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THE USS IOWA

Equivocating on Death

Autopsies are conducted in cases where a person has died under suspicious circumstances and legal considerations dictate that a detailed medical examination be performed on the body to determine the exact cause of death. It has also been suggested that surviving family members have autopsies performed on their loved ones who have died—even if health insurance does not pay—because results from the procedure may be of considerable benefit to biological relatives.[1] More specifically, autopsies can provide evidence of illnesses and other medical conditions that went undetected while the person was alive. Autopsy results may point to the need for screening or other preventive measures that surviving family members might need to take against serious medical conditions that have a strong genetic component.

Medical autopsies are intended to shed light on the cause of a person's death and to be of benefit not only to family members in their search for the cause of death of a loved one, but also to the legal system in its search for truth. But what if autopsy results merely add to the confusion arising from a suspicious death? The findings can often mislead investigators, who can misconstrue what really happened.

The psychological autopsy is a specialized procedure intended to provide insight into the mental state of a deceased person at the time of his or her death. The Federal Bureau of Investigation (FBI) has developed its own process called "equivocal death analysis," which is similar to a psychological

autopsy in that a determination is made as to whether a person died as a result of homicide, suicide, or accident. Determining the manner of a person's death may be particularly important in legal cases, such as settling life insurance claims, where a person's mental state at the time of death is a key factor.

Psychological autopsies—or equivocal death analyses—are considered by some to be controversial because they are based on procedures other than access to the person whose mental state is being assessed. After all, a dead person cannot be interviewed to determine what he or she was thinking at the time of death. Instead, examiners must rely on interviews with other people who knew the person, documents and records relating to the dead person's background, written materials (e.g., diaries), and other resources that can provide some insight into the person's mental state at the time of death.

One of the most infamous cases of equivocal death analysis arose from a tragic incident that occurred on April 19, 1989, aboard the battleship USS *Iowa*. During a U.S. Navy training exercise in the Caribbean Sea, one of the sixteen-inch gun turrets on the *Iowa* exploded and killed forty-seven crew members.[2] Immediately following the incident, the Navy began an intensive investigation into the cause of the explosion. This investigation ultimately led the Navy to seek out the services of agents at the FBI's Behavioral Science Unit at the National Center for the Analysis of Violent Crime in Quantico, Virginia. The Navy was looking for an equivocal death analysis on Petty Officer Clayton Hartwig, who was one of the crew members killed in the explosion.[3]

To fully appreciate the controversy that would soon emerge in the wake of the official version of the cause of the incident as set forth by the Navy, it is important to know something about the history of the *Iowa* and its service in the Navy. Originally designed in 1938, the *Iowa* was built to withstand very rough sea conditions. The battleship was equipped with three gun turrets that mounted guns with massive sixteen-inch-wide barrels. These weapons were capable of launching 2,700-pound bombs over a distance of several miles with considerable accuracy. The amount of explosive force needed to power these mammoth guns was immense.

After being used in both World War II and the Korean War, the *Iowa* was decommissioned and spent the next twenty-six years in storage.[4] In 1983, the *Iowa* and three other Navy ships were all refurbished and recommissioned during the Reagan administration in an effort to beef up the U.S. military. Although the *Iowa* was modernized with updated equipment, numerous problems plagued the ship, including escape hatches that had rusted shut, electrical circuits that would short out, outdated gunpowder that was considered dangerous, hydraulic leaks, and a bulky design that made maneuvering at sea difficult.[5]

In addition, many senior members of the *Iowa* crew felt increasing pressure to make the refurbished battleship compete effectively in modern warfare. For instance, when the *Iowa* competed in war games with naval forces from Britain, Canada, and West Germany, it was defeated soundly.[6] Therefore, the crew conducted dangerous experiments to boost the effectiveness of the ship's capabilities. One of these experiments, designed by a Master Chief aboard the *Iowa*, involved the mixing of "supercharged" propellant powder to increase the power behind the ship's explosive shells. While concerns were raised as to whether the ship's gun barrels could withstand the increased force from the volatile powder, the improvised shells were nevertheless used in test firings. In another experiment, an executive officer ordered a test involving the simultaneous firing of all six guns in the two forward turrets of the *Iowa*. The experiment placed several crew members in danger because there was a risk that the guns would turn to the side and shoot off the bow of the ship. Fortunately, the experiment did not cause any serious injuries or damage. Several crew members had expressed concern that they were sailing aboard a hazardous ship. On one occasion several senior crew members were reported to have discussed suicide because of the pressure they felt to take risks that would increase the efficiency of the ship.

In the months leading up to the explosion, several crew members expressed fear and concern to family members that the *Iowa* was unsafe. Among the issues later cited were that old gunpowder could easily ignite, experimental test firings of the sixteen-inch guns sometimes violated safety standards, and untrained personnel were often called upon to man the huge guns.[7] The gun turrets were described as extremely dangerous and some crew members felt one mishap could ignite the powder and create a fiery deathtrap.

Therefore, when the *Iowa* engaged in a routine training exercise on the morning of April 19, 1989, there were many factors that could have contributed to the tragedy that ensued. During preparations for firing the main guns aboard the *Iowa*, senior crew members who were monitoring telephone conversations with crew members inside the gun turrets heard someone yell, "Oh, my God! The powder is smoldering."[8] At 9:53 A.M., the center gun of turret number two exploded, sending a fireball of between 2,500 and 3,000 degrees Fahrenheit throughout the decks surrounding the turret. The fire triggered additional explosions when bags of explosive powder ignited and billowing clouds of deadly gases erupted. In all, forty-seven crew members were killed by the blast and several others were injured.

As the fires caused by the explosion continued to burn, many of the ship's 1,550 surviving crew worked furiously to avoid injury from secondary explosions, extinguish fires, and recover the bodies of dead and injured shipmates. A small group of crew members took advantage of the ensuing chaos by stealing money, jewelry, and other valuables from the lockers of those who had perished in the explosion and other crew members who were working to minimize damage and keep the ship afloat.[9]

The investigation into the cause of the explosion was hampered by a number of factors, not the least of which was the fact that those witnesses who directly observed the cause of the tragedy had died in the blast. Responsibility for investigating the cause of the mishap was given to Rear Admiral Richard Milligan. Although Naval regulations and the Uniform Code of Military Justice prohibited investigations such as the one undertaken by Admiral Milligan to be influenced by higher command, the USS *Iowa* investigation was "closely scrutinized" and "micromanaged" from a higher level within the Pentagon.[10] Following a five-month investigation, the Navy issued its official finding on September 7, 1989. Accidental causes of the explosion were all ruled out, including unstable gunpowder, friction, electrostatic charges, or negligence on the part of crew members.[11] The document concluded that Second Class Gunner's Mate Clayton Hartwig "'most probably' killed himself and his shipmates because he was 'a loner, a man of low self-esteem who talked of dying in an explosion in the line of duty and being buried at Arlington National Cemetary.'"[12]

The Navy relied heavily on an equivocal death analysis conducted by two experienced FBI agents—Richard Ault and Roy Hazelwood—who had extensive experience in criminal investigative analysis, behavioral and psychological profiling, and equivocal death analysis.

The initial investigation of the explosion led agents of the Naval Investigative Service (NIS) to suspect that Hartwig had intentionally caused the explosion. The NIS wanted to develop a psychological autopsy of the petty officer's state of mind. However, there were concerns that if the autopsy was performed by the Navy's own investigative service, it might not be taken seriously.[13] As a result, an outside agency was sought and the FBI was given the responsibility of piecing together Hartwig's possible motive.

Ault and Hazelwood relied on a number of documents, materials, and interview transcripts to formulate their assessment of Hartwig's state of mind at the time of the explosion. However, the focus of the evaluation appeared to be dictated by information the FBI agents were given by the Navy. Hazelwood and Ault were apparently told that the explosion was not

an accident; they were only to determine if there was convincing evidence to conclude whether Hartwig committed suicide, homicide, or a combined suicide/homicide.[14]

Among the key pieces of evidence were a pair of books found among Hartwig's possessions: *Getting Even: The Complete Book of Dirty Tricks* and a military manual called *Improvised Munitions Handbook*.[15] Other evidence indicated that Hartwig had a long history of interest in explosives and weapons and was a loner who had difficulties in his relationships. In Naval records, Hartwig was described as an individual who was immature, lacked leadership skills, and was not particularly assertive. Letters that Hartwig had written to other people suggested he was egocentric and self-centered. At the time of his death, Hartwig had almost no money, very few civilian clothes, and a run-down vehicle—all signs that he was possibly withdrawn and depressed at the time of his death.

One important aspect of Hartwig's life that emerged in the equivocal death analysis was that he had formed a close friendship with Petty Officer Kendall Truitt. Long before the explosion occurred, rumors had circulated around the *Iowa* that Hartwig and Truitt were homosexual lovers, but the Navy investigated the allegations and ruled them to be unfounded;[16] still, the rumors persisted. When Truitt started dating a girl, the friendship between the two crew members cooled. In the wake of Hartwig's death, it was discovered that Truitt had been named as the beneficiary of a $100,000 life insurance policy Hartwig had taken out on his own life.[17]

The fifteen-page equivocal death analysis report produced by Ault and Hazelwood provided a psychological portrait of Hartwig as an emotionally unstable individual. Various factors were expanded upon to support the theory that Hartwig had committed suicide. The equivocal death analysis concluded that Hartwig had low self-esteem because he had been repeatedly rejected by other people and had only a handful of close friends.[18]

One piece of evidence that was considered significant in pointing to Hartwig's psychological instability was a poem entitled "Disposable Heroes," which consisted of rewritten lyrics from music by the heavy metal band Metallica. The lyrics were written on a paper posted in turret number two aboard the *Iowa* and ended with the line: "Left to die alone in a sixteen-inch gun."[19] Although the author of the poem was James White, another gunner's mate aboard the ship, investigators initially believed that Hartwig had written the poem. Although forensic investigators at the FBI crime lab compared "Disposable Heroes" with letters Hartwig had written to friends, the analysis failed to identify Hartwig as the author.[20] Still, the words in the poem fig-

ured prominently in the equivocal death analysis. Hazelwood would later testify before the House Armed Services Subcommittee on Investigations that whether or not Hartwig actually wrote the poem was "immaterial."[21]

The psychological portrait of Hartwig that Ault and Hazelwood painted was the epitome of an emotionally unstable, suicidal person. They concluded that he was a loner who was dissatisfied with his life and had a number of reasons to kill himself: Suicide would mean avoiding having a number of lies he had told to others revealed and exacting a kind of revenge for having been disciplined and having his rank reduced.[22] Hartwig was described as an immature individual who held grudges, was under significant stress, and had serious suicidal ideation. He had "the knowledge, ability and opportunity to ignite the powder in the same fashion that occurred on the USS *Iowa*" the equivocal death analysis concluded.[23]

The theory was that Hartwig may have committed suicide by deliberately detonating the explosion inside the gun turret because he was rejected by Truitt. The final conclusion that Hartwig had intentionally caused the explosion aboard the *Iowa* created a storm of controversy. Hartwig's sister mounted a campaign to clear her brother's name, Truitt hired an attorney and brought suit against the Navy and the media alleging that his life and reputation had been harmed by the investigation, and the equivocal death analysis performed by Ault and Hazelwood was targeted by Congress and the media as highly speculative and based on faulty scientific principles.

The House Armed Services Subcommittee on Investigations conducted a formal hearing into the validity of the Navy's investigation of the USS *Iowa* tragedy. House Representative Nick Mavroules, a Democrat from Massachusetts who chaired the House Subcommittee on Investigations, outlined the key focus of the Congressional inquiry into the Navy's findings: "Was Clayton Hartwig a suicidal murderer? Was he capable of such a heinous act? The FBI says he was. The NIS psychologist says he might have been and the independent psychologists contacted by this committee generally agree that he was not. Given the serious defects in the Navy investigation that we have uncovered in our previous hearings, today's testimony becomes even more crucial to the Navy's case against Hartwig."[24]

The "serious defects" uncovered by the House Subcommittee to which Mavroules was referring involved a scientific analysis of the evidence by professionals at Sandia National Laboratories who worked on the Navy's investigation into the cause of the explosion. Scientists from the laboratory had been retained by the Senate Armed Services Committee to examine the findings. Results of the analyses pointed strongly to an accidental cause of the explosion.[25] If the cause was accidental, then the House Subcommittee believed

that the equivocal death analysis conducted by Ault and Hazelwood deserved careful scrutiny.

Before the two FBI agents testified at the House Subcommittee hearing on December 21, 1989, the Assistant Director of Training at the FBI Academy, Anthony Daniels, provided an overview of services provided by the National Center for the Analysis of Violent Crime (NCAVC) at the FBI's training academy. The NCAVC was developed to provide investigative support to federal, state, and local law enforcement agencies using criminal investigative analyses.[26] Among the various types of analysis offered are criminal profiling, where crime scene and other forensic evidence is used to provide a psychological analysis of an unknown offender that can be used to direct a criminal investigation. The NCAVC also offers equivocal death analysis, which Daniels described as the investigation of "a death whose manner, whether it be homicide, suicide or accident, has not been resolved through normal investigative activities."[27]

Ault testified first and described how an equivocal death analysis begins with an examination of all available evidence, including witness statements, procedures and protocols, autopsy reports, and other relevant materials to arrive at a conclusion. Hazelwood then testified about the details of their analysis by noting the various hypotheses that were considered and the evidence that supported their conclusion that Hartwig intentionally caused the blast. The two FBI agents were challenged by one of the House Subcommittee members, Representative Les Aspin, on the certainty of their opinion.

Aspin asked Hazelwood, "How definitive do you have your judgments in these cases? [*sic*] . . . Do you always—are you always as definitive as you are in this case?"[28] Hazelwood replied, "Yes, sir." The definitive conclusion contained in the FBI's equivocal death analysis became a point of contention raised by other experts who were asked to review the findings. In addition, Subcommittee Chair Mavroules challenged the reliability and validity of equivocal death analysis, to which Ault responded with some apparent irritation: "I certainly appreciate that wonderful academic approach to a very practical problem. It's typical of what we find when we see people who have not had the experience of investigating, either crime scenes, victims, criminals, and so forth, in active, ongoing situations. . . . I can say that we have been successful. We don't keep academic—or we don't keep research records with great internal validity because we're simply not oriented that way."[29]

The House Armed Services Subcommittee on Investigations not only cross-examined the individuals who conducted the equivocal death analysis but also solicited help from the American Psychological Association (APA). In particular, the Subcommittee asked the APA to provide assistance in assem-

bling a panel of experts to conduct a peer review of the equivocal death analysis. Twelve psychologists were identified who were considered to be experts in fields of psychology that were relevant to the investigation, including adolescent and adult development, suicide, psychopathology, forensic psychology, risk assessment of violent behavior, and personality assessment.[30] In addition, two psychiatrists were chosen by the House Armed Services Subcommittee.

The panel of fourteen experts addressed four basic issues: (1) How valid was the Navy's conclusion that Hartwig had intentionally caused the explosion? (2) Were the materials used to develop the psychological profile of Hartwig valuable and was the investigation exhaustive? (3) What were Hartwig's motives, was he suicidal, how likely was it that he committed the act, and what alternative conclusions might be drawn from the material reviewed on Hartwig's psychological functioning? (4) What are the limitations of evaluating suicidal tendencies and behaviors after a person has died?[31] Each of the experts prepared a written report independent of the others, but only six of them ended up testifying before the House Armed Services Committee on the same day that Ault and Hazelwood testified.

Although four of the professionals who reviewed the FBI's findings felt the suicide theory about Hartwig's motives was plausible, ten of fourteen professional psychologists contradicted the equivocal death analysis, and all fourteen reviewers criticized the technique as too speculative.[32] A nationally recognized psychiatrist, Dr. Douglas Jacobs of Harvard Medical School, also concluded that the evidence did not support a conclusion that Hartwig intentionally caused the explosion. Dr. Jacobs faulted the FBI for not conducting its own set of interviews. Dr. Roger L. Greene, a psychologist and expert in personality assessment who is on the faculty of the psychology department at Texas Tech University, concluded that there were "a number of potential problems with the logical links between the evidence and the conclusions drawn by the FBI equivocal death analysis."[33]

On the other hand, a forensic psychologist who served as one of the peer reviewers for the House Armed Services Subcommittee, Dr. Elliott Silverstein, wrote that the conclusions of the FBI equivocal death analysis were "plausible" provided that the evidence was true and accurate.[34] Dr. Alan Berman, a nationally recognized expert on suicide, viewed the finding that Hartwig killed himself in the explosion as "most reasonable."[35]

Although most of the professionals reviewing the FBI's equivocal death analysis were generally critical and contradicted the findings, there was considerable diversity among the various opinions. With well over a dozen different experts weighing in with their own opinions about the cause of the explosion aboard the USS *Iowa* and the adequacy of the equivocal death analysis

conducted by the FBI, the House Armed Services Subcommittee on Investigations was confronted not with a "battle of the experts" but with a "war of the experts." Could any sense be made of the various opinions as to the reliability and validity of the various conclusions about the analysis of Hartwig's motives?

A team of psychologists from the Department of Law and Mental Health at Florida Mental Health Institute at the University of South Florida analyzed each of the opinions offered by the fourteen panelists who reviewed the FBI's equivocal death analysis.[36] The experts generally agreed that psychological autopsies could be of some use, but there was considerable diversity in the experts' opinions as to the specific methods used by the FBI examiners and the conclusions they reached about Hartwig's guilt in causing the explosion. Although there was general agreement that Hartwig was emotionally unstable, the evaluation of the FBI experts tended to be more negative and critical of the gunner's mate. Despite some of these similarities between the FBI agents and the APA's panel of experts, on the whole the experts were more tentative and equivocal in their conclusion as to whether Hartwig was guilty of causing the explosion aboard the *Iowa*.

Norman Poythress, Randy Otto, Jack Darkes, and Laura Starr, researchers from the University of South Florida who summarized the findings of the APA panel of experts, concluded that equivocal death analysis should not be used in legal settings.[37] They based their conclusion primarily on the fact that very little research existed to support the reliability and validity of psychological evaluation methods that attempt to reconstruct a person's past mental state using indirect methods of assessment when the person is not available for direct examination. Poythress and his colleagues also noted that if questionable methods such as equivocal death analysis were allowed in legal and administrative proceedings, other questionable methods might soon follow, such as "equivocal burglary analysis" or "equivocal kidnapping analysis."[38] Furthermore, Poythress and his colleagues suggested that if mental health professionals offered their services in psychological autopsies and equivocal death analyses, they should refrain from offering conclusive statements about the cause of a person's death. Furthermore, experts should avoid misleading courts, administrative committees, or other decision-making bodies about the reliability or accuracy of these equivocal methods of evaluation.

In fairness to the FBI agents conducting the equivocal death analysis, they had the challenging task of reconstructing Hartwig's mental state without the benefit of speaking to him directly. Moreover, the focus of their examination was dictated by the Navy's firm conclusion that the explosion was not an accident. Much of the data used to formulate the equivocal death analysis

was provided by the Navy, which had already concluded that Hartwig was the culprit. These issues, along with the generally speculative nature of psychological autopsies, created a very difficult challenge for any forensic investigator. Furthermore, Ault and Hazelwood approached their evaluation from the perspective of law enforcement officers with special training in the behavioral sciences, rather than mental health professionals who were providing assistance to the legal system. This distinction between the perspective of law enforcement officers and mental health professionals is significant because the professional demands and needs of police officers and mental health professionals are very different. Law enforcement officers approach their work with expediency; they need to solve crimes and identify suspects to prevent crimes from occurring and to make sure justice is administered quickly. Mental health professionals, on the other hand, are trained to evaluate and test hypotheses and offer only those conclusions that can be supported by scientific data. Sometimes mental health professionals can provide only tentative conclusions that do not always satisfy the needs of courts or fact-finding committees that need to render definitive rulings.

The congressional investigation into the Navy's report of the explosion aboard the USS *Iowa* found there was insufficient evidence to conclude Hartwig was the cause of the fatal blast.[39] Kendall Truitt endured the stress of having the Navy read his mail and tap his phone during the course of their investigation.[40] Truitt got married four months after the explosion, but divorced two years later because of the pressure and scrutiny he experienced. He left the Navy and is now a civilian.

As for Hartwig's family, they received vindication in October 1991 when the Navy formally repudiated its conclusion that Hartwig had intentionally caused the explosion and issued a formal apology to Hartwig's family. Moreover, a review of the investigation into the explosion revealed that critical physical evidence had been lost or mishandled. When a former U.S. Secretary of the Navy, Admiral Frank Kelso, testified during a deposition in a lawsuit brought by Hartwig's family, he admitted that the Navy found Hartwig was not a homosexual. Kelso also said he "rejected the FBI's 'equivocal death analysis'" and that "sabotage had been a theory, not a proven fact."[41] The family of Clayton Hartwig received a formal apology when Kelso stated publicly, "I extend my sincere regrets to the family of Hartwig. We're sorry Clayton Hartwig was accused of this."[42] However, Kelso also added that there were still no clear answers as to what caused the explosion aboard the battleship.

Roy Hazelwood stood by his analysis. "I'm as convinced today as I was then that we were correct," he later stated.[43] Hazelwood noted further that within days of Admiral Kelso's public apology to the Hartwig family, the

Naval Sea System Command issued a final opinion that in the absence of any evidence of an accident, the cause of the explosion was an intentional act.[44]

The explosion aboard the USS *Iowa*, and the ensuing investigation into its cause, resulted in the application of a controversial technique—psychological autopsy, or equivocal death analysis—and considerable confusion about what actually caused the tragedy. In this particular case, the result was an official report issued by the Navy that subsequently led to intensive scrutiny by the media, lawsuits, and a formal apology to the family of one of the men who was killed in the explosion. A number of military careers were adversely impacted or ruined by the investigation.[45] As for the *Iowa* itself, the World War II battleship was officially retired from Naval service in October 1990.

The case raises significant questions about the reliability and validity of psychological assessment methods like equivocal death analysis and psychological autopsy. In the years since the *Iowa* tragedy, research has still not answered all of the questions that were raised by the case. Certainly, more research will help to establish what works and what fails when mental health professionals attempt to reconstruct the past mental state of a person at the time of his or her death. The lack of research has therefore contributed to psychological autopsy and equivocal death analysis being kept outside the realm of generally accepted methods of evaluation by some members of the psychological profession, even though several courts have embraced psychological autopsies as helpful in resolving legal disputes.