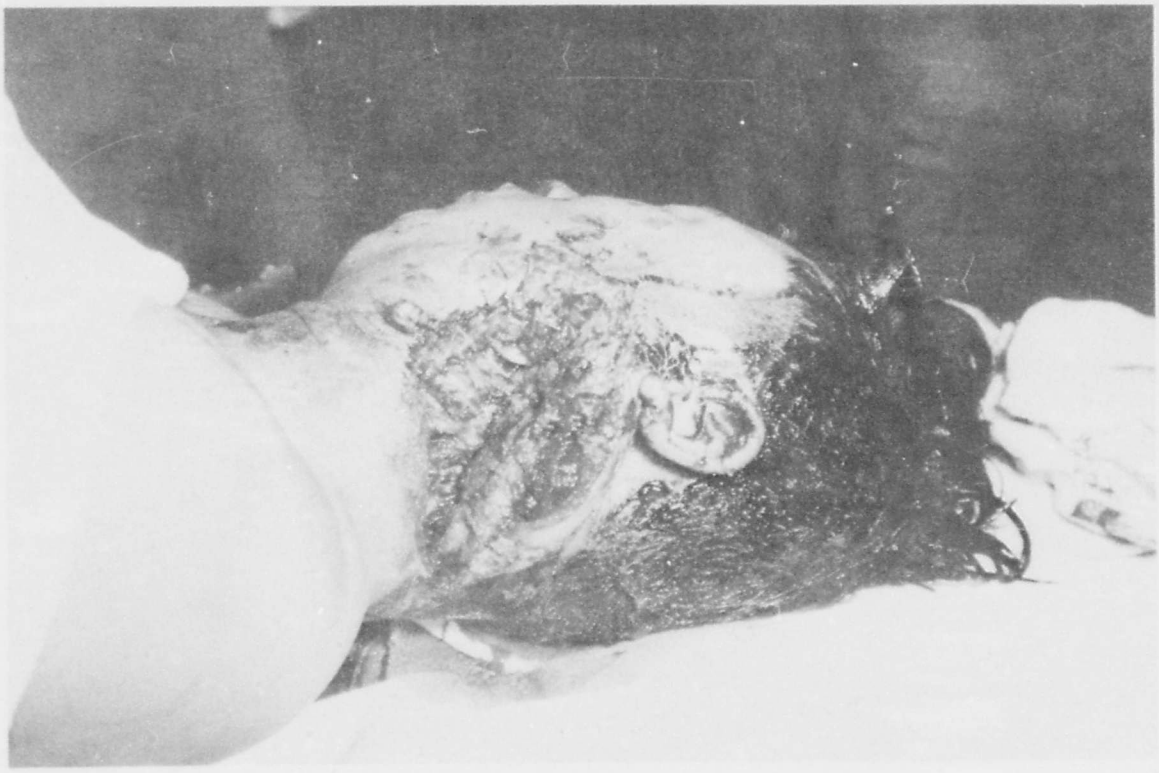

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APPENDIX D

NEWSPAPER ARTICLES

The following pages present news items as they appeared in the New York Times between 1875 and 1934. The first few articles in this collection are filled with variations in spelling, punctuation, and grammar which do not conform to current English usage. Rather than clutter each paragraph with notations calling attention to each variation, the articles have been reproduced as they originally appeared to their original readers.

Premature burial certainly is not a new problem. Plutarch, Asclepiades, Celsus, Plato, and Pliny bear witness to its roots in early antiquity (Tebb and Vollum, Premature Burial, 17-9, 330-1). As this paragraph is being typed, a girl in Tulsa, Oklahoma bears witness to its continued presence today (story included on last page of this appendix).

Simply stated, the diagnosis of death is an incredibly tricky business. Has today's soldier forgotten just how tricky such business can be? The average soldier in the average foxhole can claim no advantage over a 19th Century physician in either medical expertise or diagnostic equipment. But the 19th Century physician would have known that death is seldom so obvious or instantaneous as it appears on modern television.

Yet the early physicians did make mistakes. Do today's soldiers make similar mistakes when they enclose fallen comrades in airtight body bags?

THE NEW-YORK TIMES, MAY 18, 1875, PAGE 5, COLUMN 3

A CASE OF PREMATURE INTERMENT.

A case of probably premature interment is thus recorded in the London Jewish World. It occurred at Wilna: "A Jewish young woman, aged twenty-five, was pronounced by two Jewish doctors to be dead. The friends of the woman desired, for some reason best known to themselves, the funeral to take place on the same day, and, having obtained the necessary certificate from the medical attendants showing that the person had died, she was removed to the Jewish mortuary. While washing the body the women engaged in the operation discovered to their terror that it had gradually assumed a life-like appearance, and their dismay rose to its height when it raised itself to a sitting posture. The resuscitated woman begged those around not to bury her alive. The doctors were called in, and at their solicitation she drank some medicine which they offered to her. Ten minutes after she was again pronounced to be dead, and presently she was buried." The World goes on to say; "We do not know whether the Jewish authorities at Wilna sanctioned this premature interment. If they did they are deserving of severe censure. What aggravates the nature of the case is the fact that the husband of the poor creature was absent from home at the time of her alleged decease."

THE NEW-YORK TIMES, MAY 23, 1877, PAGE 8, COLUMN 3

WAS SHE BURIED ALIVE?

A GOOD CASE FOR INVESTIGATION.

THE CIRCUMSTANCES OF THE DEATH AND BURIAL OF MRS. CARTER - STATEMENT OF THE PHYSICIAN WHO PRONOUNCED HER DEAD - THE STORY TOLD BY THE NEIGHBORS - HOW THE CERTIFICATE OF DEATH WAS MADE OUT.

The main topic of conversation yesterday in Jersey City among newspaper readers was the shocking story about the burial of the woman who had been reported to have shown signs of life after the physician called to see her had declared that she was dead, and a general desire is expressed that the matter should be fully investigated. The husband of the woman still remains at his home, and denies that he and his wife had quarreled; but his neighbors assert that they did, and repeat the marvelous story which they at first related. A reporter of THE TIMES, yesterday, visited the house in which the woman died, and conversed with her husband and daughter, and with several of the neighbors who had noticed the signs of life which had been reported. The woman's name was Catharine Cabier, and her husband works near his home in a soda factory. The family lived on the top floor of the house No. 116 Pavonia-avenue, not far from the Erie ferry, and occupied but half of the floor. On Sunday evening, May 13, the family of Mr. Schreiber, living on the floor below were visted by Mr. Cabier and Mrs. Mansfield, a woman living on the opposite side of Pavonia-avenue, and were told that Mrs. Cabier was dead. The announcement astonished these people, who had not heard that Mrs. Cabier had been sick. Mr. Cabier asked Mr. Schreiber if he would not go for a doctor. Mr. Schreiber called upon Dr. Watson, who lives on Pavonia-avenue, a short distance above the block where the Cabier family lived, and the Doctor came back with him in a few minutes to see the body. He went to the room on the top floor, looked at the woman, felt her pulse at the wrist and over the heart, listened at

THE NEW-YORK TIMES, MAY 23, 1877, PAGE 8, COLUMN 3
WAS SHE BURIED ALIVE? (CONTINUED)

her chest, and then said, "Poor lady, she is dead." He drew the sheet up over her face and left. Some time after, perhaps two hours, Mrs. Mary Calhoun, a woman living in the rear apartments on the same floor with the Cabier family, at the request of Mrs. Schreiber, undertook to wash the body for burial. She had it lowered from the bed to a blanket on the floor, and was washing the hands, when the head of the supposed dead woman, which had been turned toward the right, turned up and her eyes opened with a stare. Mrs. Calhoun and those about her screamed, and she declared that the woman was not dead. She resumed her work, however upon the assurance of Mr. Cabier and others that the woman was indeed dead, although she says she was convinced, so warm and limber was the body, that it was still alive. Soon the eyes closed again and suddenly opened half way, and the woman's left foot twitched violently. The daughter of Mr. Cabier was present at this time, and she says that she distinctly saw the foot twitch, as Mrs. Calhoun asserts. The startled woman now demanded that the physician should again be sent for as she believed that bleeding and rubbing, with the aid of hot applications, would restore her.

Dr. Watson, when asked to come again, declined, saying that his services could be of no use whatever. In the meantime Mr. Schreiber had gone for the undertaker. Before he returned, James M. Jacobus, the son in-law of Mrs. Calhoun put a mirror before the face of the supposed dead woman, which was, he says, immediately clouded by moisture, and he felt a current of air from the nostrils upon his hand. Mrs. Jennie Jacobus says she saw the woman open her eyes, that her nostrils were in a natural state, and that the body was covered with perspiration four hours after she was pronounced to be dead. Mr. Schreiber came back with the undertaker, a young man in the employment of James Coyle, No. 128 Jersey-avenue, about 2 o'clock, the County Physician having been previously notified. The undertaker says he did not see any physician's certificate, but understood that the man who came after him had one in his pocket. He found the body limber and the cheeks red, but he immediately put it upon ice, where it was kept until the morning of Tuesday, the 15th, when the funeral took place. He says he did not hear the story of the movements of the woman until he took

THE NEW-YORK TIMES, MAY 23, 1877, PAGE 8, COLUMN 3
WAS SHE BURIED ALIVE? (CONTINUED)

the body from the ice-box. The permit for the burial was made out by the County Physician, Dr. C. B. Converse. He did not see the body until Monday morning about 10 o'clock, 12 hours after the reported death and eight hours after it was put on the ice. The certificate states that Mrs. Cabier was 35 years of age, and had lived 14 days in the county. The physician says that he investigated the cause of death and gives it as his opinion that it was due first to apoplexy and, second, to asthenia. The funeral was attended by but few persons, and the body, which was first buried in the paupers lot in St. Peter's Cemetery, was disinterred at the expense of Mrs. Mansfield, and buried in another place.

Mr. Cabier, who speaks English poorly, yesterday declared that the story of his wife's movements after death was mischievous, and that the woman who circulated it was mistaken. She said that his wife had long been subject to bad headaches, and that she had been in bed most of the Sunday on which she died. She drank some wine at her dinner which he had bought for her, and then lay down and did not leave the bed again. He declared that his wife was a good wife to him, and that his neighbors were "bad women."

The daughter of the dead woman, a girl of about 16 years of age, declared that the stories told were vile and malicious. She said that her mother had not been washing on Sunday, but that she herself had, nor had her mother gone out to drink lager beer, as had been reported. The noise which had been spoken of by a neighbor, and which was reported to have been caused by a quarrel between her mother and her father was not a quarrel at all, but merely a scolding which her father gave to the youngest child, a boy of five years, for spiling something on the floor. She said that her mother would not speak when she had a bad headache, and that the last one she had lasted from Friday until the time she died. They had all gone to bed, when Mr. Cabier heard his wife breathe very hard, and he called his daughter. The hard breathing soon stopped and presently she appeared to cease breathing altogether. They then ran for the neighbors, and were assisted as described. The young woman admits that while Mrs. Calhoun was washing the body, she saw her mother's foot move once, but she thought nothing of it, nor was she surprised that on the day of the funeral the cheeks

THE NEW-YORK TIMES, MAY 23, 1877, PAGE 8, COLUMN 3
WAS SHE BURIED ALIVE? (CONTINUED)

of the woman were still pink. No physician was called during the woman's sickness, but she applied a bottle of sal-ammonia to her nose before she died, the same remedy having frequently been used to restore her mother from fainting fits, to which she was subject.

Dr. Watson, the physician who first saw Mrs. Cabier after she was supposed to be dead, was called upon by a reporter of THE TIMES, whom he received in a very brusque and impatient manner. When requested to say what was the cause assigned by him for the death of Mrs. Cabier, he declared that he had no time or inclination to say anything about it, and would refer the writer to the Coroner. Dr. Watson expressed the opinion that it was "ridiculous and absurd" to suppose that the woman was not dead, and accounted for the moisture upon the mirror by the theory that it might have been caused by the melting of the ice whereas the glass was applied and moistened, according to Mrs. Calhoun, before the ice was applied to the body. Two hours packing in ice, he said, would be fatal to any person. He seemed to be very much amased at the suggestion that as much care as was demanded had not been taken, and ended by declaring that he did not wish to talk any more about the case. His name does not appear on the certificate of death, which does not state how long the woman was sick, or how soon her death followed the attack, although there is a blank space in the certificate for such an entry, which is usually filled up.

County Physician Converse said yesterday that there was no doubt that the woman was dead. He saw her thus on Monday morning, 12 hours after her death. He considered the fact that the body was limber after death as of no importance at this season of the year. He believed that Mrs. Calhoun had been mistaken, although there might have been muscular contractions of the body after death. His autopsy convinced him that death had resulted from apoplexy. No order had yet been issued to exhume the body, nor did he think that it was likely that anything would be done in the matter.

This statement will scarcely satisfy those who declare that all the indications of lingering life were observed after the superficial examination of the first physician was made and before the ice was

THE NEW-YORK TIMES, MAY 23, 1877, PAGE 8, COLUMN 3
WAS SHE BURIED ALIVE? (CONTINUED)

applied. If the woman was not dead, she could not have lived through the packing process, which Dr. Watson declared would prove fatal in two hours.

THE NEW-YORK TIMES, DECEMBER 24, 1877, PAGE 3,
COLUMN 6

AN ITALIAN WOMAN BURIED ALIVE.

In Naples the Appeal Court has had before it a case not likely to inspire confidence in the minds of those who look forward with horror to the possibility of being buried alive. It appeared from the evidence that some time ago a woman was interred with all the usual formalities, it being believed that she was dead, while she was only in a trance. Some days afterward, the grave in which she had been placed being opened for the reception of another body, it was found that the clothes which covered the unfortunate woman were torn to pieces, and that she had even broken her limbs in attempting to extricate herself from her living tomb. The court, after hearing the case, sentenced the doctor who had signed the certificate of decease and the Mayor who had authorized the interment, each to three months' imprisonment for involuntary manslaughter.

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THE NEW-YORK TIMES, FEBRUARY 9, 1884, PAGE 5, COLUMN 5

PREMATURELY BURIED.

THE SAD FATE OF A YOUNG GIRL WHO WAS SUPPOSED TO BE DEAD.

DAYTON, Feb. 8. - A sensation has been created here by the discovery of the fact that Miss Hockwait, a young lady of high social connections, who was supposed to have died suddenly on Jan. 10, was buried alive. The terrible truth was discovered a few days ago, and since then it has been the talk of the city. The circumstance of Miss Hockwait's death was peculiar. It occurred on the morning of the marriage of her brother to Miss Emma Schwind at Emanuel's Church. Shortly before 6 o'clock the young lady was dressing for the nuptials and had gone into the kitchen. A few moments afterward, she was found sitting on a chair with her head leaning against a wall and apparently lifeless. Medical aid was summoned in. Dr. Jewett who, after examination, pronounced her dead. Mass was being read at the time in Emanuel's Church, and it was proposed to postpone the wedding, but Father Habne thought best to continue, and the marriage was performed in gloom.

The examination showed that Anna was of excitable temperament, nervous, and affected with sympathetic palpitation of the heart. Dr. Jewett thought this was the cause of her supposed death. On the following day the lady was interred in the Woodland. The friends of Miss Hockwait were unable to forget the terrible impression and several ladies observed that her eyes bore a remarkably natural color and could not dispel an idea that she was not dead. They conveyed their opinion to Annie's parents and the thought preyed upon them so that the lady was taken from the grave. It is stated that when the coffin was opened it was discovered that the supposed inanimate body had turned upon its right side. The hair had been torn out in handfuls and the flesh had been bitten

THE NEW-YORK TIMES, FEBRUARY 9, 1884, PAGE 5, COLUMN 5. PREMATURELY BURIED. (continued)

from the fingers. The body was reinterred and efforts were made to suppress the facts, but there are those who state that they saw the body, and know the facts to be as narrated.

THE NEW-YORK TIMES, APRIL 12, 1882, PAGE 2, COLUMN 3

DEATH ASCERTAINED BY ELECTRICITY.

From the Pall Mall Gazette.

A correspondent writes to us: "There can be little doubt that premature burial does occasionally take place in France and Algeria, also in Germany, in consequence of the laws ordaining prompt interment. It is no wonder, therefore, that the following discovery signaled in L'Electricité has been received with great satisfaction. According to this journal, it has been ascertained that the application of an electric current to the body is a certain test of vitality. Such a test being applied five or six hours after presumed death, the non-contraction of the muscles will prove beyond a doubt that life is extinct. So, at least, we gather from the journal L'Electricité. All kinds of precautions are taken from time to time in France and Germany to avert the horrible catastrophe of premature interment, but we were assured in Germany last year that nothing is trusted to but cremation. All who have witnessed the celerity with which the bodies of the dead, or supposed dead, are shoveled into the grave abroad must cordially hope that the facts cited are incontestable and may be widely made known. Cremation is not a costly process, it is true, but it is not within every one's means to visit Milan or Gotha when living, much less to order urn-burial in either of those cities from fear of premature interment."

THE NEW-YORK TIMES, DECEMBER 11, 1884, PAGE 1, COLUMN 2

A VERY STRANGE STORY.

A WOMAN RETURNS TO LIFE WHILE ON A DISSECTING TABLE.

SPRINGFIELD, Mass., Dec. 10. - A strange story has come from Egremont, among the Berkshire hills, near the New-York line. The town and the surrounding villages are in great excitement. The story runs that Estelle Newman, about 30 years old, died in Egremont in 1878, and, after the funeral services in the little Methodist church was buried in the town cemetery and forgotten. The sensation comes from the dying testimony of H. Worth Wright, in Connecticut, who is said to have confessed to his brother that he, being a student in the Albany Medical College, was present at the funeral with other students, lay in wait near the cemetery till the burial was over and the graveyard was deserted, and then helped disinter the body and carry it in a sack to the medical college. They at once went to work on it in the dissecting room. While on the table the body showed signs of life, and was resuscitated by the students. Finding the woman alive on their hands the authorities of the college had her taken to an insane asylum in Schoharie County, N.Y. This is the last that Wright is said to have known of her whereabouts. The Newman woman's grave will probably be opened to see what the story amounts to.

THE NEW-YORK TIMES, DECEMBER 12, 1884. PAGE 1, COLUMN 7

WAS SHE BURIED ALIVE

THE ESTELLE NEWMAN MYSTERY STILL UNSOLVED.

JUDGE ROWLEY REFUSES TO HAVE HER GRAVE OPENED - RELATIVES WHO REFUSE TO BELIEVE THE WEIRD STORY.

PITTSFIELD, Mass., Dec. 11. - A dreary drive of four miles from Great Barrington, in the face of a blinding snowstorm, brought THE TIMES'S correspondent to the neatly-kept farm of Judge Rowley, of North Egremont, the uncle of Estelle Newman, who is alleged to have been restored to life in a medical college dissecting room, and Administrator of her estate. Judge Rowley is Chairman of the Selectmen of his town and a conservative, conscientious gentleman of the old school, and from him were gleaned many facts throwing additional light upon the very strange story regarding Miss Newman's supposed death and subsequent resuscitation.

Miss Newman, it appears, was a bright lady of 30 years of age, of excellent parentage, highly cultured, and having many warm friends. For many years she had been organist of the Methodist church at North Egremont. In December, 1878, just as she, with others, was interested in an approaching Christmas entertainment, she had an attack of spinal meningitis. Her death ensued early in January. The funeral was attended from the Methodist church, and the interment was in the family lot adjoining the church. Among the mourners at the grave was one H. Worth Wright, an Egremont young man, who was at that time studying surgery in a college at Albany. He had long known Miss Newman, although so far as known their friendship never had approached to intimacy.

On the evening of the day of the funeral a country ball was given at Egremont, which H. North Wright and his brother attended. Afterward the young man returned to his studies at Albany, graduating high in his class. He settled at Sheffield, Mass., for a while, but later drifted

THE NEW-YORK TIMES, DECEMBER 12, 1884, PAGE 1, COLUMN 7. WAS SHE BURIED ALIVE (CONTINUED)

into Connecticut, where he died in 1881, after some years of dissipation.

Now comes the strange part of the story. It is alleged that during the night following the burial H. North Wright and three fellow students visited the graveyard, exhumed the body of Miss Newman and carried it to Albany: that soon after reaching the dissecting room evidences of life were found, and the girl became animate; that she was at once taken to Bellevue Hospital, New-York, where after a period of insanity she regained her health, and was then taken to the home of the uncle of one of the ghoullah students, residing in Schoharie County, New-York State. This student was in partnership with his uncle in practicing medicine and surgery. Her health entirely returned, and her mind became as bright as ever. In 1881 she read in a newspaper of the murder of Dr. Wright, at Newtown, Conn., and at once showed a great interest in the case, affirming that Dr. Wright was an old friend, and seemingly faintly recalling to mind her supposed fatal illness at home. In the meantime, however, the student at whose uncle's house she was living had fallen deeply in love with her and married her. The story further details that the pair are now living in New-York City, and propose to visit the scenes of the lady's childhood during the present Winter. So much for the story which has upset the usual quietude of North Egremont and the surrounding towns, and resulted in a pandemonium of gossip.

Mr. Rowley states that application has been made to him by distant relatives of Miss Newman to open the grave and at once settle the question of her death. He does not favor this plan, believing, first, that the story is untrue, and, second, preferring to let the matter remain an uncertainty rather than open the grave with the possibility of finding his worst fears confirmed. He leaves town to-morrow for an extended trip to Virginia, doubtless glad to get away for a time from an air so laden with uncomfortable rumors. He was the Executor of Miss Newman's estate, and the $7,000 left by her has been disposed of by now. He never had suspected that she was living until a week ago.

The Barrington Post Office was crowded at noon, and all the villagers were guessing about the story. W.F. Crippen, a cousin of the girl, states that three-fourths of the people of Egre-

THE NEW-YORK TIMES, DECEMBER 12, 1884, PAGE 1, COLUMN 7. WAS SHE BURIED ALIVE (CONTINUED)

mont fully believe that Miss Newman's body was exhumed, and further states that, if the proper authorities do not at once take steps to settle the question the citizens will take the matter into their own hands and find out the truth or untruth of the story. He is willing to make oath to the fact that four young men were driven out of the cemetery on the night in question, and is positive that the story is true, at least in so far as the theft of the body is concerned. The flames are further fed by the statement of one of the women, who was present at the death of Miss Newman, and who states that two days after the supposed death, on the day of the funeral, she accidentally touched the back of the body, and found a spot so warm that the heat was plainly perceptible, even through the clothing.

Mrs. Newman, the mother of Estelle, and Mrs. Chapel, a sister of the woman alleged to have been resurrected, relate circumstances which increase the improbabilities of the current gossip. Mrs. Chapel had heard nothing of the romance concerning her buried relative. She was with Estelle when she was supposed to die. The sick woman had been through a religious revival and her mind was affected. Her mania took the form of a conviction that it was her duty not to eat, and she died from starvation, together with spinal complaint. Her flesh was so wasted away that it was thought impossible that she could have been brought back to life in the strange way reported.

The current story receives another blow in the statement of W.R. Wright, of Hudson, N.Y., who denies that his brother, the late Dr. Wright ever confessed to him about taking the body of Miss Newman to Albany.

THE NEW-YORK TIMES, DECEMBER 13, 1884, PAGE 2,
COLUMN 7

ONE SENSATION ENDED.

ESTELLE NEWMAN'S BODY FOUND UNDISTURBED IN ITS GRAVE.

GREAT BARRINGTON, Mass., Dec. 12. - The Estelle Newman mystery is ended, and the sensational stories of the disinterment of her body, its resuscitation in a dissecting room of the Albany Medical College, and her subsequent marriage to a young man in Schoharie County are proved to be fallacies. To-day Miss Newman's relatives, in the presence of a party of about 30 men opened the grave. The coffin was found intact, and when opened Miss Newman's body was found laid out as it was at the time of the burial. All the reports of this curious sensation have placed the burial of Miss Newman in the little North Egremont Cemetery in December, 1878. No girl died at Egremont during the last four months of that year, nor was one buried in the town in that year. Miss Newman died and was buried in December, 1879. These facts prove that no body was taken from a grave in the town at the time stated.

THE NEW-YORK TIMES, AUGUST 14, 1886, PAGE 8, COLUMN 2

NOT TO BE BURIED ALIVE.

Some of the philanthropic citizens of Brooklyn have conceived a plan whereby the fear of being buried alive, which haunts the minds of many persons, may be removed, and are about to bind themselves together as an incorporated company. There was some hesitation at first whether a corporation would be better or a sort of mutual benefit insurance company, each member of which should receive a guarantee that he should not be buried until it was proved that he was dead.

In the suburbs, probably in the vicinity of some of the large cemeteries, edifices will be erected fashioned to hold a large number of coffins. Those receptacles will differ materially from tombs, for there will be no strongly bolted doors, nor will the coffins be placed in tightly closed chambers from which even a perfectly well and strong man would stand no chance of escaping. On the contrary, the coffins will be ranged about with open lids, and will remain in the receptacles until the bodies they contain show signs of life or are proved by decay to be dead. Means will be provided so that if a person in any of the coffins should be alive he could immediately upon discovering that fact communicate it to an attendant and receive the proper aid. It is not known yet whether this communication will be made by means of a speaking tube or telephone placed in each coffin or by a cunningly arranged system of electric bells. Possibly a competitive trial of the three may have to be made. Lawyer Henderson Benedict, of Brooklyn, has been engaged by the philanthropic citizens to get them incorporated for the object they have in view. He is as yet unwilling to give the names of any of his employers, but expects that within six months everything will be in working order.

THE NEW-YORK TIMES, AUGUST 22, 1887, PAGE 3, COLUMN 6

PREMATURE BURIAL IN FRANCE.

Paris Dispatch to the London Daily Telegraph.

Another case of premature burial worthy of being analyzed in the realistic manner of Zola has occurred in France. An elderly woman who lived at an Old World place called St. Onen la Rouerie recently fell ill and, as her friends thought died. The funeral took place, and as the grave digger was preparing to lower the coffin into the earth he heard moans ensuing from inside the lugubrious four boards inclosing the presumed corpse. Then followed a scene which was an exact counterpart of what occurred about 12 months ago in another rare part of France. The grave digger, half frightened of the probable ghost which his imagination conjured up and partly awed by the requirements enacted by the law in circumstances such as those in which he found himself placed, left the coffin in the care of the mourners and went off with his sombre story to Mille. Maire. That rural dignitary, having duly donned his scarf of office and summoned the village doctor, proceeded to the local "God's acre." The coffin was then opened, and it was discovered that the woman had just died from fright, having awakened from a trance to find herself hemmed in between the terrible dual planks. When horrible scenes like this are repeated it is time for the authorities and the public at large to take into consideration the invention of the ingenous undertaker who has adopted as his motto: "No more premature burials." This practical person offers to supply in all cases of doubtful death an apparatus by means of which those who may have had the misfortune to be buried alive may not only inhale fresh air on their awakening, but also communicate by signal with the world which has left them for dead.

THE NEW-YORK TIMES, APRIL 30, 1889, PAGE 8, COLUMN 3

NOT SURE SHE IS DEAD.

HER FRIENDS REFUSE TO BURY A GIRL WHO DIED LAST THURSDAY.

CHICAGO, April 29. - Much excitement exists among the people of Jefferson Park, a suburb of Chicago regarding the strange case of Miss Wilhelmina Stahl, who, it is said, was to have been married in July to a United States army physician stationed at Fort Sheridan. The Stahl family are among the new-comers in the village and consisted of a mother and two daughters. One of the latter came from Germany a few years ago, and by clerking in one of the commercial houses in Chicago gained sufficient income to bring her mother and sister across the ocean about a year ago. This sister, Wilhelmina Stahl, has been likewise engaged in business in the city during the last year, until about three weeks ago, when she became somewhat indisposed.

A physician's services were not deemed necessary until about ten days before her death, when Drs. Fonda and Moore were summoned. Dr. Moore pronounced the girl beyond medical aid. The ailment appeared to be rheumatism of the heart. Thursday the end came. Arrangements for the funeral were perfected to take place on Sunday. Many of the neighbors assembled at that hour in the residence. The body of the deceased had been placed in the coffin. Just before the services began the mother and sister expressed doubts as to whether death had actually ensued. The appearance of the body seemed to give them some warrant for their conclusion. There was no evidence of decomposition, and none of the usual rigor and stiffness were apparent. Besides this, there appeared color in the face and a contour to the body that raised in their minds a serious doubt as to the extinction of all life. The ceremonies were suspended for a considerable time until the physicians could make an examination, not to verify their own convictions, but to satisfy the friends and relatives.

THE NEW-YORK TIMES, APRIL 30, 1889, PAGE 8, COLUMN 3
NOT SURE SHE IS DEAD. (continued)

The several tests were made as prescribed by medical science, all of which seemed conclusive save one, which the physicians are frank in saying is very unusual, although not indicating the existence of life. An examination of the body showed to some of the witnesses what is called evidences of some "rigor mortis" - a slight movement of the muscles, which usually ceases within, at most, 12 hours after death. Upon the physicians' advice, still firm in their own convictions of the correctness of their tests and conclusions, the funeral ceremonies were suspended and the body taken from the casket and placed upon the couch. No time has as yet been fixed for the funeral service, and the relatives are caring for the body with every appliance at hand to resuscitate it.

To-day the watch was still being kept up and no change had become manifest in the appearance of the corpse. All sorts of rumors are current as coming from the attendants - that indications of returning life have been noticed, &c., but they cannot be verified.

The girl's prospective husband has been an attendant at the bier during all this time.

THE NEW-YORK TIMES, MAY 2, 1889, PAGE 1, COLUMN 1

HER DEATH WAS TRANCE-LIKE.

CHICAGO, May 1. - One week ago to-day Miss Wilhelmina Stahl, aged twenty-one years, residing in Jefferson Park, a suburb of Chicago, died of rheumatism of the heart. She had once gone into a trance in Germany. This time, when the time for the funeral had arrived, the body showed no signs of decomposition and the burial was postponed. The lips remained red, the cheeks were flushed, and there was no rigor of the body. The mother believed that it was another trance. The body was put into bed and artificial heat applied in the hope of restoring life. Finally physicians made scientific tests. The looking glass was tried, artificial respiration and artificial abdominal pressure were applied, without result. Finally the tibia artery was opened, and then completely severed, but not a drop of blood flowed, showing conclusively that the girl was dead. The mother was not convinced and the body remains unburied, and the efforts at resuscitation continue.

THE NEW-YORK TIMES, AUGUST 3, 1890, PAGE 14, COLUMN 4

NO BURIALS ALIVE.

CAREFUL INVESTIGATION SHOWS THE FALSITY OF RECENT REPORTS.

Philadelphia Medical and Surgical Reporter.

The fear of being buried alive haunts the minds of so many of our fellow men that it may hardly be regarded as strange, in some respects, that it was recently reported that a number of physicians in a city near Philadelphia had banded themselves together to devise means to prevent such a catastrophe in their own case. And, when physicians could take such measures in view of a supposed danger, it is not remarkable that the community should have a special and exaggerated horror of being buried alive. But this horror is as without reason as is the timidity of the physicians referred to. There seems to be no good ground whatever for supposing that it is possible in this enlightened age for any person to be committed to the grave while yet living. Stories reporting such occurrences are by no means rare, but any one who examines them closely will certainly remark that they are wholly lacking in originality, and that there is, in fact, so strong a resemblance between them as to excite the suspicion that one has been copied from another. Investigation will show, too, that this suspicion is a well-founded one. At least, such has been the experience of the editor of the Medical and Surgical Reporter, who has for some years followed up every story of burial alive which came to his notice, and always with the result of learning that they were false or of failing to learn anything about their origin.

The most recent experience of this sort occurred in connection with a story published in the daily papers on June 10, 1890, of a man who was said to have died and to have been buried alive in Chicago. After tracing the story from one point of the newspaper world to another it was found to have originated in a Chicago paper, which said the man had been

THE NEW-YORK TIMES, AUGUST 3, 1890, PAGE 14, COLUMN 4
NO BURIALS ALIVE. (continued)

sent as dead from a hospital in that city on Feb. 23, and that afterward he had been buried, that the buriers had heard sounds like knocking on the coffin lid, but went ahead with the burial, and that after an interval the grave was opened and the coffin lid removed to disclose that the man had turned over, torn his hair out, buried his fingers in his flesh, and so on. At the end of our investigation we received a letter from the hospital stating that it never had a patient of the name given, that no person died in the hospital on the date given, and treating the story as a hoax. The Associated Press agent in Chicago, who started the story round the country, on being asked if he thought there was any truth in it, replied to our representative: "I am not supposed to believe everything these fellows [meaning the reporters] write."

This is the latest story, and it illustrates the unreliability of all that we know anything about and the utter lack of principle which usually lies at the bottom of them. As physicians, we may, by publishing the falseness of such stories, do something to allay the awful fears which they excite in the minds of many of our fellow beings, and we may hope that those who manage the daily newspapers will some day properly punish reporters who furnish them with such cruel inventions.

THE NEW-YORK TIMES, AUGUST 18, 1890, PAGE 9, COLUMN 5

A SURPRISING STATEMENT.

From the Hartford Times, Aug. 15.

The Rev. John A. Mulcahy of Waterbury is in Europe and will sail for home Aug. 27. In a letter received from him this week, in which he speaks of cemeteries in Europe and the way that burials are conducted, he writes: "I was particularly struck with the beauty of the cemeteries in Munich, as regards monuments and well-kept walks and drives. The people here have a great fear of being buried alive, and for that reason when a person dies the body is placed in a receiving vault, where it is kept for four days, and under the method now used, a sponge is placed in one of the dead person's hands, which is connected by a copper wire with a battery and alarm signal; the hand is fastened tightly around the sponge, and at the least sign of returning animation the alarm is sounded and the sentries, some of whom are always on duty, respond at once. In the last fifty years there have been thirty-four persons resuscitated by means of precautions of this kind."

THE NEW-YORK TIMES, AUGUST 26, 1900, PAGE 19, COLUMN 1

ON PREMATURE BURIAL.

To the Editor of The New York Times:

I note in your issue of the 25th an article wherein the writer, quoting from The Philadelphia Medical Journal, denies that any reasonable grounds exist for apprehending a premature burial. He observes "that the probability of such an occurrence is infinitesimal and therefore ignored by everybody except the victims of ignorant or morbid imaginations."

It is no doubt with the best intentions that he has endeavored to allay a certain popular fear, which undoubtedly exists. At the same time, however, a physician, and I assume that the writer is a medical practitioner, who will deliberately deny the existence of such a danger, stamps himself as being grossly ignorant. When he says that he has never encountered a case where a too early interment was prevented, he simply certifies as to his own inexperience.

Permit me to say that the American Society for the Prevention of Premature Burial, (of which I am a member,) recently formed in this city, stands ready to furnish any number of well-authenticated instances in which premature burial has either actually occurred or been narrowly prevented after the patient had been pronounced dead by qualified physicians. This has occurred to two acquaintances of the writer, both of whom are living to-day. Before attempting to discuss the question, my suggestion is that writers of the calibre of our friend first read the recent work of Tebb and Vollum on "Premature Burial and How It May Be Prevented."

Exact statistics are of course impossible in cases of this kind. In Continental Europe stringent legislation exists designed to do away with the danger of a too early interment, and yet even the walls of a Munich mortuary have witnessed the re-

THE NEW-YORK TIMES, AUGUST 26, 1900, PAGE 19, COLUMN 1
ON PREMATURE BURIAL. (CONTINUED)

suscitation of supposed corpses. The French Academy has offered numerous prizes for tests to determine the existence of death.

It is the notoriously lax methods characteristic of a great number of physicians in this country that make the danger a very great one. There is no law in New York State to-day which compels a doctor to inspect the supposed corpse before he signs the death certificate. As a consequence it happens very often that upon being informed by some member of the family that a patient, whose death was momentarily expected, has expired, the physician will sign the death certificate, and the body is then delivered over to the tender mercies of the undertaker. It is simply an intolerable confidence in their own infallibility and a dislike to have possible errors of judgment exposed that causes many members of the medical profession to treat the matter as has the author of the article in The Philadelphia Medical Journal.

As to the suggestion that cremation be employed to prevent premature burial, it may be dismissed in a few words. It goes on the assumption that the best method to prevent a too early interment is to kill the patient. Is the alternative of being burned alive to be greatly preferred to that of being buried alive? H. GERALD CHAPIN.

New York, Aug. 25, 1900.

THE NEW YORK TIMES, OCTOBER 17, 1928, PAGE 31, COLUMN 2

Woman, 98, Rises in Coffin And Scolds German Mourners

Wireless to THE NEW YORK TIMES

BERLIN, Oct. 16. - Laid out in her coffin and robed in the customary shroud, with a crucifix and rosary on her breast, a 98-year old Duisberg widow today surprised and terrified the mourners assembled for her funeral by arising just as the coffin was about to be closed.

The woman looked at the assemblage and surroundings in astonishment and then voiced her indignation over the fact that she had almost been buried alive.

An investigation which was started immediately by the authorities revealed that the family failed to call a physician to certify death when the woman apparently died on Sunday.

THE NEW YORK TIMES, JANUARY 19, 1930, SECTION III,
PAGE 8, COLUMN 3

SEEKS TO PREVENT PREMATURE BURIAL

MOHAMMEDAN PRIEST TELLS HIS FOLLOWERS KORAN FORBIDS HASTY INTERMENTS.

CITES HARROWING CASES

TOPITCH URGES THAT MEASURES BE TAKEN TO ASCERTAIN IF DEATH IS REALLY PRESENT.

By ALEXANDER BILITCH.
Special Correspondent of The New York Times.

BELGRADE, Jan. 2. - It has long been a problem how a sure proof of death can be obtained and the horrors of a premature burial avoided. Any one who has read Poe's stories may well be anxious to prevent any such frightful calamity, and one may read in wills clauses demanding that tests be made to prove that life is really extinct. So great is this fear of premature burial that in England a society has been formed to have precautions taken against such accidents.

The problem has recently been discussed once more, this time in its relation to Mohammedan burials. It is customary with Moslems to bury

THE NEW YORK TIMES, JANUARY 19, 1930, SECTION III, PAGE 8, COLUMN 3. SEEKS TO PREVENT PREMATURE BURIAL. (CONTINUED)

their dead in such haste that a body is sometimes interred only a few hours after death has occurred.

Koran Forbids Haste.

A Mohammedan priest in Bosnia, Sulejman Topitch, has drawn attention to these facts in the Sarajevo Yougoslav Post. He points out that this extreme haste is not according to the law of Islam. Mohammed himself, he says, prescribed that the body should be left unburied for forty-eight hours, while the Koran stipulates that the dead man must be kept at home until all his friends and relatives have been informed of his death in order that at least forty may be present at the funeral. Topitch says too speedy burial is a bad custom, brought from the hot countries where corpses cannot stand long unburied.

At the funeral of a Mohammedan it is customary as soon as the coffin is put into the earth for all present to almost run from the cemetery, leaving the Mohammedan priest to read the service over the dead alone. They say they do not wish to remain to see their dead friend banging his head upon the coffin lid when Munkjir and Nekjir, the judges of the Other World, come to examine him for his sins. The belief is that the dead comes to life again for as long as the two dread judges have business with him.

Topitch thinks that this belief has some basis in that some victims of premature burial arose in their coffins and tried to attract attention and that the frightened witnesses could only suppose the action to have some supernatural explanations.

In spite of all the scientific means now at our disposal for ascertaining death, cases of premature burial are

THE NEW YORK TIMES, JANUARY 19, 1930, SECTION III, PAGE 8, COLUMN 3. SEEKS TO PREVENT PREMATURE BURIAL. (CONTINUED)

still all too frequent. Topitch mentions several that have occurred in Bosnia of late years and also refers to the evidence of a Russian emigré now living in Sarajevo, who has told him of similar occurrences in Russia before and during the war.

Rescued by Mother.

The first case cited by Topitch occurred in the village of Vrgorac in Central Bosnia. A Mohammedan had died and all preparations were made for a speed burial. The body was placed in a room to await the priest who was to take it away for burial in the village graveyard. The priest arrived late and the delay saved the man's life. For, while the household was waiting, the supposed corpse awoke, and finding himself in a shroud lying upon a table, started to yell at the top of his voice. His friends thought those dread judges, Munkjir and Nekjir, had come and, not to be present at the final judgment scene, fled from the house. The mother of the dead man, however, plucked up sufficient courage to enter the room where her son had been laid out. The poor man, who was still too weak from his illness to get down from the table, asked her to help him back to his bed. This man is still alive and enjoying excellent health, and all his friends firmly believe that he was restored by a miracle.

In the second case mentioned by Topitch, the seemingly dead man had actually been lowered into the grave, some earth had been shoveled in and every one but the priest had left the place, when the dead came to life and struggled to make his way out. The priest and sexton were overcome with terror and, believing that the dead man was coming to take them

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into the after-life with him, fled. Luckily, the man was very strong and managed to work his way out of his grave. One can imagine the amazement and awe his return caused among the simple village people, who still look upon his resurrection as a sign from heaven.

Topitch in his article asks if it is not time something were done to make certain that life is extinct and also to show the ignorant that what they believe to be supernatural manifestations may actually be their friend's struggles to be free from his ghastly prison.

THE NEW YORK TIMES, JULY 13, 1930, SECTION III,
PAGE F, COLUMN 7

WOULD AVOID BURIAL ALIVE.

Special Correspondence, THE NEW YORK TIMES.

PARIS, July 11. - Danger of being buried alive still exists, although science now has developed certain means of pronouncing death, according to Dr. Gardiol, member of the Chamber of Deputies, who has introduced a bill which would require verification of deaths by a system to be established by the Academy of Medicine.

THE NEW YORK TIMES, JULY 20, 1930, PAGE 11, COLUMN 5

"BODY" RAPS ON COFFIN.

MEXICANS, PRAYING FOR 15-YEAR-OLD GIRL, DISCOVER SHE IS ALIVE.

JUAN DE LOS LAGOS, Jalisco, Mexico, July 19 (AP). - The family and friends of Petrona Corada, 15-year-old girl, assembled about her coffin today to pray before she was buried.

Suddenly they heard a knocking inside. The coffin was opened and the girl, who had been pronounced dead by two doctors, stepped out. She was unable to explain her "resuscitation."

THE NEW YORK TIMES, JULY 22, 1930, PAGE 36, COLUMN 3

"CORPSE" COMES TO LIFE.

CHINESE WAKES UP IN UNDERTAKER'S - TAKEN TO HOSPITAL, DIES.

Lum Gin's body was awaiting preparations for burial in the Cheung Sang Funeral Parlor at 22 Mulberry Street yesterday. Bert V. Eutelmy undertaker in charge, was discussing funeral arrangements with Lum Puck Yim. Lum Puck Yim and Lum Gin had been partners in a laundry business at 470 East Houston Street. Suddenly the body of Lum Gin assumed a sitting position and the "corpse" demanded a glass of water. As soon as Lum Puck Yim and Mr. Eutelmy recoverd from their astonishment they got him one.

Then Lum Gin wanted to know where he was. Told he was at the undertaker's, he grew angry. "What," he demanded, "is the rush?" Lum Puck Yim apologized. So did Mr. Eutelmy. They telephoned for an ambulance and sent him to Bellevue Hospital. Lum Puck Yim told the doctors there that Lum Gin had been ill for a year and that, if he was not dead, he certainly had appeared to be. Lum Gin really died that night. This time doctors said there was no doubt about it. They sent his body to the morgue.

THE NEW YORK TIMES, APRIL 12, 1931, SECTION III
PAGE 4, COLUMN 3

WOMAN AWAKES IN COFFIN.

Special Correspondence, THE NEW YORK TIMES.

PRAGUE, March 19. - As women employes of the mortuary in Eibleiton were about to lay out the body of an old woman which had been brought there the night before, they were horrified to see her turn on her side in the coffin. The "dead" woman sat up and asked where she was. With considerable presence of mind, the attendants told her that she was in a hospital, where she was soon taken.

THE NEW YORK TIMES, APRIL 12, 1931, SECTION III.

Graveside Row Over Estate

Brings 'Dead' Man Back to Life

Special Correspondence, THE NEW YORK TIMES.

SOFIA, March 20. - Extraordinary scenes were witnessed in the village cemetery of Drenoff, when a peasant who was being buried arose from the grave in the midst of an excited dispute over his property.

After the "death" of the peasant, Todor, the Orthodox priest, declared that the deceased had desired all his property to go to the church. He repeated these declarations in his oration at the grave, and the relatives broke out into angry protests.

In the midst of the dispute a noise of splintering wood accompanied by groans, arose from the open grave. The frail lid of the coffin broke and the man over whose property the dispute was in progress sat up. The priest and relatives fled horror-striken from the scene. Later they returned and carried Todor back to his cottage.

THE NEW YORK TIMES, OCTOBER 18, 1931.

'Dead' Man Arises in Coffin

And Causes Panic at Funeral

Special Correspondence, THE NEW YORK TIMES.

BUCHAREST, Oct. 1. - As the funeral services for a merchant named Vassile Schiller were in progress yesterday, the lid of the coffin splintered and was forced up, and to the horror of the congregation, the "dead" man sat up in his graveclothes and called for help.

A panic ensued, women fainting and men running from the church. Calm was finally restored and Schiller, who had been in a trance, has completely recovered from his terrible experience.

THE NEW YORK TIMES, NOVEMBER 12, 1931, PAGE 6, COLUMN 2

SAVED FROM BURIAL ALIVE.

CONSTANCE YOUTH ESCAPES FROM COFFIN AS MOURNERS START FOR FUNERAL.

Wireless to THE NEW YORK TIMES.

GENEVA, Nov. 11. - When mourners were preparing today to leave the house for the funeral of a 20-year-old youth at Constance, they were horrified to see the youth running downstairs.

The youth said that for days he could hear but was unable to move. Later he was able to force the lid from the coffin.

The doctor who had issued the death certificate said the youth apparently had been suffering from tentanic cramp.

THE NEW YORK TIMES, OCTOBER 9, 1932, SECTION III

PAGE 3, COLUMN 6

'CORPSE' SCARES MOURNERS

SUPPOSEDLY DEAD WOMAN RISES FROM COFFIN DEMANDING A DRINK.

Special Correspondence, THE NEW YORK TIMES.

BELGRADE, Sept. 27. -- While mourners in the light of funeral tapers were weeping around the open coffin of an old peasant woman at Mel recently, they were horror-stricken to hear a faint voice from the coffin crying, "Water, water." When the body moved, the eyes opened and a hand was raised they fled in a panic to the village streets.

However, when the "corpse" rose from the coffin and tottered to the doorway, still crying for water, the relatives lost their fear and attended to the old woman's needs. The doctors ascertained that she had suffered from tetanus, which had suspended her heart action.

THE NEW YORK TIMES, DECEMBER 25, 1932, SECTION IV,
PAGE 4, COLUMN 7

Talking "Corpse" Frightens Would-Be Grave Robbers

Special Correspondence, THE NEW YORK TIMES.

BUDAPEST, Dec. 15. - "What do you want from me?"

These words, issuing from a coffin in the graveyard of Nagyperente Church the other night, so terrified three grave-robbers that one collapsed and was later arrested and the others took flight.

The men had opened the grave of a wealthy farmer's wife who had been buried the day before to steal the valuable ornaments which, in accordance with local custom, had been buried with her. They had raised the coffin and had pried open the lid when the woman sat up in her grave clothes. She had been buried while in a state of catalepsy. She is now in a hospital and there is hope of saving her life.

THE NEW YORK TIMES, MAY 14, 1933, SECTION IV,
PAGE 2, COLUMN 2

'Dead' Girl Revives as Thief

Tries to Steal Coin Necklace

Special Correspondence, THE NEW YORK TIMES.

SOFIA, April 28. - It is an enviable accomplishment in Bulgaria to be able to swallow your Easter eggs whole when the shell has been removed. A pretty peasant girl in a remote village tried to accomplish this feat, but the egg stuck in her throat and she fell senseless. Every one thought she was dead.

So she was prepared for burial. She was dressed in her best clothes and her chains of gold coins, a form of necklace much favored by the more prosperous peasant women, were left about her neck.

During the night a thief crept into the room. He put his foot on her chest and wrenched the coin chains free. Thereupon the girl coughed up the egg and, opened her eyes. With a scream of terror the thief dropped the chains and fled.

THE NEW YORK TIMES, JUNE 6, 1934, PAGE 5, COLUMN 6

Abbot Is Buried Alive;

He Felt Too Old 'at 157'

By The Associated Press.

SIMLA. India. June 5. - Religious pilgrims reported today that the aged Shamanist abbot of a temple near Bareilly had been buried alive at his own request.

The abbot, who was so old that legend put his years at 157, believed that his life's work was over and that to live on would be an affront to the deities. Pilgrims reported he lay down in a grave and that faithful followers, after performing ancient ceremonies, covered him with earth.

In deciding to destroy himself the abbot followed an age-old practice of his religion, which teaches that life is futile after usefulness has ceased. He had been in the temple more than fifty years.

TOPEKA STATE JOURNAL, January 8, 1976, Page 14,

Column 1

WOMAN REVIVED AFTER 'DEATH'

Tulsa, Okla. (AP) - A 27 year-old Tulsa woman is recovering in a hospital today, hours after a state medical examiner and four police officers decided she was dead.

Hospital officials said Linda Clark was treated for hypothermia, or low body temperature. They listed her in serious to critical condition.

Miss Clark had been declared dead by a medical examiner, and attendants were about to lift her into a hearse when Police Det. J.L.R. Brown spotted a faint pulse in the woman's neck.

She was revived by physicians at Hillcrest Medical Center.

The incident began before dawn Wednesday when someone telephoned the Oklahoma Highway Patrol headquarters here to report that Miss Clark, a student at Oklahoma State University, was despondent and had threatened to take her life.

Law enforcement agencies broadcast a description of her car. Off-duty city policeman Blaine Davis spotted the car on Interstate 44 east of Tulsa about 6 a.m. as he was driving home.

The woman was lying in the front seat of her car with her mouth and eyes open, her pupils dilated. Davis said the car doors were locked but he tried to awaken her by beating on the windows. She was still motionless when homicide detectives arrived.

The detectives decided not to pry open the car doors, fearing that high winds might blow away evidence that might help determine the cause of death.

Instead, they broke out the back window and a detective crawled inside to check for signs of life. She was checked for pulse, breath and other signs of life, but none was found and she was presumed to be dead.

One detective stayed in the auto while it was towed about 15 miles to the police garage downtown. A state medical examiner met the police at the garage and he pronounced her dead.

A hearse was called to the garage to take the woman to the morgue. As she was about to be loaded, Brown became suspicious.

"Despite the length of time since we had found her, the skin seemed to become more flexible at the garage. It made me suspicious, so I uncovered her head, felt for a pulse and got one," he said.

TOPEKA STATE JOURNAL, January 8, 1976, Page 14,
Column 1, WOMAN REVIVED AFTER 'DEATH' (continued)

"I hollered to the guys from the funeral home. They loaded her up and flew to the hospital."

Physicians at Hillcrest fought to raise her body temperature, which had falled nearly 28 degrees below the normal reading of 98.6. She had spent an estimated three hours in the car in temperatures as low as seven degrees above zero, officers said.

Authorities said the extreme cold could have slowed the woman's breathing and heartbeat to a point where her pulse was not detectable. One doctor said doctors and nurses were unable to find any signs of life at one point during Miss Clark's emergency treatment.

APPENDIX E

DEFINITIONS OF DEATH

Webster's Dictionary

"DEATH: 1: A permanent cessation of all vital functions: the end of life. 2: The cause or occasion of loss of life . . . 3: cap: The destroyer of life represented usually as a skeleton with a scythe. 4: The state of being dead . . . ." Webster's New Collegiate Dictionary, (Springfield: G. & C. Merriam Company, 1974), 291.

Black's Law Dictionary

"DEATH. The cessation of life; the ceasing to exist; defined by physicians as a total stoppage of the circulation of the blood, and a cessation of the animal and vital functions consequent thereon, such as respiration, pulsation, etc." Reference Chapter II, endnote 15. Henry Campbell Black, Black's Law Dictionary, Revised Fourth Edition, (St. Paul: West Publishing Company, 1968), 488.

Dorland's Medical Dictionary

"DEATH. The apparent extinction of life, as manifested by absence of heart beat and respiration. Somatic Death. Death of the whole body." Leslie Brainerd Arey, et al. (eds), Dorland's Illustrated Medical Dictionary, 23rd Edition, (Philadelphia: W. B. Saunders Co., 1957), 355.

The Harvard Criteria

"The ad hoc Committee of the Harvard Medical School has attempted to define irreversible coma or brain death in order to avoid controversy. The essential points are: (1) unreceptivity and unresponsivity, (2) no movements or breathing, (3) no reflexes, and (4) a flat electroencephalogram." Reference Chapter IV, endnote 40. C. T. Reilly, "The Diagnosis of Life and Death," Journal of the Medical Society - New Jersey, 66, November 1969, 602.

The Allegheny Protocol

"As ultimately defined by the Ad Hoc Committee after much deliberation, the 'Determination of Death' is as follows:

I. Documentation of Death
   A. Lack of responsiveness to internal and external environment.
   B. Absence of spontaneous breathing movements for three minutes, in absence of hypocarbia and while breathing room air.
   C. No muscular movements with generalized flaccidity and no evidence of postural activity or shivering.
   D. Reflexes and Responses
      1. Pupils fixed and dilated, non-reactive to strong light stimuli.
      2. Corneal reflexes absent.
      3. Supraorbital or other pressure response absent (both pain response and decerebrate posturing).
      4. Absence of snouting and sucking responses.
      5. No reflex response to upper airway stimulation.
      6. No reflex response to lower airway stimulation.
      7. No ocular response to ice water stimulation of inner ear.
      8. No deep tendon reflexes.
      9. No superficial reflexes.
      10. No plantar responses.
   E. Falling arterial pressure without support by drugs or other means.
   F. Isoelectric electroencephalogram (in absence of hypothermia, anesthetic agents and drug intoxication) recorded spontaneously and during auditory and tactile stimulation. Multiple recordings totalling at least thirty minutes, using a standard number of diagnostic electrodes with maximum allowable interelectrode distances.
   G. A note detailing these observations should be made in chart at time of first determination of irreversible coma.

II. Certification of Death
   A. Criteria A through F should be present for at least two hours before death is certified.
   B. Death should be certified and recorded in the patient's chart by two physicians other than the physicians of a potential organ recipient."

Reference Chapter IV, endnote 41. "Protocol for the Determination of Death Endorsed by the Allegheny County Ad Hoc Committee on Tissue Transplantation," Pennsylvania Medicine, 72, March 1969, 20.

Rosoff and Schwab Criteria

"Drs. Rosoff and Schwab of Massachusetts General Hospital recently advanced the following criteria after a 10-year study of comatose patients: (1) no hypothermia or anesthetic drug levels should be present (2) no reflexes, spontaneous breathing or muscle activity (3) flat EEG at gains of 10-uV/mm (standard gain) to 5uV/mm through a minimum of 30 minutes of recording (4) no clinical or EEG response to noise or pinch (5) repeat of these conditions 24 to 72 hours later. In addition, Dr. Schwab has volunteered the information that he insists on a trial which persists for 24 hours in which the patient exhibits no respiration, no reflexes of any type and a flat electroencephalogram." Reference Chapter IV, endnote 42. D. M. Borel, "Defining Death," General Practitioner, 39, January 1969, 172.

Declaration of Sydney

"The criteria for death were also debated at the World Medical Assembly Meeting in Australia in August 1968; the issue was resolved with a statement that may come to be known as the Declaration of Sydney, which, in part, is as follows: The determination of the time of death in most countries is the legal responsibility of the physician and should remain so . . . a compilation is that death is a gradual process at the cellular level, with tissues varying in their ability to withstand deprivation of oxygen . . . This determination will be based on clinical judgement supplemented if necessary by a number of diagnostic aids, of which the electroencephalograph is currently the most helpful. However, no single technological criterion is entirely satisfactory in the present state of medicine, nor can any one technologic procedure be substituted for the overall judgement of the physician." Reference Chapter IV, endnote 43. D. Silverman, et al., "Cerebral Death and the Electroencephalogram. Report of the Ad Hoc Committee of the American Electroencephalographic Society on EEG Criteria for Determination of Cerebral Death," Journal of the American Medical Association, 209, 8 September 1969, 1507.

Collins "Score Card"

"A Score Card for Death." "A scoring system to determine the end-point of a dying patient's life--frequently a dilemma in this era of organ transplants--has been developed by a Chicago medical specialist. If the patient is given a score of five or more, resuscitation is continued. A score below five represents impending or presumptive death, and a score of zero is conclusive death.

"In outlining the dying 'score card,' Dr. Vincent J. Collins, director of anesthesiology at Cook County Hospital, says it will allow progress in organ transplantation based on sound moral and ethical principles and will protect the potential donor from the slightest possibility of being a victim of homicide.

"'Such a scoring system also will help the physician to decide when efforts at resuscitation should be abandoned and thus permit a patient to die in peace and not in pieces,' says Dr. Collins.

"The decision as to when death has occurred in a patient has created widespread discussion in medical, theological and legal circles. Medical science is able to prolong breathing and heart action by extraordinary artificial means even though the dying patient may be in a vegetative state with no meaningful existence possible.

"The decision to maintain life or permit it to end naturally often comes into conflict with the desire to salvage another patient by transplanting an organ before it has deteriorated in the dying donor.

"The Collins scoring system depends on evaluating and assigning points to five physiological parameters--brain function, nerve reflexes, breathing function, circulatory function and heart action. Each is given a score of two, one or zero. Scoring determinations are made at least every 15 minutes over a period of one to six hours.

"In scoring brain function, for example, the patient would be given a mark of two if he were unconscious but still had spontaneous muscle movements. A score of one would be given if the movements became uncoordinated and occur only after strong stimulation. Brain wave activity makes up part of the score.

"If breathing is spontaneous and adequate, a score of two is given. When breathing requires assistance, a

score of one is assigned. When respiration is absent and drugs do not evoke a response, the score is zero.

"For a score of two in cardiac action, a spontaneous thrust over the chest wall must be present and a pulse detectable. The electrocardiograph (EKG) also must be normal. If the EKG pattern becomes bizarre, the heart sounds abnormal and the heart beat is absent, a score of one is assigned. A zero would mean no spontaneous heart and EKG electrical activity and that artificial circulation by massage was required." Reference Chapter IV, endnote 39. Arthur J. Snider, "A Score Card for Death," Science Digest, August 1970, 58.

EPILOG

FAMILY CIRCUS

"He can't hear us any more Jeffy he's dead"