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Once More Unto the Breech: The Firearms Evidence in the Sacco and Vanzetti Case Revisited: Part II

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ABSTRACT: This paper is the second and concluding segment of a report and analysis of a 1983 reevaluation of the vast array of firearms evidence at the trial of Sacco and Vanzetti. As a backdrop to Part II, the background of the crime and the firearms evidence introduced at the trial of Sacco and Vanzetti was portrayed in Part I. This part seeks to sort out the charges and countercharges of governmental misconduct or just plain negligence in the care and custody of the firearms evidence. The most often bruited claim that Bullet III (the mortal bullet) was somehow switched or tampered with is analyzed from every conceivable perspective. The author finds that the evidence and the arguments militate against the bullet switching hypothesis. A coda is attached which demonstrates, through the firearms evidence reevaluation, that Sacco can be linked to the crime, and even to the crime scene, through the cartridges found in his possession on his arrest.

KEYWORDS: jurisprudence, Sacco and Vanzetti case, physical evidence, ballistics

Supposititious Evidence Allegation

Aside from a straight forward reanalysis of the firearms evidence at the Sacco and Vanzetti trial, the Select Committee was asked to probe another matter, both of a more potentially explosive nature and of a much more elusive character. As the Committee's report bared the issue, "the authenticity of Exhibit #18 (mortal Bullet III) would be determined" [137]. But the genuineness of Bullet III was but one among many claims that the firearms evidence, as well as other physical evidence, had been tampered with, altered, or manufactured to suit the needs of the prosecution.

Embarrassing suggestions of governmental misconduct in connection with the evidence in the Sacco and Vanzetti case have been swirling about at least since the filing of the many motions subsequent to the convictions of Sacco and Vanzetti. But these intimations became rather vitriolic accusations during the Lowell Committee hearings in 1927 and such assertions have continued unabated ever since that time. Consequently, it would seem that the Select Committee, even though it might ultimately find itself to be chasing a will-o'-the-wisp, was not frivolously or even merely in a muckraking spirit asked to investigate one of these perturbing charges of possible governmental malfeasance.

Needless to say, there are those persons, of a peculiarly skeptical turn of mind, who view

The author tenders no apology for his refusal throughout this paper to depersonalize the Sacco and Vanzetti case to Sacco-Vanzetti, as has been much the fashion. Received for publication 8 June 1985; accepted for publication 10 July 1985.

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the governmental handling of every emotion-laden criminal cases with a palsied heart and a jaundiced eye, searching every nook and cranny for evidence of governmental misbehavior. Such persons have, as Tennyson reminds us [138], an “eye, to which all order festers, all things here are out of joint.”

The trial of Bruno Richard Hauptmann, for example, for the kidnapping of Charles Augustus Lindbergh, Jr. is a particularly painful illustration of this penchant for scandalmongering. In a 1982 *Life Magazine* article [139], Tom Zito strongly implies that the wood identification matching, which was so important to the prosecution’s theory of Hauptmann’s guilt as well as the disproof of Hauptmann’s alibi, was sullied by fabrication on the part of the New Jersey state authorities.

Yet, it is fair to say that law enforcement authorities are not unknown to resort to more nefarious means than stratagem to achieve their desired goals. One need not be a devotee of Joseph Wambaugh’s police procedurals to realize that criminal law enforcement is not always conducted in the sanctified atmosphere of a Tibetan monastery. Putting documented instances of coerced confessions, even from innocent persons, to one side, it is ruefully the case that fingerprints have too often been proved to have been forged by law enforcement personnel and that grave doubts of the authenticity of other physical evidence, including firearms evidence, have occasionally been found to exist [140]. Even prosecution expert Charles Van Amburgh himself admitted some years later that “(i)t appears that the theft, substitution, or defacement of exhibits was and is a sharp trick resorted to at times” [141].

On the other hand, baseless charges of tampering with evidence are demonstrably easy to make but devilishly difficult to rebut. In cases of items of physical evidence that have no distinct identify of their own, like controlled substances (drugs), the temptation is overpowering to allege that the police, or someone, exchanged a harmless substance for a prohibited one. Hairs and fibers carry a similar propensity. The hair or fiber said to have been recovered from the crime scene might, in fact, be substituted for a hair or fiber taken upon a search of the accused or from objects under his control. Even nondeliberate mix-ups of evidence are not unknown to occur. Such an unintentional, but careless, act is said to have caused a minor donnybrook for Col. Calvin Goddard when he reported what turned out to be a misidentification in the Cleveland murder trial of Milazzo [142].

The Chain of Custody

By and large, allegations of altered or manufactured evidence can be met and bested by strict adherence to fixed and prudently designed rules to insure an unbroken chain of custody. If evidence is marked when it is recovered in such a way as to give it a unique identity, if it is packaged so that it is reasonably beyond the reach of fingers with a careless or a criminal itch, and if its handling is accounted for by each individual through whose hands it passes en route to and within the laboratory, the opportunity for some miscreant to play hob with it will be so remote as to make charges of misdealing almost specious.

However, the chain of custody of the physical evidence in Sacco and Vanzetti was nowhere near as intact as today’s practices prescribe. We know for a fact that the clothing worn by the deceased victims, Parmenter and Berardelli, which had been pierced by the bullets, has not been preserved [143]. Would that it had been so that examinations to approximate the muzzle-to-garment distance might be conducted as well as tests seeking trace elements of the bullets which struck them. The bullets and cartridge cases that were test-fired with the Sacco .32 Colt at Lowell, MA and which tests were witnessed and conducted by the defense, also have vanished. Indeed, even at the trial, defense expert Burns admitted that one of the Lowell test-fires could not be accounted for [144]. This loss is sorely felt for its presence would provide another parameter of confirmation for the firearms evidence that is extant.

Since the Trial—Even as to the firearms evidence submitted for reexamination to the Select Committee, there is serious cause for concern. Suppose some or all of this evidence is not

that which was introduced at the trial more than 60 years ago. If the possibility that the evidence as we now have it has been altered or, worse, substituted, is a real one, then the entire work of the Select Committee was for naught. Or is this just another wild speculation from a case seemingly mired in the most farflung conjectures?

We know that Captain Proctor was the custodian of the firearms evidence until the trial commenced in Dedham [31]. We know further that the firearms evidence was reasonably available (to defense expert Albert Hamilton, for example) and kept to some inexplicable extent intact from the trial through the Lowell Committee hearings in 1927. But from 1927 to 1961 the whereabouts and the handling of this critical physical evidence is clouded in some very troubling and very considerable doubt.

According to Russell, as a result of his determined persistence during 1959 and 1960, he liberated the firearms evidence from the private possession of the then retired son of Captain Van Amburgh [136]. Russell surmises that the elder Van Amburgh had closeted the items and then bequeathed his guardianship over them to his son, also a ballistics expert. When recovered and first viewed by Russell, he described the exhibits as "relatively free from corrosion, although the clips that fastened them in their triple envelopes (does he mean 'triple-sealed?') had rusted into the paper" [83, p. 108]. "Apparently," Russell surmises, "they had not been disturbed since 1927." Later, in his book [145], Russell fleshes out the details of the discovery of the exhibits which he outlined in his earlier article. Now we learn that Bob McLean, a reporter with the *Boston Globe*, is said to have recounted that Massachusetts Public Safety Commissioner J. Henry Guguen, upon the surfacing of the exhibits in 1960 or thereabouts, had said that "the stuff was in a big package that looked as if it had not been opened in years" [145, p. 316]. We also find Russell describing his first encounter with the exhibits, then in the custody of Lt. Collins of the Massachusetts State Police Ballistics Laboratory, as seeing them "spread out on Lieutenant Collins desk next to a china ashtray in the shape of a revolver." Strangely, Russell's recital in his book does not tell us of the rusted clips or, indeed, how he knew in his earlier article that the exhibits "had not been disturbed since 1927."

These are not flyspecking concerns for among the articles of physical evidence submitted to the Select Committee were items test-fired from a .32 caliber weapon in 1944. These mysterious finds were discovered in envelopes marked "fired 11-28-44." The envelopes' contents included three spent cartridge cases with headstamp markings REM-UMC .32—1.65 m/m and one .32 caliber auto full metal-jacketed bullet with cannelure with class characteristics showing six lands and grooves with a left twist. Presumptively, these items had been fired from the Sacco Colt .32. The Select Committee confirmed this hypothesis since its side-by-side comparison of the striae from the 1944 test-fired bullet and a 1983 bullet, known to have been discharged from the Sacco Colt .32, revealed that both bullets were fired from the same weapon, namely, the Sacco Colt .32 [146].

Photographic Exhibit WWW, therefore, establishes that Shelley Braverman was right, at least on this occasion, when he wrote in a 1963 article [147] that these 1944 test-firings prove the envelopes containing the firearms evidence had been opened between 1927 and 1961. Thus, he finds "the history of the evidence" an inadequate basis "for valid scientific reappraisal" in view of the lack of an essential link in the chain of custody. Lt. Collins too apparently shared the same fears for he was chary of subscribing either to a reanalysis of the exhibits or to an endorsement of the results of such a reexamination. As Russell recalls Lt. Collins skepticism, he is reported to have said:

I don't know whether you could prove anything with them now or not. I wouldn't touch them myself. No matter what tests might show, somebody would be bound to accuse me of cooking the results [148].

Yet, at the continued urging of Russell, such a reexamination of the firearms exhibits was conducted in 1961 under the supervision of Frank Jury and Jac Weller. In an unpublished

two-page affidavit from Jury and Weller dated 24 Oct. 1961 and notarized on 30 Oct. 1961, the affiants maintain that “the evidence which we examined was that originally introduced in the Sacco-Vanzetti case.” The only support Jury and Weller tender for this submission is that the “present evidence in the hands of the Massachusetts State Police is that shown and described “in volume IV of *The Sacco-Vanzetti Case* at pages 3732E to 3732L, published by The Henry Holt Company in 1928.” But Jury and Weller’s firm conclusion is a much too convenient and cavalier one that cannot withstand close scrutiny. The photographs in the volume to which they refer were taken at the behest of Albert H. Hamilton, a defense expert who has been quite reliably proved accountable for a switching of the barrel in the Sacco Colt for another, newer one of Colt manufacture, all quite brazenly perpetrated in open court in the unsuspecting presence of Judge Thayer and Prosecutor Williams [149]. Jury and Weller, therefore, ask us to believe that the Hamilton photographs, which were not even photomicrographs, were credible representations of the actual trial exhibits when Hamilton himself has been rightly pilloried for his own lack of credibility, if not his blatant mendacity.

Two further salvos, neither of which came close to the mark, have been aimed at the Jury and Weller report in a rather desperate effort to demolish it. Both of these were fired off by Herbert B. Ehrmann, a posttrial attorney for Sacco and Vanzetti and later their champion [150]. According to Ehrmann [151], Jury and Weller were either inept or biased, for in their 1957 book, with Hatcher [152], which book is still now in its second printing, an authoritative text in the field of firearms literature, they had “already published their joint opinion that bullet III had been fired in Sacco’s pistol even though they had made no prior examination of the bullets and shells.” If such were the case, Jury and Weller deserve to be pinioned. But a review of their book indicates that they did not offer their own independent and expert opinion on the origin of the bullets and shells in Sacco and Vanzetti in their 1957 volume. Their only reference to the case appears in an appendix, to which Mr. Ehrmann refers the reader.

The statement to which Ehrmann took such vigorous exception is apparently that which appears in the next to last paragraph of Hatcher, Jury, and Weller’s discussion of the South Braintree crime. In their words, “later examination of the pertinent evidence, after the adaptation of the comparison microscope to bullet examination and modern procedures in connection with cartridge case examination, showed that there can be no doubt that Sacco’s pistol fired one cartridge case and one of the fatal bullets” [152]. Nowhere in this conclusion is there even the slightest suggestion, much less the assertion, of Jury and Weller’s claim to parentage of it. It is altogether likely that Jury and Weller had in mind Calvin Goddard’s 1927 reevaluation of the firearms evidence since they include photographs attributed to Goddard which confirm that one of the Fraher cartridge cases was fired in Sacco’s Colt .32. Ehrmann, therefore, most unjustifiably denigrates, by innuendo, Jury and Weller’s 1961 report as devoid of professional objectivity.

Ehrmann tells us further that much of the firearms evidence was, in 1961, corroded by deposits of rust, which would make “any definitive examination extremely difficult, if not impossible” [153]. In his book, Ehrmann cites a personal interview with Shelley Braverman as his authority for this proposition [154]. Although Jury and Weller’s report refers to corrosion on the three non-Winchester cartridge cases recovered by Bostock at the crime scene, nothing is said about the condition of the other firearms evidence, including the barrel of the Sacco Colt .32. It is to Francis Russell that Ehrmann looks for support of his assertion that the Colt was so rusted that it took Colonel Jury “two shots to clear the rust from the barrel” [155].

In spite of the dilemma that rust deposits concededly create for the firearms examiner, they do not necessarily and in all cases prevent the expert from finding and matching the accidental striae impressed on a bullet by the bore of a weapon and on the cartridge case by the breechblock. To Jury and Weller, we can surmise, that difficulty was simply not insuperable, nor is an identification in the face of corrosion (which can be removed) so unique in the

annals of firearms identification as to be incredible, nothing else being shown. The 1983 Select Committee's examination of the barrel of the Colt .32 disclosed "pitting and rust oxidation" [156]. In accord with accepted practice among firearms examiners, the bore was cleaned, in this instance with "a dry cloth patch" [156] before any test-firing was undertaken. Some situations may occur where oxidation and corrosion will entirely preclude any identification effort. The condition of the bore of the Sacco Colt .32 was not such an exceptional case.

Up to the Trial in 1921—Even presupposing that the firearms evidence available in 1983 was that which was introduced at the Sacco and Vanzetti trial in 1921, altered only by the effects of oxidation and the changes wrought by the numerous and uncontrolled test-firings of the Sacco Colt .32, an assumption which one must be most timorous or uncritical to make, still, was the evidence at the trial the evidence gathered from the South Braintree crime scene, the bodies of Parmenter and Berardelli and, upon the arrest of Sacco and Vanzetti, from their respective persons?

So much in the Sacco and Vanzetti case is a matter of hindsight. Why were the exhibits not, in the regular course and in a systematic way, marked, catalogued, and cozened by the police and prosecutors? Why were the jurors, and seemingly anyone else who wished, permitted to touch and, to that extent, to efface the telltale markings on the bullets and cartridge cases? Such a derring-do attitude towards such important evidence cannot be facilely excused as a creature of the rudimentary understanding of the times. Certainly we now know more about the needs and processes for the preservation of evidence than was known in the 1920s. But that physical evidence is subject to the effects of mishandling and, concomitantly, to the snares of tampering was not beyond the purview of comprehension in 1920. Indeed, it was plain as a pikestaff, even in the Sacco and Vanzetti trial itself, that manipulations in the evidence were not merely on the order of the remotest fortuity. The prosecution had been forewarned, if such a foreshadowing could be expected to cause it responsibly to tighten the security over the exhibits, by the grotesque shotshell opening occurrence in the course of Vanzetti's prior trial at Plymouth for an earlier attempted armed robbery at Bridgewater, MA [157].

The proper marking of firearms exhibits has become, if not a science, at least an art unto itself. The layperson might think that any mark in any location on any item of evidence will suffice since the mark is to a lay person but a mnemonic device to jog the memory of the marker. Not so. Marking can make order out of chaos, guarantee the authenticity of the evidentiary item, and preserve it from unintentional defacement, which might compromise a laboratory examination of the article by a firearms expert.

The Federal Bureau of Investigation [158] has recommended cautionary instructions of a most general character for the marking of bullets, cartridge cases, and weapons. A much more extensive treatment of the subject appears in a 1973 *Wisconsin Department of Justice Handbook* [159]. In its suggestions for marking firearms evidence, which suggestions first appeared in the *American Rifleman* [160], the Wisconsin handbook diagrams and illustrates the proper marking techniques which might include the initials of the recovering person (cursive rather than block letters are preferred), the date of receipt, and the numerical order in which loaded rounds were retrieved from a weapon so as to memorialize the proper chamber position of each round. Instructions are given for marking the tagging of weapons, which directions include a caution to be alert to mark easily interchangeable parts. Exclusive reliance upon a weapon's serial number is deemed unacceptable.

But, more's the pity, hardly any of these very salutary admonitions were observed in preparation for either the Plymouth or Dedham trials. By a quirk of what may have been only fate, the only identifying marks placed on any of the ammunition, fired or unfired, was scribed, not by the police, but by medical personnel. In the Bridgewater holdup attempt, Dr. John Murphy testified that he picked up an expended 12-gauge shotshell from the street where the robbery attempt had occurred a short time before. Dr. Murphy marked the shell

and later identified it at the Plymouth trial of Vanzetti from the “little mark” he had made on it [70].

And in the South Braintree robbery-murders, the four bullets from which Berardelli succumbed were marked, on the lead open base of each, by the autopsy surgeon, Dr. George Burgess Magrath. The bullets were identified in the order of their removal from the body of Berardelli by individual slash marks, namely, I, II, III, and IIII. Among the landslide of myths and mistakes in the Sacco and Vanzetti case, one related to the marks Dr. Magrath put on the four Berardelli bullets. Some have said that Dr. Magrath used Roman numerals throughout, so that bullet four was marked IV, not IIII [147]. However, inspection of the base of this bullet clearly demonstrates that four individual lines were placed on it. Why Dr. Magrath chose to eschew the Roman numerals IV is as much a mystery and as antiquarian in importance as why clocks continue to use IIII to mark the hour of four rather than IV [161].

The two Parmenter bullets, also marked on the base, show an X and a 5, respectively. Neither the date of marking nor the name of the person who did so was added. We know, however, from the Dedham trial transcript that Dr. Nathaniel S. Hunting testified he put the “X” on the one bullet and that Dr. Frederick Ellis Jones owned up to having placed the number “5” on the other. The circumstances under which these marks were made were vastly different.

Dr. Hunting removed the bullet he marked, which he apparently marked contemporaneously with its removal, while performing surgery on Parmenter at the Quincy City Hospital on 15 April 1920 in a vain but heroic attempt to save Parmenter’s life. This bullet was found “on the left side of (Parmenter’s) abdomen about four inches to the left of the middle line and a few inches below the edge of the ribs” [162]. The projectile was determined from its track to have entered Parmenter’s back. Unfortunately, Dr. Hunting is quoted in the autopsy report on Parmenter as having excised bullet “X” “from a point beneath the skin of (Parmenter’s) left chest” [163]. The autopsy report must be in error in this regard since the wound in Parmenter’s left chest was described in the same autopsy report as a “transverse oval wound,” whereas the wound in the left abdomen was an “incised longitudinal” one, caused quite plainly by Dr. Hunting’s surgical skills. A wound in an oval form would hardly be one occasioned by surgery, at least where another, adjacent wound has all the characteristics of a surgical incision.

Bullet “5” is a mystery wrapped in an enigma. It was marked with a “5” on its base by Dr. Frederick Ellis Jones only the day before he testified in Dedham on Wednesday, 8 June 1921. Why he marked it then, upon whose prompting he did so, and why he chose to use a “5” is nowhere explained in the trial transcript of Dr. Jones’ testimony on the seventh day of the trial. We are informed, though, that the bullet was turned over to him by a nurse in the operating room of the Quincy City Hospital on the morning of 16 April 1920 just a few hours after Parmenter had died there. The identity of the nurse is never revealed, if indeed her name was known.

Dr. Jones kept this bullet for about a month, after which it came into the possession of the law enforcement authorities. At the trial, Dr. Jones unflinchingly identified the bullet marked “5” as the bullet the nurse had given to him in the operating room. He knew it to be the same because it had “two minute lines on the outer side of the casing about one-third away from the tip back to the end” [47]. These two parallel lines were so distinctive that he was able to say without equivocation that the bullet shown him at the trial was the same as the bullet the nurse had given to him. How this bullet came to bear these two so identifiable lines was not explained.

Aside from the six bullets, two from Parmenter and four from Berardelli, the only other firearms evidence which was marked in any way by its first custodian was the Colt .32 taken from Sacco at the Campello police station and the .38 caliber Harrington and Richardson (H. & R.) which a search of Vanzetti on the Bridgewater—Brockton trolley revealed secreted

in his hip pocket. On the night of 5 May 1920, Sacco and Vanzetti were arrested while riding on the Bridgewater—Brockton trolley. The arrests were accomplished by officers of the Brockton police force. Officer Earl J. Vaughn, in plain clothes, was the first to board the trolley when it reached Brockton. It was he, who on a search of Vanzetti, discovered the .38 caliber H. & R. revolver. He turned the weapon over to Officer Michael J. Connolly who trained it on Sacco and Vanzetti during their ride to the Brockton police station. At the station, Officer Connolly marked the .38 H. & R. with a “knife cut” in the “round part” of the handle [59]. Connolly testified at the trial to his identification of a .38 caliber H. & R. shown to him as bearing the knife cut he had placed on the revolver he had received from Officer Vaughn.

Unlike Officer Connolly, Brockton police officer Merle A. Spear was more exacting and scrupulous in marking the .32 caliber Colt he found in Sacco’s waistband upon his searching him at the Campello police station. At the trial, Officer Spear identified the initials “M.S.” which he had put on “the stock” of the gun he took from Sacco as appearing on the Colt which he was asked to identify in court [164]. Would that Officer Spear had been more precise as to the instrument he used to make his mark so that its permanence could be asayed as well as the exact location where it appeared on the “stock” (grip?) of the Colt .32.

Charges of Governmental Misconduct

Allegations of misconduct by the government in the Sacco and Vanzetti case have erupted and multiplied in an unregimented fashion [165]. The case has been prodigal with charges of governmental wrongdoing.

Some of these accusations have been flung quite randomly. Albert H. Hamilton in testifying before the Lowell Advisory Committee [34], indicted “the prosecuting attorney and his chief assistant” for using “fraudulent methods, (and) deceptive testimony knowingly to deceive the court and to deceive the jury.” In spite of the sweeping nature of such assertions, some have apparently struck home. The submission of Massachusetts Governor Dukakis’ Chief Legal Counsel, preliminary to the Governor’s proclamation declaring the unfairness of the trial of Sacco and Vanzetti, is replete with findings of misconduct by both prosecution and judge in the course of the trial [166].

The case has also bristled with far more specific charges of malfeasance. In William G. Thompson’s brief for Sacco and Vanzetti in the high court of Massachusetts [167], he, for the first time, charges the prosecution’s expert Charles Van Amburgh with a “deliberate attempt to deceive” in stating that “the firing pin (in the Sacco pistol) can move a distance of .007 of an inch within the circular rim of the firing-pin hole” [167]. According to Thompson’s lights, “(i)f the total available space for motion within the bushing is .007, (as Van Amburgh was said to have testified) then the cartridge can move only one-half of that distance off center on one side or the other, viz., .0035 of an inch” [167]. Thompson may well have mistaken Van Amburgh’s careless mathematics for a flawed conscience. No matter, for Thompson’s exercise in minutiae-specking shows the depths to which the defense was willing to plunge in its frenzied, last-ditch efforts to save Sacco and Vanzetti from the executioner.

Supposititious Evidence?

Of all the claims of misconduct, the one that has had the greatest currency and that has caused the most soul-searching is the allegation that the government fabricated evidence against Sacco and Vanzetti. A charge that the government used supposititious evidence to convict the defendants could touch almost all of the physical evidence introduced at the trial, and it very nearly has.

Judge Thayer was horrified at even the suspicion of “snowflaking” by the government. Snowflaking, as understood among practiced defense attorneys, is the planting of evidence

on an arrested person by the police to fortify or to legitimate the arrest. In Judge Thayer's decision on the motions for a new trial [168], he proclaimed, in terms of utter disbelief:

Now, can it be said or even claimed with any degree of fairness that these two great Governments had anything to do with the placing of these guns into the pockets of these defendants. They certainly were not responsible for the production of this evidence.

Judge Thayer seems to be responding to a phantom, for a careful combing of the trial transcript discloses no evidence of a defense claim that Sacco and Vanzetti's possession of weapons upon their arrest was wholly a figment of police pawkishness.

One charge of police and prosecutorial collaboration in the presentation of manufactured evidence very nearly drew blood. A dark cap was found by one Fred Loring at the scene of the murders and within reach of Berardelli's body. Sacco was known to wear a cap, of a somewhat similar style to the one Loring happened upon. Those facts seem reasonably to have been proved. But the cap, identified by Loring, passed on by him to Thomas Fraher who, in his turn, gave it to Braintree Chief of Police Gallivan, had a tear in its lining. Did Sacco's cap have a similar tear in it? District Attorney Katzmann set about to prove that the crime scene cap was, indeed, Sacco's cap. Since his witnesses would not admit the color was the same as Sacco's cap, nor did the crime scene cap seem to fit Sacco when he tried it on in open court, Katzmann pinpointed the tear in the lining of the crime scene cap as the feature that identified it with Sacco. The prosecution sought to prove its thesis by establishing that Sacco regularly hung his cap on a nail at his place of employment. Having moved that far, Katzmann sought to draw the inference that the tear in the lining of the cap was caused by a sharp object, such as the nail upon which Sacco had been known to place his hat.

The fatal flaw in the logic of Katzmann's clever endeavor did not surface until Chief Gallivan testified before the Lowell Committee that it was he who had "ripped that lining right down myself" [169]. The chief's purpose in tearing the lining was not, one hastens to fend off a misimpression, to support Katzmann's theory, but rather to determine if he could identify the owner of the cap by finding "a name or something inside this cap" [169].

But did Katzmann, knowing of Chief Gallivan's egregious alteration of such a vital piece of evidence, conceal his knowledge and seek to mislead the jury into believing that the tear was a fortuitous result of Sacco's hanging it on a nail when he realized, all too well, such was not the fact? Chief Gallivan equivocated on whether he had told Katzmann of his actions or not. "I wouldn't say whether I did or did not," was what he told the Lowell Committee [170]. Katzmann, however, "insisted that this was the first time he had ever heard of it" [171]. In spite of this disclaimer, there are those skeptics who continue to urge that "the tear anyway was added by the police, whether inadvertently or not" [172]. A finding of collaborative governmental misconduct as to the cap, at least on the facts as we have them, seems to hang only by a thread.

The Accusation: Bullet III Switched

Undoubtedly, the bete noir among claims of governmental bad faith in the Sacco and Vanzetti case was triggered by the testimony of Wilbur F. Turner before the Lowell Committee. Turner, a self-proclaimed criminologist of 22 years standing [173], had made an appearance in the case almost 4 years earlier when he submitted an affidavit in support of Vanzetti's Fifth Supplementary Motion for a New Trial. That affidavit, unlike his later Lowell Committee testimony, attested to his being "an expert commercial photographer" [174] in Boston. Nothing was said about his years of experience as a criminologist, or did he mean, more aptly a criminalist.

After rather confusing introductory questioning before the Lowell Committee, Turner asserted that he detected a vast difference in the markings on the base of mortal Bullet III, which had been said to have been removed from Berardelli's body at his autopsy. The differ-

ence perceived by Turner was vast in relation to the markings on the other bullets which had been marked by Dr. George Burgess Magrath, who conducted the postmortem examination. In Turner's words,

There was a difference. There was a tremendous difference in the marking, as though they were made with different tool or scratched with a different instrument [175].

The innuendo, if not more accusatory than that, was clear. Someone had substituted a fabricated mortal Bullet III for the bullet which Dr. Magrath had actually retrieved and marked. That point became more evident when President Lowell asked [176]: "Is there any reason to suppose that Dr. Magrath necessarily marked these three (sic) bullets at the same time with the same instrument?"

Before Turner could respond, Defense Counsel Thompson interjected "He said he did" [176]. Thompson, however, was mistaken because Dr. Magrath never, in his trial testimony, addressed the issue of how many or, indeed, what instruments he had used to mark the bullets [177]. It was, of course, very much in Thompson's own interests to have it appear that Dr. Magrath in fact used one instrument to scribe all the bullets but that one bullet, namely, the mortal III, which bore traces of having been marked by a different instrument from the others and, therefore, by a different hand and at another time.

It is difficult to tell from the published record of the Sacco and Vanzetti trial and its aftermath what was the genesis for the very serious charge that someone replaced the actual mortal bullet with an imposter. Certainly, Turner was a weak reed upon which to rely to prove a substitution. His qualifications were, at best, dubious. His examination of the evidence was limited, as he said, to "a low power microscope and a 10-power glass" [178]. But, most embarrassing of all to his champions, was his constant failure, or inability, to distinguish between bullets and shells [179] which necessitated his being cautioned to "say bullets instead shells" [179]. If then Turner cannot be the linchpin for the defense's eleventh-hour submission that the government had fabricated the vital evidence of mortal Bullet III, which inextricably connected Sacco's Colt to the crime, what other items of proof can be interposed to support this charge?

Other Arguments

Francis Russell has pointed out an enigma conducive to the view that someone switched bullets. According to his argument, "all witnesses testified that only one man shot Berardelli, that this man stood over him and emptied his revolver into him" [180]. But four .32 caliber bullets were taken from Berardelli's body, three with a right-hand twist and one with a twist to the left. "Therefore, either the murderer used two guns or else someone switched a bullet," says Russell [180]. Of course, it is also tenable that the eyewitnesses were mistaken.

Paradoxically, prosecution expert Charles Van Amburgh, in a 1946 article [181], raises the specter of another argument for the defense in support of the bullet-switching theory. He calls attention to the testimony of Medical Examiner Frederick E. Jones at the inquest on the death of Berardelli and Parmenter which was held on 17 April 1920. Dr. Jones, who attended the autopsy which was actually performed by Dr. Magrath, affirmed that he had seen all six of the bullets which were extracted and that "they are all identical, all .32 caliber, short automatic, jacketed" [182]. But, since the six bullets introduced at the trial were irrefutably not all identical, Van Amburgh surmises that this discrepancy induced Defense Attorney Herbert B. Ehrmann to maintain before the Lowell Committee that "there must have been a substitution of bullets after the inquest" [181]. That viewpoint presupposes that Dr. Jones, in using the word identical, had in mind more than the obvious and superficial class characteristics he mentioned in describing the bullets. Even a lay person could instantly tell that the bullets were not identical because four were cannellured (counting the questioned Bullet III)

but two lacked any cannellure. What Dr. Jones really meant is now an impenetrable matter of past history.

It does appear, however, that Dr. Jones disclaimed any expertise in firearms identification. As he quaintly put it, "To be sure, I am not an expert on determining" [183]. Ehrmann did not seek to prove otherwise. "(O)f course, he was not a gun expert," Ehrmann told the Lowell Committee, "and his testimony is not entitled to much weight" [184]. Ehrmann hardly could have extolled Dr. Jones as a "gun expert" since the doctor, after declaring "I didn't examine" the bullets taken from Berardelli, described them as "Colt cartridge" which, he added, "may not be a Colt revolver that it was fired from" [183]. Such testimony is confusion twice confounded. If they were "Colt cartridges," then they were not spent bullets. But if he meant they were Colt bullets, then his description of them as Colt cartridges was entirely meaningless, since Colt is not in the business of manufacturing ammunition. And if he denominated them Colt cartridges simply because the left twist was the established indicia for discharge from a Colt weapon, then his having prefaced his comments with the disclaimer "I didn't examine them" makes it unlikely that he knew one or more of the bullets had a left twist. Dr. Jones' testimony on this matter is so unsettling that the only assurance it conveys is that words can be slippery and thought viscous.

Other arguments have proceeded more from conjecture than from hard facts. Joughin and Morgan, in a stinging rebuke to Prosecutor Katzmann, assert that "(a) prosecution which would descend to the depths of framing Proctor's testimony would not scrutinize too closely the handling of the fatal bullet and Fraher shell by the police" [185]. So too if Van Amburgh engaged in a conscious deception alleged as to the amount of play in the operation of the firing pin on Sacco's Colt, who is to say that other deliberate deceits, such as a switching of the firearms exhibits, were beyond belief?

Moreover, Lincoln Wadsworth, then a former employee of the Iver Johnson Sporting Goods Company, told the Lowell Committee that he, shades of Captain Proctor, had been encouraged by the prosecution to alter his trial testimony to give "the impression" [62] that the gun he checked in for repairs from Berardelli was in fact the same revolver that was exhibited at trial as having been taken from Vanzetti. Wadsworth stated that, even at the time of the Lowell Committee hearings, he was plagued by the thought that his true views, derived solely from his trial testimony, had been misunderstood "by a number of people" [62]. As he then stated his opinion, "there are thousands of times more chances that the gun he checked in for Berardelli was not the Vanzetti revolver than that it was" [62]. Yet, at the trial, he had said that the Vanzetti revolver "answers the description of the revolver brought in" [186] by Berardelli while, in the next breath, he also said that they were "the same caliber and make" [186]. No wonder Wadsworth was later beset by anxiety. A similarity of class characteristics does not, in firearms parlance, an identity make.

The statements of Wadsworth, Van Amburgh, and Joughin and Morgan are alike in that they rely upon the theory that one provable falsehood renders all of that person's other assertions suspect. As the Latin phrase, the classical garb of which adds only a sham verity to it, states—*falsus in uno, falsus in omnibus*. Yet, even in law, this notion is no more than a catchphrase, in logic, it is certifiably insupportable [187].

Supposing, just supposing, that the theory of the supposititious bullet does not, as Thorwald said it does, border on "the absurd" [188], how might the government have accomplished this substitution of evidence? As the leading contenders, there are two possibilities. Either the government fired a round through the gun it found in Sacco's possession or it used a different Colt in the same way. If the latter hypothesis is to be believed, then the Colt .32 introduced into evidence as having been found on Sacco's person might just possibly also have been the subject of a switch, leaving us today with a Colt .32 different from the one actually seized from Sacco, but one which did fire the Bullet III and Fraher shell which have been preserved.

The Rampant Colt [189]—Of these suppositions, the easier to resolve is the last. Was the

Colt .32 admitted into evidence at the trial the same Colt .32 which was seized from Sacco? Suffice it to say that rarely has anyone challenged the genuineness of the Colt .32 entered into evidence as Exhibit 18 [190]. Justice Michael Musmanno, on the other hand, did so in his freewheeling denunciation of Francis Russell's book. But Musmanno's comments were almost offhand and, certainly, without factual support, and, even then, concerned a possible substitution of the original Colt .32 occurring only since the trial itself [191].

At the trial, Defense Counsel Jeremiah McAnarney, in true biblical fashion, thrice renounced the opportunity to challenge the admissibility of the Colt .32 (Exhibit 18) as not being the same gun found in Sacco's waistband. After saying twice that he did not contest the authenticity of the weapon, he cemented the point by declaring "there is no question there as to the identity" [192].

McAnarney could hardly have taken a contrary view since Officer Spear had already testified to his unequivocal identification of the Colt .32 shown to him as bearing his initials which he had put on the Colt he seized from Sacco on the night of his arrest [193]. Sacco, when his turn came on cross-examination, also identified Exhibit 18 as his own with the less than positive "(i)t looks like mine" [194].

Until the perusal of the Select Committee, no one had taken the care to document the obvious and the vital statistics concerning the Sacco Colt .32. The Select Committee has now memorialized this Colt as bearing serial number 219722, the Colt logo, and a plate affixed below the slide indicating that the model is a 1903 Pocket Model, which would signify that it was patented first on 20 April 1897 and, with modifications, later on 22 Dec. 1903. It has a magazine capacity of eight rounds and a barrel length of $\frac{3}{4}$ in. (19.05 mm).

The Ownership of the Colt .32—A letter to the Select Committee from Colt Industries [195] revealed that this weapon was shipped by that company, along with 19 others, on 30 Aug. 1916 to the Iver Johnson Sporting Goods Company in Boston, MA. The Select Committee's attempt to identify the purchaser of the Sacco Colt stopped there, however, since the Federal Bureau of Alcohol, Tobacco and Firearms informed the Committee that the Iver Johnson Sporting Goods Company had ceased doing business some 20 years ago and that its records were no longer available.

Since Sacco, even though with some linguistic vacillation, identified Exhibit 18 as the weapon confiscated from him on his arrest, what is the impetus for any further tracking of the ancestry of this Colt .32? The answer lies in an understanding of the prosecution's theory of Sacco's guilt. Certainly the fact that Sacco was in possession of the murder weapon some three weeks after the murders is some proof, but not proof positive, that Sacco used this weapon in the commission of the South Braintree murders. Sacco's possession of the Colt .32 on 5 May 1920 could be reasonably explained as stemming from his having borrowed it from another person who might coincidentally have been the South Braintree culprit. If, however, Sacco could be proved to have purchased the weapon himself, this fact, coupled with his possession of it at the time of his arrest, would be formidable evidence that it was he who used it to commit the South Braintree robbery-murder.

In view of the surpassing importance of checking every lead on the trail of the Sacco Colt, this author played gumshoe on the scene in Boston and over the long-distance telephone. Tracking in the Boston Public Library revealed that, according to the City Directory of Boston for 1956, the Iver Johnson Sporting Goods Company relinquished possession of the premises at 155 Washington St. in 1957 to the Bob Smith Sporting Goods Company. And the Boston telephone directory revealed that the Bob Smith Sporting Goods Company was still in business in 1984. Could it be possible, if only remotely so, that this business not merely replaced the Iver Johnson Sporting Goods Company, but also had continuing possession of its records of the retailing of firearms by it and, if luck will out, that the sale of the Sacco Colt was listed among those records.

In August 1984, this new and exciting possibility deadended when, in a telephone conversation with Mrs. J. Robert Shaughnessy, present owner of Bob Smith Sporting Goods Com-

pany, it was learned that no records of the Iver Johnson operation in Boston had ever been passed on to her firm. But, all was not lost, since Mrs. Shaughnessy directed me to the parent company of the chain of sporting goods stores set up long ago to distribute firearms and bicycles manufactured by the Iver Johnson Company. The parent company, now in Jacksonville, AR, might, it was intimated, have the records I was seeking. A telephone call to Mr. Charles E. Craver, Customer Service Manager for Iver Johnson's Arms, Inc. did not bear fruit. Mr. Craver, although informative and willing, explained that his company's records did not include those of the Boston Iver Johnson Store, nor did he know of their whereabouts. However, the quest did not end there, for Mr. Craver posited that one or more of the law enforcement agencies in Massachusetts might have a gun registry which might just conceivably list the Sacco Colt as one of its entries.

Once again the telephone was called to the task. Marshall Robinson, a member of the Select Committee, was reached at his Connecticut office. Robinson snuffed out what then appeared to be a last shot in the dark. He himself, foreseeing the need for such an inquiry, had contacted the Massachusetts State Police in this regard and had been informed that the Sacco Colt was not entered in any of their lists of the registration of firearms.

For those with the instincts of a bloodhound, the trail of the purchaser of the Sacco Colt is still not cold, even though it is not sizzling either. George Wilson, Chairman of the Select Committee, suggested that the Iver Johnson Sporting Goods Store in Boston might have sold the Sacco Colt to another firearms retailer for sale to a user. Wilson's knowledge in general and his investigation of Iver Johnson in particular had led him to the view that the Iver Johnson Boston store was something of a middleman for firearms which were then marketed to other, smaller retailers there and elsewhere.

If Wilson's reasoned guess was accurate, to what other firearms' dealers might one look for records of the sale of the Sacco Colt? Sacco's trial testimony presents some intriguing investigative possibilities for further plumbing. On his first interrogation by District Attorney Katzmann at the Brockton Police station one day after his arrest, Sacco had said he bought the Colt .32 under an assumed name, from a gun dealer on Hanover Street in Boston [196]. But under intense cross-examination by Katzmann at the trial, Sacco had repudiated his Brockton statement. He bought the weapon in Milford, he declared, even though in doing so he now became a confessed liar, whose lies could be construed as further evidence of his guilt of the South Braintree murders.

Sacco's testimony, therefore, can be the springboard for further chasing after what might appear, to those not caught up in Sacco and Vanzetti fever, as rainbows. The firearms retailers in Milford, MA, I presume, might be canvassed, or those on Hanover Street, Boston might be contacted. Milford will have to be left for some more perservering and more optimistic soul, since my Hanover Street tracking has drained my enthusiasm for this undertaking.

Yes, there was a gun dealer on Hanover Street, Boston in 1920. Yes, that dealer still maintains an establishment on that street. The firm name is Tosi Music and Sporting Goods Company of 250 Hanover St. But there the trail disappears since a telephone call has confirmed that this business' records for 1920 and accompanying years provide no clue to the purchaser of the Sacco Colt.

Which Colt .32 was the Deum ex Machina?—If the Colt .32 admitted into evidence as Exhibit 18 was not a pretender, how might a nefarious government agent have switched Bullet III? The possibilities are either that the Sacco Colt was the instrument for the creation of a bogus bullet or that some other, unidentified Colt .32 was bent to this skullduggery. Which one of these hypotheses is most likely? First, let us look to the contentions of defense counsel on this matter. Their submissions to the Lowell Committee, having initially raised the issue, should be uppermost in order of scrutiny.

Although most commentators have inferred that the defense's position before the Lowell Committee was that "the originals were not offered at the trial, but others which had been

actually fired in Sacco's pistol" [185], such a defense posture would have been most maladroit and untenable. If mortal Bullet III and the Fraher shell introduced into evidence at the trial were in actuality fired through the Sacco Colt, what does this say of the competence of firearms experts Burns and Fitzgerald who took a contrary view at the behest of the defense at the trial? Moreover, even subsequent to the trial, Albert H. Hamilton, also enunciating a pro defense expert opinion, saw the issue in the same light. Thus, for the defense to have claimed that the government used the Sacco Colt to fabricate evidence would have been to denounce the credibility and competence of its own experts. Such a contradictory stance was hardly to be expected, certainly for attorneys as seasoned and so imbued with the strategic savoir faire of the courtroom as Thompson and Ehrmann.

As a matter of fact, the record reflects that Thompson and Ehrmann addressed the supposititious evidence issue in their letter, dated 15 June 1927, to Governor Alvan T. Fuller [197]. This letter, it bears reminding, preceded the hearings of the Lowell Committee, which commenced on 11 July 1927.

On the question of Bullet III, the letter spoke unhesitatingly and with firm conviction. This bullet "was evidently not fired through Sacco's pistol, but it may well have been fired through some Colt automatic .32 calibre pistol and substituted for the No. 3 bullet actually taken by Dr. Magrath from Berardelli's body" [197].

Thompson and Ehrmann's only foundation for this startling charge was that, according to their appraisal, "(t)he marks on the base of it were evidently not made by the same man that marked the other three bullets" [197]. Ehrmann gave more of the details of his views in his summation to the Lowell Committee. Of the bullets taken from Berardelli's body, he said,

1, 2 and 4 were marked in clean, parallel lines. No. 3 seemed obviously, even to the naked eye, to be marked by a clumsier hand and blunter instrument. Perhaps it may be said that the alloy of the bullet was different, or the base of the bullet was crinkled. The fact is they are clearly different—that is obvious [198].

The defense, however, seems to have quite blithely bypassed Dr. Magrath's trial testimony in which, with an assurance only matched by Thompson and Ehrmann, he stated: "I identify that (indicating) as the bullet which I numbered 'III' by placing three vertical marks upon it, on the left base" [199]. The same ritual was followed as Dr. Magrath proceeded to identify each of the other three bullets he extracted from Berardelli by the mark or marks he etched with a "needle" in the open base of each [200]. Certainly, Dr. Magrath was above reproach. Even trial attorney Thomas McAnarney admitted as much when, in reply to a question put by President Lowell inquiring whether he doubted the integrity of Dr. Magrath, he stated, quite insistently, "Oh, no. Dr. Magrath, oh, no, not for a minute" [201]. Furthermore, Dr. Magrath was not cross-examined at the trial on his identification of Bullet III. Such a failure could be evidence that the defense considered his testimony unimpeachable.

It is no surprise that the defense treated Dr. Magrath with gentle regard and overweening respect. Dr. George Burgess Magrath, described as a "resting lion" [202], was an impressive and engaging witness in some 2000 court actions in the New England states from his appointment as Suffolk County Medical Examiner in 1907 until his retirement, 28 unscathed years later, in 1935 [203]. Not only was Dr. Magrath, as Yeats might have said of him, a "monument of unageing intellect," [204] but he cut an imposing figure with his shock of curly, sandy-red hair, turned to glowing white and his trim, athletic figure. Moreover, as in the case of all well-schooled expert witnesses, he had a flair for the dramatic and the timing to match it. He would bow to court and jury before testifying, without, mind, a touch of disdain or unctuousness in his gesture. His pince-nez glasses, called into conspicuous action to review his omnipresent and well-referenced notes, added more than a veneer of professional dignity. He was a Professor at the Harvard Medical School, where he held the first endowed chair in Forensic Medicine. His blending of the academic and the practical gave rise to his lecturing and writing on issues which he was convinced would modernize the office of medi-

cal examiner by making it more efficient and more responsive to the needs of the public [205].

But most important, at least in the context of the Sacco and Vanzetti case, was Dr. Magrath's uncontradicted reputation as the quintessential expert witness—a professional with a fiercely adamant integrity and a rock-ribbed dedication to fairness and to the truth. Dr. Magrath's ineluctable Karma was evidenced by his unwavering professional objectivity which kept him from expressing his personal opinions on professional matters and which gave him a mind—set whereby the chips fell where they might—come what may. In the notebook which he ever pocketed, and which was discovered upon his death, was a quotation from the famed French medical examiner Brouardel. “If the law had made you a witness, remain a man of science; you have no victim to avenge, no guilty or innocent person to ruin or save. You must bear testimony within the limits of science.” With such renown, one would have to be a feckless tiger to enter the lists with this “resting lion.” No wonder the defense chose the better part of valor [206].

Anomalously, Ehrmann sought to reason that the failure of trial counsel to draw Dr. Magrath's “attention . . . to any ostensible differences between the marks” [198] on the base of the bullets leaves room for argument that Dr. Magrath might have discerned a dissimilarity if his attention had been directed to that possibility. Yet Dr. Magrath could have been called to appear before the Lowell Committee, at which time he would have had the opportunity to expatiate quite fully on this entire matter since the Lowell Committee's hearings, being informal, were not bound by the legal rules of admissibility of evidence. Still, no one, not the state nor, more unaccountably, the defense, summoned him to appear. Such a failure seems more premeditated than careless and speaks volumes against the defense's bullet substitution theory. As Mr. Ranney, representing the state before the Lowell Committee said, “it seems to me that that (neglect to call Dr. Magrath) fully answers something which we must characterize as pure speculation from these defendants, that this bullet has been tampered with” [198].

In the case of Ehrmann, it is passably understandable why he might have been somewhat precipitate on this sensitive subject. His dispiriting experience in doing in-depth field work on police misbehavior in Cleveland, OH obviously left him with a jaundiced eye toward the police. He told the Lowell Committee as much. In view of his investigations in Cleveland, he said, “I approach this subject of tampering with exhibits with no great presumption in favor of the police, particularly where there is a lot of public excitement and determination to win a case at all costs” [207]. Similarly skeptical comments concerning the honesty of the police were also made, with much truth, in 1931 in the Wickersham Report on the Police where a “lack of competent, efficient, and honest patrolmen and subordinate officers” was decried [208]. Over the years since 1931, the conduct of the police has been occasionally dragooned into public focus and sometimes found sorely wanting.

Casting a Cold Eye on the Accusation

Even though Thompson and Ehrmann did express their strong reservations about “the authenticity of the shot-gun shells, the Fraher shell, and the mortal bullet” [209] most commentaries and scientific attention has been directed to the claim of fabrication of the mortal bullet. It is understandable that this should be so.

Bullet III: Needle Marks

Whether the Bullet III introduced into evidence at the Sacco-Vanzetti trial was the bullet actually taken by Dr. Magrath from Berardelli's body or whether it was the result of a governmental fabrication of evidence does seem to be reasonably answerable.

There are weighty arguments buoying up the position of the opponents of the fabrication

theory. First among these is the conceded fact that Dr. Magrath did unequivocally and without contradiction identify Bullet III by the three "vertical marks" he inscribed on its base [210]. And even if Dr. Magrath's supposed markings on this bullet were, whether to the naked eye or to the microscope, different in size and shape from the marks on the other bullets, still this is insufficient proof of a bullet substitution. As President Lowell inquired of Wilbur Turner, "Is there any reason to suppose that Dr. Magrath necessarily marked these three (sic) bullets at the same time with the same instruments?" [177]. In spite of Thompson's interjection that "He said he did," there was no evidence of such an assertion in Dr. Magrath's trial testimony.

It is hardly conceivable that Dr. Magrath could perform an autopsy with but one surgical needle at hand. That he would have more than one in ready use and that they would show signs of different degrees of wear is entirely plausible. And, more, close to a certainty.

Since Dr. Magrath testified that he scratched the lead base of the bullets with a "needle," without specifying the kind of needle he used, the real possibility exists that he could have used one or more of a number of different types of needles, contingent on their availability in 1920. Further, one must be mindful that the autopsy room is not an operating room where a multitude of needles may be called into action for purposes wholly unknown or unnecessary to an autopsy. Needles are basically of two types, either injection or suturing [211]. Injection needles have a straight body with a concave tip [212]. Such needles would not be out of place at an autopsy if formalin were to be injected into the remains as a preservative.

Suturing needles, at least today, come in a variety of shapes and sizes [213]. It would not be expected that at autopsy a noncutting or taper-edged needle would be needed. Such needles, bearing a rounded tip are atraumatic in nature and, thus, intended most particularly for the use of surgeons who must suture friable tissue on live bodies. The suturing of a cadaver does not mandate the finesse of the operating room. Consequently, cutting or non-round tipped needles (bearing a beveled tip) are more appropriate at autopsy than taper needles. The straight or Keith needle of the cutting needle genus would function adequately in this situation.

This brief disquisition on needles, their kinds, shapes, and uses, has more than pedagogic value. Suppose Dr. Magrath had marked all of the bullets with one needle, say an injection needle. Still the marks on the bullets could very conceivably differ because on one turning of the needle a finer tip is exposed than on a slightly different turning where a blunter tip would be the marking edge.

Dr. Magrath himself had the opportunity to shed some light on this conundrum when, in 1926, he published his thoughts on "The Technique of a Medico-Legal Investigation" [205], but he was, apparently, not then on notice that his marks on the Berardelli bullets would come into question. In his article, first delivered as a lecture in 1922, he instructs his audience to mark the base of a bullet recovered on autopsy on the base "with the edge of a needle" [205, p. 24]. To say the edge of a needle adds not one whit to his trial testimony in Sacco and Vanzetti, since we still are in the dark as to the type or number of needles he had in mind.

Dr. Magrath's 1922 lecture is, however, in one sense an improvement on the action he took in marking the Berardelli bullets. His lecture directs the use of arabic, rather than roman, numerals. The arabic 1, 2, 3, 4, and so forth are to be preferred in marking physical evidence in general, just as the cursive script should be chosen over block letters. The identification of the authenticity of markings is in either case facilitated.

Further, the deformed condition of the mortal bullet might, to some undefined extent, account for any difference in its markings. Then too Dr. Magrath might just have exerted either more or less pressure in making the strikes on Bullet III than on the others. Lead is not the most desirable substratum for marking purposes. After all is said and done, the circumstances of the making of the markings and the markings themselves were so ill-defined that not even a document examiner would find the marks suitable for comparison to determine the author of them.

Jury and Weller Report: 1961—On two occasions since the execution of Sacco and Vanzetti in 1927, the markings on the base of Bullet III have been searchingly examined with an eye to putting to rest one way or the other the claim of a substitution. The first of these reanalyses occurred on 11 Oct. 1961 when Dr. Jac Weller and Lt. Colonel Frank Jury reexamined the exhibits in the Sacco and Vanzetti case. Their report, dated 24 Oct. 1961, stated, with respect to the markings on Bullet III:

Finally, in accordance with a specific request from Francis Russell, the Experts compared the identification base markings on the 'III' bullet with those on the other three evidence bullets said to have come from Berardelli's body. It would appear that these marks were all made with a semi-blunt instrument, perhaps the same instrument. The marks themselves were made in the exposed lead cores of the bullets at their bases. Lead does not retain individual characteristics of a marking instrument well over the years.

The rather cryptic concluding remark that lead is not a suitably permanent medium for marking purposes apparently refers to the well-known fact that the lead bases of these bullets exhibited the ravages of oxidation as a result of an inexplicable and indefensible failure of the Massachusetts state authorities to protect the condition of these historic items of evidence over the years. The best that can be said of Jury and Weller's findings is that they are inconclusive. Lt. Collins, however, viewed their restudy as establishing that "the 'Mortal bullet' is not a fraudulently substituted test bullet" [214]. The Jury and Weller report, which was issued two weeks after the date of Lt. Collins memo, was not, and, indeed, could not be so definitive.

But its language certainly supports the antisubstitution position. No "irregularities whatever" were discovered in the firearms exhibits. No evidence demonstrated that Bullet III "had been artificially stopped, nor was other than as described originally by medical testimony" [215]. The Jury and Weller findings could not exceed the scope of their technical expertise, which was as firearms experts employing a microscope. Chemical and metallurgical tests as well as X-ray and scanning electron microscopy were simply beyond the purview of their scientific discipline or their mandate.

The Carnegie-Mellon Study: 1982—Similarly inconclusive test results were reported in 1982 by Professor David E. Kaiser of the Carnegie-Mellon University. According to his letter of 5 Aug. 1982 to Public Safety Commissioner Trabucco,

For the record, the tests seem inconclusive. There is an observable difference in the scratches on bullet III, but the scratches also show some similarities to those on the other bullets, and the difference could be explained by the deformation of the bullet.

The 1982 tests, as was apparently also the case with Jury and Weller's tests, were conducted exclusively with a microscope. The degree of magnification or the type of microscope used is not specified. We are told, though, that the 1982 tests were undertaken by Dr. Regis Pelloux, a metallurgist on the faculty of the Massachusetts Institute of Technology.

The Select Committee's Findings—This uncertain state concerning the marks on Bullet III is, unfortunately, not dispelled by the report of the Select Committee. Save for prints of photomicrographs of the open bases of all six of the evidence bullets, the Select Committee's report is silent on the matter of contrasts and comparisons among the markings on them. In the sadly oxidized condition of the lead bases, as displayed in the photomicrographs, nothing could responsibly be accomplished by a current reevaluation of the marks on the various bullets. Even though the Select Committee did consider analysis by scanning electron microscopy and energy dispersive X-ray analysis, such examinations were rejected as not promising "any meaningful results," either on the question of the design and shape of the markings or on the possible detection of trace elements of metals sloughed off from the inscribing needle which might prove that one, or more needles, had been used [216]. Over the years, much ink has been spilled over Dr. Magrath's or someone else's marking of Bullet III. The

imbroglio is as far from an agreeable solution today as it was when first articulated in 1927. As was said, probably apocryphally, of Robert Browning's *The Ring and The Book*, so we can declare of this needle mark in a bullet base. On the date of the marking of the bullet in 1920 or after, only God and Dr. Magrath knew the true state of the facts. Today, only God knows.

The Bullet Deformity

One almost insuperable obstacle to anyone's undetected substitution of a different .32 caliber Winchester bullet for the mortal bullet removed by Dr. Magrath from Berardelli was the necessity to mirror the flattened condition of the genuine bullet. According to the medical testimony, Berardelli was killed by a bullet which traversed his body, lodging finally against his hip. The hip apparently acted as a backstop to intercept the bullet in its course and to cause it to become misshapen.

To duplicate this deformity in a replacement bullet would have taken some considerable craftiness. In 1961, Jury and Weller found no evidence that the bullet introduced at the trial had been "artificially stopped." They thought it "unlikely that any investigator between the crime and the trial would have known of a means of stopping a test bullet without leaving positive evidence readily revealed under proper magnification of such artificial arresting." Francis Russell [156] has added that Jury and Weller contemplated the various means by which the bullet's deformity might have been forged. If sawdust had been the medium used, "characteristic marks" would have appeared on the bullet. So thought Jury and Weller, according to Francis Russell. But their report is remarkable for the absence of any mention of sawdust or other means of manufacturing a bullet deformity. It is well that it should be devoid of any such conjectures, certainly as to sawdust, since sawdust was, at one time, used for test-firings because it would preclude any substantial alteration in the condition of the test bullet.

Another possible technique of fabrication, again in Francis Russell's view of Jury and Weller's report, would have been to fire a bullet into "a side of beef" [156]. The difficulty with this approach, Russell says, would be in making a "purchase of the beef and keeping the experiment secret" [156]. On the contrary, it does not take a doubting Thomas to query why the purchase of a side of beef or the cloak of secrecy surrounding its use would be particularly worrisome problems, if a governmental agent was bent on such a scheme. In a later writing, Francis Russell gives us a report of Jury and Weller's position which departs somewhat from his earlier recital. They concluded, Russell recounts [217], "that it (the supposititious bullet) had been fired into a body—though whether a human or animal body, whether living or dead, they could not say." Suffice it to say that Francis Russell must have been privy to more of Jury and Weller's findings than they deigned to include in their official, sworn report.

Shelley Beaverman, in a finger pointing article in 1962 in which he flings brickbats at all and sundry who participated in the prosecution of Sacco and Vanzetti, claimed to have produced a deformity similar to that of the mortal bullet "by the not very remarkable expedient of firing into a pine board backed by wadded paper" [218]. He does not mention the inevitable and calamitous damage that the pine board would have done to the striae of the bullet which it would have been imperative to keep unmarred for a positive identification to Sacco's Colt to have been made. Nor does Beaverman advert to the high percentage risk that Dr. Magrath might have been percipient enough to detect the forgery and to reveal it. No one, not even Beaverman, has suggested that Dr. Magrath was in league with the government in a conspiracy to manufacture the firearms evidence.

The Select Committee, most judiciously it would seem, did not speak to the issue of staging a bullet deformity.

Blood and Tissue

Many an attempt to steer an orderly course through the maze of reality and unreality that the Sacco and Vanzetti case has become is perilous and, some might say, futile. It is almost as if the entire case and the commentaries upon it were deftly designed to subvert such an effort. The possibility that blood and tissue from Parmenter and Berardelli might spell some relief from the otherwise mercurial quest to distinguish the genuine from the spurious mortal bullet seemed, like so much else in this case upon a first view, to be theoretically promising.

If the mortal bullet put in evidence at the trial was truly recovered from the body of Berardelli, then by all scientific rights, it should show traces of human blood and tissue which might, in the best of all worlds, be identified as of the same blood type as was Berardelli, on the ABO system as a starter. On the other hand, if the mortal bullet did not bear any signs of human blood and tissue, when it rightfully should, and the other five bullets did so, the case for the proposition that the mortal bullet had been switched would be mightily advanced. What, then, do the scientific studies reveal on this score?

Not until 5 Oct. 1961 [219] was action taken to ascertain whether the mortal bullet bore evidence of blood and tissue. Even then, the only scientific tests performed were aimed at finding traces of blood, not the cellular structure which would indicate the presence of tissue. From its inception, little optimism surrounded the conduct of these tests for the bullets, especially the mortal bullet, had been handled by every Tom, Dick, and Johnny-come-lately who had a mind to do so. If the remnants of blood had not been effaced, the bullets would have been contaminated by oxidation. As it turned out, the test results were disappointing, once again because of the frightful mishandling of the evidence.

The 1961 tests were run by Dr. William C. Boyd of the Boston University School of Medicine. He first washed the six evidence bullets as well as two of the Lowell test-fired bullets in a 0.9% saline (sodium chloride) solution and scrubbed each of them for 7 min with a short-bristled artist's camel hair brush. Thereafter, he sought to determine the presence of blood by using benzidine to obtain a peroxidase reaction according to the technique he had described in a published article [220]. Subsequently he utilized antihuman sera in an effort to secure a precipitin reaction, in the presence of which human blood could be said to exist.

Dr. Boyd reported that his testing presented "no conclusive indication . . . of the presence of blood." Unlike Francis Russell who has stated [221] that Dr. Boyd's tests were "negative" for the existence of blood, Dr. Boyd's written report reveals that "(a)ll the benzidine tests were weakly positive." Yet, since the Lowell test bullets, which should not have borne any traces of blood, were also "weakly positive" in the presence of benzidine, Dr. Boyd rightly concluded that contamination by oxides could well account for the "weakly positive" reaction, especially since benzidine, although very sensitive, is also highly nonspecific and a positive indication is only suggestive of blood and equally suggestive of other nonblood substances, like the lead oxide in rust, for example. The precipitin tests, however, all gave truly negative results.

The Select Committee report does not mention its having tested the bullets for blood or tissue. But Dr. Lee's letter to George Wilson [216] states that "(m)icrochemical tests for the presence of blood on exhibits were negative." In discussions with the present author, Dr. Lee elaborated upon his findings by describing his testing methodology. The search for tissue traces was conducted microscopically—to no avail. Testing for blood was accomplished through the application of the reagents phenylthaline and dimethyl benzidine. Dr. Lee, quite candidly admitted, that these tests were performed without an awareness of their inherent futility in view of Dr. Boyd's tests, of which he had no knowledge, and, more importantly, Boyd's incorrect procedure for the preparation of his samples. So much, therefore, for blood and tissue as a means to resolve the trumped-up bullet allegation. Once again, the promise was a promise, and no more.

The Obsolete Winchester Cartridge

At every turning, under either the most conscientious or even the least objective scrutiny, the Sacco and Vanzetti case would have been congenial grist for Chesterton's paradox mill. The so-called obsolete Winchester is merely another illustration. Mortal Bullet III was of Winchester manufacture. There could be no dispute on that matter since a "W" was plainly emblazoned on the side of the bullet, just above the cannelure. This bullet was of a type which quickly became known as an obsolete variety since it had a "band or cannelure which had been abandoned by the Winchester Repeating Arms Company sometime prior to the date of the South Braintree Crime in 1920" [222].

On account of the alleged impossibility of all experts, both for the prosecution and the defense, to locate live Winchester rounds bearing a cannelure which could then be test-fired at Lowell, MA, the cannelured Winchester bullet went from being dubbed obsolete to being understood to be unavailable. If the bullet was inaccessible to the experts for both sides, then certainly, so the argument goes, the mortal bullet introduced at trial was unlikely to be the result of a substitution. Out of nothing, so the maxim has it, nothing comes.

Yet, the Select Committee test-fired six rounds of the so-called obsolete Winchester cartridges. Whether Jury and Weller's firing of four rounds through Sacco's Colt in 1961 included any of the outdated type we do not know. But the fact that these obsolete cartridges are still available leaves one mystified as to the inability of the four experts in 1921 to locate a single one of them. Further, the argument that the government would be disabled from switching a cannelured Winchester because of its unavailability is not at all persuasive when it is known that the rounds are not totally unavailable.

At the same time that it has been maintained that a superseded Winchester bullet was hardly likely to be an apt subject for police misfeasance, the point was being stressed that the obsolete Winchester fortified the proof of Sacco's guilt. It is to be recalled that six of the obsolete Winchester rounds were found on Sacco at the time of his arrest. It goes without saying, the apologists for the government submit that Sacco's possession of these six rounds is another thread, when woven with the same type of bullet retrieved from Berardelli, in the total fabric of circumstantial evidence bolstering the case for Sacco's guilt [223].

But if such Winchester rounds are available today, then indubitably they must have been obtainable in 1921. Thus, no inference either of Sacco's guilt or of the government's inability to mastermind a plot to substitute evidence could legitimately be drawn, when the basis for those inferences, is the unavailability of the cannelured Winchester. Any contrary position is as substanceless as a dream.

A Matter of Mind

When all else fails, the redoubtable force of reason is a snug harbor. Would that science could work the potent art of Prospero and by summoning "the dread rattling thunder" and "the mutinous winds" cast light on the claim that the government instigated the fabrication of physical evidence in the Sacco and Vanzetti case. But time and neglect, along with the pernicious changes that they have wrought in the physical evidence, have left us with reason alone upon which to put our faith for a resolution to this enigma.

Captain Proctor was conceded to be the sole custodian of the firearms evidence until it was produced at the trial. This, at least, no one disputes. Proctor, therefore, was presumptively the most likely culprit if the mortal bullet were to have been switched. But if that was in fact what happened, what motive did he have to do so? The case did not become an admixture of fame and infamy until much later. If he expected to profit from his forging the evidence to insure a conviction, what tangible reward did he anticipate?

Then, again, Proctor was, in today's firearms terms, bumble-footed as an expert. According to his trial testimony, he did not know even the basic operation or parts of a firearm. Was

such an inexperienced expert to be the chosen one to fabricate a case against Sacco and Vanzetti, a case which could withstand close and careful inspection by genuine firearms experts at the trial? The fabrication of physical evidence is at best risky business, but to have Proctor mastermind the scheme would have been foolhardy in the extreme [217].

Apart from the implausibility of Proctor's having been a bullet-switching malefactor, the defense's arguments are both contradictory and indefensible. On the one hand, it is suggested that Sacco's Colt was the instrument from which the switched bullet was fired. Yet, that possibility is belied by the testimony of defense experts Burns and Fitzgerald at the trial as well as that of Albert Hamilton during the posttrial proceedings. It is beyond cavil that the defense cannot seek to buttress its bullet-switching submission when, on the one side, it maintains the mortal bullet was fabricated by being discharged through Sacco's Colt and on the other proclaims that Sacco's Colt was not the weapon from which the mortal bullet was discharged. The argument is so feeble that it is its own refutation.

At bottom, then, the defense's position must of necessity be that a different Colt .32 was put to use to produce a fraudulent bullet. Hamilton's posttrial affidavit makes this supposition crystal clear [224]. He gave it as his "unqualified opinion" while under oath that the mortal bullet marked Exhibit 18 was "not fired through the Sacco pistol" [224]. Thompson and Ehrmann stated their concurrence in this view, as we have already seen, in their letter to Governor Fuller which made a matter of record their claims that supposititious physical evidence had been dredged up to convict their clients.

Assuming that a .32 caliber Colt other than that seized from Sacco was to be implicated in this bullet-switching gambit, the baseless fabric of this allegation of governmental misconduct is embarrassingly but irrefutably revealed if it can be shown, conclusively, that Exhibit 18, the supposedly switched bullet, was in scientific truth fired from Sacco's Colt and none other. The Select Committee has, in my opinion, arrived at just such a rock-ribbed determination.

The Select Committee considered it to be one of its foremost mandates to investigate "the authenticity of Exhibit 18 (Mortal Bullet III)" [224]. In fulfilling that charge, the unarticulated premise of the Committee was apparently that if the Sacco Colt could be demonstrated to have fired Exhibit 18, the Lowell test bullets, the 1944 test bullet, as well as the bullets appearing in the photographs of Albert Hamilton [225], then the authenticity of Exhibit 18 would be incontrovertible. With insignificant gaps here and there, the Committee seems to have concluded that Exhibit 18 was fired from Sacco's Colt to the exclusion of all others.

The Committee stated its opinion, on the matter of the authenticity of Exhibit 18 (the mortal bullet) as follows:

After a comparison of Exhibit 18 to the original Hamilton Defense photographs, it is the opinion of this Panel that Exhibit 18, examined by the Panel in 1983, is the same as appears in the original defense photographs [226].

The Committee's unstated assumption was that if the defense was willing to rely on Albert Hamilton's photographs of the mortal bullet, then the Committee was justified in taking the same tack. The Committee's method is illustrated in Photographic Exhibit LLL. This photograph shows a side view of two bullets, in a vertical position, standing side by side. The one to the left is a photograph of a Hamilton photograph of the mortal bullet. The one to the right is a photograph of the mortal bullet in the condition in which it was examined by the Select Committee. The photographs are magnifications of the actual bullet, the extent of magnification not being stated. Both photographs show an arrow directing attention to some item whose importance is not explicated by the Committee. In addition, lines marked A and B are drawn to the cannelure on both of the adjoining photographs, again without any accompanying explanation of the meaning or significance of those A and B labelled lines. It is unfortunate that these markings were not discussed, at least for the sake of the uninitiated and the skeptical.

Having established to its satisfaction that the mortal bullet in its temporary custody was indeed the same as the trial exhibit, the Committee proceeded to a determination that this exhibit had been fired from the Sacco Colt. In pursuance of this objective, six Winchester rounds were test-fired through the Sacco Colt into a water recovery tank, but only after its "pitting and rust oxidation" [156] were noted and the barrel cleaned by pushing "a dry cloth patch . . . through the bore" [227]. Employing a comparison microscope one of the 1983 test bullets was compared to the one bullet marked as test-fired in 1944 which was among the items of firearms evidence submitted to the Committee. The striae of the 1944 and the 1983 bullets matched, which is represented in a photomicrograph appearing as Photographic Exhibit WWW.

Although of some scant historical interest, it is puzzling why the Committee labored to identify the 1944 test bullet with Sacco's Colt. The link necessary to establish that the mortal bullet was fired from Sacco's Colt was to demonstrate that the 1983 test bullet and the mortal bullet were both fired from the same weapon to the exclusion of all others. This finding could be made by side comparison of the striae of the two bullets aligned satisfactorily. Among the photographic exhibits accompanying the report, there are none picturing the striae of the 1983 test bullet and the mortal bullet on one photomicrograph. Nor does the Committee's report explain this absence. In discussions with the individual Committee members, this author learned that the mishandling, or just simply excessive handling, of the mortal bullet over the years as well as its heavily oxidized current condition precluded the Committee from using that bullet as a basis for comparison with the 1983 test bullets. A most dispiriting handicap this was, particularly when the question of the authenticity of the mortal bullet seemed to ride on it.

This disquiet becomes most vexatious when the Committee's photographic exhibit is a print of a photomicrograph of the matching striae of the mortal bullet and one of the three Lowell test-fired Winchester bullets without cannellure. The Committee's report concludes that this photographic exhibit identifies the mortal bullet "as having been fired from Exhibit 28 (The Sacco Colt)" [111]. This evaluation is predicated on the well-founded, long-standing, and entirely unquestioned assumption that the Lowell test bullets were discharged from Sacco's Colt. Clearly, if the source of the Lowell bullets is known, namely, the Sacco Colt, and the mortal bullet matches a Lowell bullet, then the mortal bullet can be said to have the same origin, namely, the Sacco Colt.

All then would seem to be well and happily resolved. And the issues of the origin and the authenticity of the mortal bullet determined in the one swell swoop of Photographic Exhibit KKK. Why then might one take umbrage with the Committee's analysis?

For one thing, the Committee relied on a photomicrograph that, certainly to the untutored, leaves something to be desired. Admittedly, all photomicrographs in firearms examinations are a slippery slope for the firearms expert since they are a one-dimensional and imperfect representation of what the expert perceived by the microscope. Firearms experts are quite generally opposed to the use of photomicrographs at a trial because of the confusion and the doubts the inexact quality of these photographs often engenders. Photographic Exhibit KKK gives good reason to reject the desirability of photomicrographs for it just does not unequivocally substantiate the Committee's written assessment that the Lowell test bullet and the mortal bullet are a matching pair with the same source. The striations in the print are hazy and ever so slightly out of alignment, giving full rein to a skeptical response.

On the other hand, recall that six test bullets of 1983 vintage are available to compare to the mortal bullet. Observe, further, that the report omits any reference, either in its photographic exhibits or in its written presentation, to any effort to compare the 1983 test bullets to the mortal bullet, apparently because the poor condition of the mortal bullet did not provide even a glimmer of hope that such a comparison would be productive. So far, we are in the Committee's thrall.

Why, then, or rather, how was it that the Committee found the mortal bullet a satisfactory exemplar to compare with a Lowell test bullet? And, more bewildering still, the mortal bullet in its poor condition was matched to a Lowell test bullet, whose condition, by all rights (or was it the wrongs of mishandling again?), should also have made it a dubious subject for a comparison. The Committee might have bypassed the weirs set by its critics if it had provided either a direct link through a photographic exhibit of a 1983 test bullet to the mortal bullet, or, failing that, a photographic exhibit of a 1983 test bullet compared to a Lowell test bullet. It certainly was not the condition of the bore of the Sacco Colt which caused the Committee to hesitate to use a 1983 test bullet since, as we have seen, it did pit a 1983 test bullet against the 1944 test bullet and found they matched.

For myself, the reasoning on the matter of the authenticity of the mortal bullet is more compelling and conclusive than the results of the scientific studies. Science, as Will Durant so trenchantly said, “observes processes and constructs means” but it is for reason, and reason alone, “to criticize and to coordinate ends” [228]. However, the scientific studies of the firearms evidence would have been more demonstrably corroborative if the Select Committee had, with a keener, warier eye for the skepticism which the Sacco and Vanzetti case has fostered, touched all the bases. Doubt is not dispelled by the insinuation of new doubts.

Res Nova

Matching

So far the Select Committee had sorted out but not resolved the maze of firearms dilemmas posed in the Sacco and Vanzetti case. But all was not lost. Two new findings did proceed from their heuristic efforts to ferret out the truth.

These findings relate to the process of what might be labelled “matching,” for want of a more fitting term. Matching means that a person is connected to a crime by the similarity of objects from the crime scene with objects known to be possessed by that person. The closer the similarities in these objects, the more certain we can be that the person is justly charged.

In a nonfirearms context, matching was involved in *United States v. Barber* [229], when coins possessed by the defendant were admitted into evidence against him on his trial for bank robbery since coins bearing the same date, of the same type, and in the same condition were stolen from the bank. “The fact that defendants were connected with coins identical to those stolen from the bank tends to support the conclusion that defendants were connected with the burglary” [229].

Fraher Cartridge Case Matching—In the Sacco and Vanzetti trial, matching occurred when it was noted that of the four types of unfired cartridges found on Sacco at his arrest (Peters, U.S.C., W.R.A., and Rem.-U.M.C.—Exhibit 31), three were also discovered among the Fraher cartridge cases (Peters, Rem.-U.M.C., and W.R.A.—Exhibit 30). There is a group aspect in evidence here which can be read to link Sacco to the South Braintree crime. “A given kind of cartridge, standing alone,” Van Amburgh has explained [230], “is merely a common commodity like any article in every-day use. When, however, it is combined with other kinds of cartridges, it takes on importance as an additional factor; it is part of a group and becomes significant.” The significance, however, should not be overindulged. The relationship might be a “mere coincidence, explained by the shortage of small arms ammunition at the time” [231] or by reason of the paucity of ammunition manufacturers in 1920 or otherwise [232]. Manifestly, the smaller the number of ammunition manufacturers, the less persuasive would be the matching argument.

The Obsolete Winchester Bullet Matching—Another exegesis into the “matching” process in Sacco and Vanzetti did not emerge with ringing clarity until the Lowell Committee issued its report. As the Committee saw it:

The fatal bullet found in Berardelli's body was of a type no longer manufactured and so obsolete that the defendants' expert witness, Burns, testified that, with the help of two assistants, he was unable to find such bullets for purposes of experiment; Yet the same obsolete type of cartridge was found in Sacco's pockets on his arrest. . . . Such a coincidence of the fatal bullet and those found on Sacco would, if accidental, certainly be extraordinary [233].

The Lowell Committee was placing its reliance not alone upon the fact that mortal Bullet III was of the same type as the six Winchester bullets found on Sacco at his arrest. The Committee found Burns' inability to locate any similar bullets for testing purposes a sign of the total unavailability of those bullets, which finding would lead suggestively to the conclusion that Sacco had fired mortal Bullet III into Berardelli.

Montgomery has championed the incriminating nature of the match among these "obsolete" bullets. Indeed, he tells us [234] that "Years after the Dedham trial all but one of the surviving jurors were interviewed and all said that in their minds this (matching) was the single most damning piece of evidence." Montgomery bemoans the fact that "(t)he evidence of the obsolete bullet which appealed so strongly to the jury and the Lowell Committee has been generally ignored by commentators" [235]. Like the Lowell Committee, Montgomery considered Burns stated inability to find any Winchester rounds identical to mortal Bullet III proof positive that "the bullets were of such a rare type that no duplicates could be found for ballistic-test purposes" [236].

A contrary and less draconian possibility exists, however. Burns might have been far less than conscientious in his efforts to locate the Winchester bullets to match Bullet III. Defense expert Albert Hamilton apparently had no trouble ferreting out bullets matching the mortal bullet for he test-fired 16 of the so-called "rare and obsolete" [237] types in 1923 [238].

Francis Russell [239] has gratuitously supplemented the myth of the obsolete Winchester bullets with the unsupported assertion that, not only Burns, but Van Amburgh and Proctor were also unable to track down any of these unique bullets. Yet, only Burns was called upon to explain his failure to test-fire cartridges matching the mortal bullet in all specifications [240]. The testimony of Proctor and Van Amburgh was unchallenged by the defense in this regard. Further, the entire thrust of prosecutor Katzmann's cross-examination of Burns on this point was fashioned to prove Burns's lack of diligence in failing to discover any similar Winchester rounds, not that the neglect to do so was further proof of Sacco's guilt.

Classifying Bullet III—In all the discussion and the controversy over whether Bullet III was an obsolete variety, rarely does anyone explain with specificity what feature or features of the mortal bullet were no longer in production at the time of trial in 1921.

Even a nonexpert could catalogue the observable data as to Bullet III, as those characteristics were stated at the Dedham trial and as the Select Committee noted them. The bullet is, of course, .32 caliber in size. It has a full metal jacket of cupronickel composition, giving it a dull silver hue. It evidences one knurled cannellure (intended to facilitate the crimping of the cartridge case to the bullet) and a "W" is etched in the side of the bullet, just above the ogive of the cannellure, signifying it was commercially (not the product of a hand-loader) produced by the Winchester Repeating Arms Company. Further, Bullet III bears an open base where the lead core is exposed. Defense expert Burns insisted on describing this bullet as having a hollow base [241]. Others (Joughin and Morgan) [242], in commenting on Burns's testimony, have failed to point out Burns's misdescription of the bullet as having a hollow base rather than an open one. No pettifoggery is involved here since a hollow base bullet would not be susceptible to Dr. Magrath's marking with the same ease as would an open base bullet.

Of Bullet III's myriad class characteristics, which one was eliminated or altered by Winchester so that the new production design rendered such a feature obsolete? Certainly not the "W" stamped into the jacket of the bullet. That the "W" survived until 28 Feb. 1932 is settled by Walter Bellemore's scrupulous inspection of Winchester's superseded merchan-

dise catalogues at the request of the Select Committee (Memo 3/26/83) [243]. On the other hand, Burns's testimony discloses that it was the lack of the knurled cannellure in Winchester's new line which disabled him from obtaining any cartridges with bullets matching Bullet III [244]. The presence of the knurled cannellure on Bullet III was, therefore, apparently the talisman which distinguished it from the later design.

No insights into the date when Winchester dropped the knurled cannellure from its production of .32 caliber A.C.P.s can, however, be gleaned from a review of back issues of its catalogues, since the presence or absence of a cannellure is not registered in them. Recourse to bullet drawings and production records might resolve this dilemma, but these documents are just not accessible to public scrutiny or too locked in the recesses of Winchester's files to be able to be retrieved with dispatch and without significant costs.

Ehrmann tells us, in what might, for all we are informed, be an ipse dixit, that the production of this bullet ceased in August 1917 [245]. Yet, since the new ammunition "had gone for war purposes" between 1917 and 1920, the supply of the "older type . . . could have been purchased from dealers . . . certainly prior to 1919" [245]. In an effort to verify Ehrmann's unsupported assertions, various persons at the present Winchester operation were contacted [246], but all to no avail. A number of gun dealers [247] and firearms experts [248] were also consulted with a similar lack of success. Apparently, there are no existing records to confirm or to repudiate Ehrmann's statements, or at least, such documentation is less available than the supposed obsolete Winchester bullet itself.

To put a damper on this obsolete bullet theorizing, the Select Committee test-fired six rounds of these supposedly obsolete bullets from the Sacco Colt [156]. The Committee did not have to use such bullets to insure that its tests would be comparable to the actual firing of mortal Bullet III in 1920 since "(a)ll that is required is to choose for test purposes an ammunition reasonably similar" [249]. Not only did Committee member Marshall Robinson have an ample supply of these so-called obsolete bullets, but he willingly shared them with this author. All of which appears to put the quietus on the obsolete bullet rigamarole.

The Peters Cartridge Cases' Matching—If novelty has meaning beyond the bounds of television advertising, then surely the Select Committee's findings [250], which, in their matter-of-fact prose, describe their conclusions after a comparison of the cartridges seized from Sacco with the Fraher cartridge cases, are unflinchingly novel. Not only were the findings a first in the post-1927 annals of the Sacco and Vanzetti case but they document the kind of imaginative and tireless genius that one would have expected from the astute members of the Select Committee. No transient aperçu was their revelation.

It will be remembered that Sacco had 32 .32 caliber cartridges on his person at his arrest. Sixteen of those were of Peters manufacture. Two Peters spent shells were also found at the crime scene. The Select Committee subjected the Sacco cartridges and the Fraher shells to scrupulous microscopic examination for the presence of any toolmarks or other imperfections that the cartridge cases might bear in common. Their sedulous perseverance paid off. The Committee has now established that the same striations appearing in the extractor groove on 6 of the 16 Peters cartridges taken from Sacco also appear on the 2 Peters shells discovered at the crime scene. This determination, which is very convincingly illustrated in Photographic Exhibit VVV, more closely connects Sacco to the murders, even without any precise knowledge of the number of rounds manufactured by Peters with the same die-cutting tool and without any gleanings as to the geographical distribution or availability of them in or about 1920.

The Other Five Bullets and the Other Three Cartridge Cases—The evidence from the six bullets taken from the two victims and the four Fraher cartridge cases demonstrates that at least two guns were used in the melee. One of these was evidently a Colt .32 semi-automatic, on account of the six lands and grooves with a left twist found imprinted on Bullet III. The other five bullets all bore the impress of six lands and grooves with a right twist, signifying a non-Colt manufactured weapon was employed in firing them.

It has been said that “no account was ever offered at trial as to the source of the other five bullets” [251]. Even a cursory inspection of the transcript proves the falsity of this assertion. Captain Proctor was so confident that these five bullets had been fired from a .32 caliber Savage that he asserted, with glowing hubris, that “I can be as certain of that as I can of anything” [252]. Van Amburgh, although less doctrinaire, was of a similar mind [253]. And the prosecution tirelessly emphasized these conclusions both in its opening [254] and its summation [255]. For the defense, Burns at first said the five bullets were fired from a Steyr [82]. Then he waffled between a Steyr, a Walter, or a Savage [256]. Finally, he disclaimed any ability to tell whether they were all fired from the same gun [257].

Defense expert Hamilton had his say on this matter too. To him, the Fraher cartridge cases were fired from a weapon not of American manufacture [258]. But, in his view, the five right-twist bullets were discharged from a Harrington and Richardson .32 automatic [104]. Once again, his opinions were topsy-turvy.

Surprisingly, the Select Committee agreed with Hamilton—up to a point. The three Fraher cartridge case of non-Winchester manufacture were found to bear identical extractor marks caused by the extractor’s sliding over the rim of the cartridge case [259]. Further, these extractor marks bore the highly distinctive and individualized character of a Harrington and Richardson .32 caliber self-loading weapon [226].

As further proof that a Harrington and Richardson .32 was to be implicated, the Committee found no ejector marks on the base of these three Fraher cartridge cases, which feature matched the operation of the Harrington and Richardson .32 in which the firing pin doubles as an ejector as well. Since only a Harrington and Richardson .32 leaves such a wide extractor mark like “a rake in the sand,” according to Committee member Anthony Paul [260], and allows its firing pin to double as an ejector, the Committee concluded that these cartridge cases “have class characteristics consistent with a Harrington and Richardson ‘self-loading’ pistol” [261]. Translated into a layperson’s terminology, the Harrington and Richardson .32 self-loader was the second, until now, unidentified weapon. The Select Committee did not state their opinion with oracular assurance since it was always possible that some gun shop or gun enthusiast had fashioned a weapon which, quite accidentally, bore the extractor and ejector features of a Harrington and Richardson. Remote though this possibility might have been, it is well-known that “(t)here are . . . literally hundreds of small gun shops throughout the country who make up special weapons to order, including very occasionally even the fabrication of special actions” [262].

Concerning the five .32 caliber bullets with a right twist, the Select Committee has adduced convincing proof through striation matching [263] that all were fired from the same weapon. A Harrington and Richardson .32 caliber self-loading pistol has rifling characteristics duplicating those found on these five bullets, all of which points invitingly to the conclusion that a Harrington and Richardson .32 self-loader was employed as a second, and only a second gun.

Conclusion

In fine, then, we now have significant and credible evidence from a most prestigious panel of firearms experts that Nicola Sacco was probably guilty as a perpetrator or, at the very least, as a conspirator in the commission of these wanton murders. The Select Committee is deserving of unstinting credit, particularly for taking the initiative and the effort to uncover the toolmark identity between six of the Peters cartridges found on Sacco and the two Peters shells recovered at the crime scene. In the words of Maxwell Anderson [264] the Committee came “seeking light in darkness . . . and stumbled on a morning.” As to Vanzetti, the firearms record of his involvement is as inadequate today as it was at his trial in 1921.

But conundrums of byzantine dimensions, snorters as Irish author Flann O’Brien would say, remain to perplex the conscientious investigator or historian. Was a shotgun shell

planted on Vanzetti? Was Bullet III switched through governmental skulduggery? Some persons, after Diogenes, might walk the streets carrying a lantern even during daylight hours in search of an honest answer to the enigmas of Sacco and Vanzetti. Others, like myself, might consider the Select Committee's report a fitting coda to the firearms aspects of the case and go on to undertake different and more fruitful pursuits than the unending quest for the mercurial truth of the Sacco and Vanzetti case.

Notes

*References to the transcript of the proceedings in the Sacco and Vanzetti case appearing in this paper are to the six-volume work entitled *The Sacco-Vanzetti Case: Transcript of the Record of the Trial of Nicola Sacco and Bartolomeo Vanzetti in the Courts of Massachusetts and Subsequent Proceedings, 1920-7* Henry Holt, New York, 1928-1929. The first five volumes of this work have Roman numerals designating the volume number. The sixth volume, which includes material on Vanzetti's trial at Plymouth, MA for a 24 Dec. 1919 Bridgewater, MA attempted robbery of an L. Q. White Shoe Factory vehicle is denominated a Supplemental Volume. In this paper, references to the first five volumes of this publication shall be signified by volume and page number, namely, IV-3481. Citations to the Supplemental Volume shall appear as Supp. Vol.-37, for example.

[137] *Report*, p. 5.

[138] "Locksley Hall."

[139] Zito, T., "Did the Evidence Fit the Crime?," *Life*, March 1982, pp. 41-54.

[140] *Johnson v. State*, 433 So. 2d 473 (Ala. Cr. App. 1982).

[141] Van Amburgh, C. J., "Common Sources of Error in the Examination and Interpretation of Ballistic Evidence," *Boston University Law Review*, Vol. 26, 1946, pp. 207-248 and 241.

[142] Colonel Calvin Goddard's mistaken firearms identification in the trial of Frank Milazzo in 1927 has generated much skepticism of Goddard's work in general. See Braverman, S., "Forensic Ballistic Errors," in *The Gun Digest*, 20th ed., 1966, pp. 280-283, p. 281; Ehrmann, Note 2, pp. 281-282; Warner, A., "A Sacco Revolver Expert Revealed," *The Nation*, 7 Dec. 1927.

[143] Schlesinger, H. L., Hoffman, C. M., and Pro, M. J., "Identification of Bullet Holes by Residue Transfer," *J. Assoc. Off. Anal. Chem.* 1967, Vol. 50, No. 2, pp. 376-380; Schlesinger, H. L., Hoffman, C. M., and Pro, M. J., "Bullet Residue Transference to Various Materials," *General Atomic Report GA-8171*, 1967, pp. 189-198.

[144] II - 1428.

[145] Russell, Note 2, pp. 315-317.

[146] See Photographic Exhibit WWW.

[147] Braverman, S., "Were Sacco and Vanzetti Framed?," *Guns*, May 1963, pp. 16-18, 52-54.

[148] Russell, Note 2, p. 317.

[149] Russell, Note 2, pp. 247-249.

[150] See Ehrmann, Note 2 and Ehrmann, H. B., *The Untried Case*, The Vanguard Press, Inc., New York, 1933.

[151] Ehrmann, Note 2, pp. 285-286.

[152] Hatcher, Jury, and Weller, Note 20, p. 466.

[153] The "difficult, if not impossible" phrasing appears in Ehrmann, H. B., "Sacco and Vanzetti: The Magnetic Point and the Morelli Evidence," *Harvard Law Review*, Vol. 79, No. 3, 1966, pp. 571, 579. No source is there given for this assertion. In Ehrmann's 1969 book, *The Case That Will Not Die*, Note 2, p. 286, the "if not impossible" wording is omitted and a reference to a 1966 interview with Shelley Braverman is added as authoritative support. It would seem that Mr. Ehrmann was caught with his guard down while in a mood of all too heavy-handed criticism in his *Harvard Law Review* article, which expert guidance later induced him to moderate.

[154] Ehrmann, Note 2, p. 286.

[155] Russell, Note 98, p. 110.

[156] *Report*, p. 21.

[157] See text, pp. 638-640, for elaboration of the shotshells caper.

[158] F.B.I., *Handbook of Forensic Science*, G.P.O., Washington, DC, 1984, p. 48.

[159] Crime Laboratory Bureau, Wisconsin Department of Justice, *Criminal Investigation and Physical Evidence Handbook*, 2nd ed., 1973, pp. 148-149. In addition to these directives, pathologists in conducting an autopsy of a firearms victim have been enjoined to scratch the initials of the deceased on the base of the bullet and the number of the bullet in the order of recovery from the various wound sites. Each bullet should be placed in a separate envelope on which the pathologist should enter holographically the victim's name, autopsy number, date, time of death and autopsy, and the site of lodgement and recovery of the bullet. Adelson, L., *The Pathology of Homicide*, Charles C Thomas, Springfield, IL, 1974, p. 263.

- [160] Dec. 1964 issue, *American Rifleman*.
- [161] See Stimpson, G., *A Book About a Thousand Things*, Harper & Brothers, New York, 1946, p. 97 for an enlightening and diverting account of the clockmakers' adherence to IIII in preference to IV.
- [162] I - 133.
- [163] Boston Public Library Collection, p. 1466.
- [164] I - 781, 782.
- [165] Jackson, Note 2, pp. 137-138 (Sacco's cap) and the additional cartridge case.
- [166] Jackson, Note 2, pp. 170-194.
- [167] IV - 4116, 4117.
- [168] V - 4764. In criticism of these charges of governmental misfeasance, Judge Thayer coined the neologism "lego-psycho neurosis" to describe "a belief in the existence of something which in fact and truth has no such existence." V - 4748.
- [169] V - 5170.
- [170] V - 5181.
- [171] Russell, Note 2, p. 401.
- [172] Jackson, Note 2, pp. 137-138.
- [173] V - 5225. Joughin and Morgan seek to rationalize the defense's failure to raise the bullet-switching issue at the trial by pointing out that "the preparations for trial were inadequate; counsel for the defense took too much for granted; their scrutiny of the exhibits was superficial in the extreme; when the suspicious factors were discovered, it was too late." Joughin and Morgan, Note 2, p. 176.
- [174] IV - 3568.
- [175] V - 5225.
- [176] V - 5228.
- [177] I - 108-132.
- [178] V - 5227.
- [179] V - 5226.
- [180] Russell, F., Reply to Wayman, O. G., "Sacco-Vanzetti: The Unfinished Debate," *American Heritage*, Dec. 1959, pp. 89-93 at p. 92. Young and Kaiser voice the same opinion. See Young and Kaiser, Note 2, p. 96.
- [181] Van Amburgh, Note 178, p. 230, Note 1; Young and Kaiser have reiterated the same refrain. See Young and Kaiser, Note 2, pp. 106-107.
- [182] Supp. Vol. - 414.
- [183] Supp. Vol. - 414. Before the grand jury at Dedham in 10 Sept. 1920, Dr. Magrath similarly testified that all four bullets he extracted from Berardelli "looked exactly alike" by reason of their "size and weight." Harvard Law School Library, Manuscript Division, p. 46.
- [184] V - 5321.
- [185] Joughin and Morgan, Note 2, p. 176; see also Young and Kaiser, Note 2, p. 106 et sequel.
- [186] I - 816.
- [187] *Palmer v. Rucker*, 268 So. 2d 773 (Ala. 1972); *People v. Williams*, 164 Cal. App. 2d 63 (Cal. App. 1958); *State v. Peay*, 165 Conn. 374 (1973); *State v. Flauaus*, 515 S.W. 2d 873 (Mo. App. 1974); *State v. Bradley*, 234 S.W. 2d 556 (Mo. 1950); *State v. Foster*, 293 N.C. 674 (N.C. 1977); *Lapiska v. Lapiska*, 202 Pa. Super 607 (1964); *Wigmore on Evidence*, 3rd ed., Vol. 3, p. 675; *State v. Gelinas*, 417 A. 2d 1381 (R.I. 1980); *State v. Rosales*, 302 N.W. 2d 804 (S.D. 1981).
- [188] Thorwald, Note 4, p. 449.
- [189] The Colt Manufacturing Company uses a high-stepping, "rampant" Colt as its logo.
- [190] Both Russell and Thorwald take it as unarguable that if a bullet substitution occurred, the Sacco Colt was a party to the deed. Thorwald, Note 4, p. 449; Russell, Note 2, p. 402, and Russell, Note 98, p. 108.
- [191] Musmanno, M. A., "The Sacco-Vanzetti Case," *Kansas Law Review*, Vol. 11, 1963, pp. 481-515, p. 509.
- [192] I - 888.
- [193] See discussion infra.
- [194] II - 1895.
- [195] Letter dated 3/6/83 from M. S. Huber, Historian.
- [196] I - 1897.
- [197] Supp. Vol. - 358. Curiously, Young and Kaiser do not take note of this letter. Note 2.
- [198] V - 5317.
- [199] I - 118-119.
- [200] I - 119-120. Young and Kaiser suggest prosecutorial chicanery in showing the bullets to Dr. Magnath Seriatim. See Young and Kaiser, Note 2, p. 111.
- [201] V - 5186.

- [202] Tedeschi, L. G., "Profile: George Burgess Magrath," *The American Journal of Forensic Medicine and Pathology*, Vol. 1, No. 2, June 1980, pp. 169-172.
- [203] The biographical details concerning Dr. Magrath's career were obtained from various sources through the kind interposition of Richard J. Wolfe, curator of Rare Books and Manuscripts and Joseph Garland, Librarian of the Boston Medical Library. In particular, see "George Burgess Magrath, 1870-1938," *Harvard Medical Alumni Bulletin*, Vol. 13, No. 3, April 1939, pp. 59-61 and "Dr. Magrath, Will You Take the Witness Stand?" *Boston Globe*, 22 Sept. 1935 and Dinien, J. F., "No Murder Trial Was Complete Without Boston's Dr. Magrath," *Boston Evening Globe*, 12 Dec. 1938.
- [204] Yeats, W. B., "Sailing to Byzantium," *Collected Poems*, p. 223.
- [205] Magrath, G. B., "Restriction Upon Autopsies as a Handicap to Efficiency," *Transactions of the Massachusetts Medico-Legal Society*, Vol. V, No. 2, 1926, pp. 92-95; Magrath, G. B., "Report of a Case," *Transactions of the Massachusetts Medico-Legal Society*, Vol. V, No. 1, 1917, pp. 95-97; Magrath, G. B., "Our Medical Examiner Service: Some of Its Needs and How to Meet Them," *Transactions of the Massachusetts Medico-Legal Society*, Vol. V, No. 1, 1917, pp. 66-69; Magrath, G. B., "The Technique of a Medico-Legal Investigation," *Transactions of the Massachusetts Medico-Legal Society*, Vol. V, No. 2, 1926, pp. 20-28; Magrath, G. B., "Address," *Transactions of the Massachusetts Medico-Legal Society*, Vol. V, No. 2, 1926, pp. 122-125.
- [206] V - 5339.
- [207] V - 5038, 5314; Pound, R. and Frankfurter, F., *Criminal Justice in Cleveland*, The Cleveland Foundation, Cleveland, OH, 1922. Ehrmann's contribution appears as Part III - "The Criminal Courts," pp. 229-371.
- [208] *American Journal of Police Science*, Vol. 2-3, 1931, pp. 337, 339.
- [209] V - 5373.
- [210] I - 118-119; Joughin and Morgan, Note 2, p. 84.
- [211] *Modern Bedside Nursing*, 7th ed., W. B. Saunders Co., Philadelphia, 1969, pp. 350-352.
- [212] *Suture Use Manual: Use and Handling of Sutures and Needles*, Ethicon, 1972, p. 35.
- [213] Brunner, L. S., Emerson, C. P., Jr., Ferguson, L. K., and Suddarth, L. S., *Textbook of Medical Nursing*, 2nd ed., J. B. Lippincott Co., Philadelphia, 1970.
- [214] Memorandum of Lt. Collins to Commissioner Frank S. Giles dated 11 Oct. 1961; Hatcher, Jury, and Weller, Note 20.
- [215] Report 240 at 61.
- [216] Letter dated 29 March 1983 from Dr. Henry C. Lee to George R. Wilson.
- [217] Russell, Note 2, p. 465.
- [218] Braverman, Note 188, p. 52.
- [219] Blood and tissue study of 5 Oct. 1961, Boyd.
- [220] Boyd, J., *Journal of Criminal Law, Criminology and Police Science*, 1946, p. 455.
- [221] Russell, Note 2, p. 318.
- [222] Van Amburgh, Note 142, pp. 214-215.
- [223] Russell, Note 98, p. 74.
- [224] IV - 3633.
- [225] IV - 3732I to N.
- [226] Report, p. 23.
- [227] Report, p. 10.
- [228] Durant, W., *The Story of Philosophy*, Simon & Schuster, New York, 1926, p. 3.
- [229] 495 F.2d. 327 (9th Cir. 1974).
- [230] Van Amburgh, Note 178, p. 321.
- [231] Joughin and Morgan, Note 2, p. 174.
- [232] Jackson, Note 2, p. 107 where he says "it could be theoretically argued that this was the mix of bullets in current circulation." On the contrary, it is not "the mix of bullets in current circulation" that would be determinative but the number of bullets and the area of distribution for them, as well as the number of manufacturers.
- [233] V - 5378w-x.
- [234] Montgomery, Note 2, p. 7.
- [235] Montgomery, Note 2, p. 345.
- [236] Id. at p. 7.
- [237] Id. at p. 343.
- [238] IV - 3631, 3689.
- [239] Russell, Note 2, p. 464.
- [240] II - 1462.
- [241] II - 1460, 1461.
- [242] Joughin and Morgan, Note 2, p. 88.
- [243] Memorandum from Walter Bellemore dated 26 March 1983.

- [244] II - 1437.
- [245] Ehrmann, Note 2, p. 512.
- [246] In East Alton, IL, Herman Bockstruck and Dave Trowbridge.
- [247] George Kass, Forensic Ammunition Supply, Spring Arbor, MI.
- [248] Bill Albrecht, George Wilson, and Al Johnson.
- [249] Hatcher, Jury, and Weller, Note 20, p. 202.
- [250] Report, p. 24.
- [251] Jackson, Note 2, p. 175.
- [252] I - 890.
- [253] I - 917.
- [254] I - 76.
- [255] II - 2183.
- [256] II - 1422.
- [257] II - 1433.
- [258] IV - 3626.
- [259] The extractor is that part of the weapon which removes the cartridge case from the chamber after a round has been fired and preparatory to the spent shell's being ejected from the weapon. "The extractor will slip over the rim of a cartridge case, either before or after the round has reached the chamber." Hatcher, Jury, and Weller, Note 20, p. 398.
- [260] Personal conversation with the author.
- [261] Report, p. 23. See Photographic Exhibits SSS, TTT, and UUU.
- [262] Hatcher, Jury, and Weller, Note 20, p. 126.
- [263] Report, p. 23. See Photographic Exhibits MMM, NNN, OOO, and PPP.
- [264] *Winterset*, which is a play of, about, and concerning what might have transpired in the lives of the offspring of Sacco after the deaths of Sacco and Vanzetti.

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