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SJC-09938

COMMONWEALTH vs. EDWARD STANLEY LYKUS.

Bristol. February 4, 2008. - May 1, 2008.

Present: Marshall, C.J., Greaney, Ireland, Spina, Cowin, Cordy,
& Botsford, JJ.

Evidence, Exculpatory, Scientific test, Sound recording, Voice identification, Cumulative evidence. Practice, Criminal, Disclosure of evidence in possession of Federal authorities, New trial.

Indictments found and returned in the Superior Court, two on February 6, 1973, and one on June 8, 1973.

Following review by this court, 367 Mass. 191 (1975), a motion for a new trial, filed on December 4, 2003, was heard by David A. McLaughlin, J.

A request for leave to appeal was allowed by Spina, J., in the Supreme Judicial Court for the county of Suffolk.

William R. Connolly, Assistant District Attorney, for the Commonwealth.

Chauncey B. Wood for the defendant.

SPINA, J. The defendant was convicted in 1973 of murder in the first degree, kidnapping, and extortion. The convictions were affirmed on appeal. Commonwealth v. Lykus, 367 Mass. 191 (1975). The sole issue raised by the defendant in that appeal

was whether an expert opinion based on voice spectrogram analysis was shown to be sufficiently reliable to be admitted in evidence.

Id. at 195-196. A judge in the Superior Court, not the trial judge (who since has retired), allowed the defendant's third motion for a new trial on grounds that (1) the failure of the Federal Bureau of Investigation (FBI) to disclose exculpatory (or alternatively, newly discovered) material to the defendant at trial, although unknown to the Commonwealth, must be attributed to the Commonwealth in this jointly investigated crime, and (2) a newly discovered scientific study by the National Research Council (NRC) indicating the factual basis for opinions based on "compositional analysis of bullet lead" (CABL) either are seriously flawed or nonexistent, tends to negate the justice of the conviction where an FBI agent testified that, based on his CABL of two spent projectiles removed from the body of the victim and a bullet taken from a box of ammunition belonging to the defendant, it was only remotely possible that the spent projectiles came from another box of ammunition. The Commonwealth filed an application under G. L. c. 278, § 33E, for leave to appeal to the full court. A single justice allowed the Commonwealth's appeal to proceed. We reverse the order granting the defendant a new trial because the evidence in question likely had but slight effect, and the case against the defendant was overwhelming.

1. Background. In the early evening of November 2, 1972, thirteen year old Paul Cavalieri left his house in North

Attleborough and failed to return. He was last seen by a neighbor at 7:15 P.M. that evening standing at Cheevers Corner, an intersection down the street from his home and approximately two tenths of a mile from the home of the defendant's mother. Two days later Cavalieri's mother received a telephone call in which the caller whispered, "You will receive instructions." She then telephoned the North Attleborough police. The FBI, working in conjunction with the local police, and with the permission of the Cavalieris, attached a tape recording device to the Cavalieri home telephone, and arranged for the telephone company to trace the origin of incoming calls. On November 7, the Cavalieris received a ransom note demanding \$50,000. Mr. Cavalieri made arrangements to meet the ransom demand. The serial numbers of the bills were recorded by the FBI, and bills were dusted with an ultraviolet sensitive florescent powder.

On the evening of November 7, 1972, Mr. Cavalieri brought the money to the drop point, a tree at Cheevers Corner designated in the ransom note. No one picked up the money. The next day he received two telephone calls with further directions for a new

¹ The defendant was familiar to the Cavalieri family, and had been a lifelong friend of Gregory Cavalieri, a brother of the victim.

² A North Attleborough police officer who was monitoring the first drop point from inside a nearby home saw the defendant's car pass the spot three times within one hour during the evening of November 7, 1972. The driver of the car, its sole occupant, was a large person. The defendant stood six feet, nine inches, and weighed 240 pounds. At the time of trial he was nineteen years old.

drop point. Whispering, the caller said he did not pick up the money because he was aware the FBI were conducting surveillance at the drop point. That night the money was brought to the second designated drop point, but again was not taken. Mr. Cavalieri received two telephone calls on November 9 with directions to a third drop point. The first telephone call on that day came at 2:30 P.M., and the caller, becoming impatient, and in contrast to his earlier mode of communicating in a whisper, spoke out loud. The money was brought to the third designated drop point that night.

In the early morning hours of November 10, 1972, police and FBI agents observed an elaborate pick-up procedure from multiple remote locations around the third drop point near the Route 146 exit toward Woonsocket, Rhode Island, off Interstate Route 295 (I-295). At one point they saw a large man with a sack over his shoulder emerge from the woods and enter the passenger side of a vehicle at a restaurant parking lot on Route 146. The vehicle then left. The registration of the vehicle led police to Richard Tardiff, whom they interviewed on November 11. Tardiff, fifteen years old at the time, explained that he was helping the defendant move some tires, and his role simply was to drive the defendant to the Route 146 exit ramp, drive around awhile, then meet him at the restaurant parking lot shortly thereafter.

The defendant also was interviewed by FBI agents on November 11, 1972. They told the defendant they were investigating the disappearance of Paul Cavalieri, and asked him

to give details of his activities since November 2. The defendant said he had been at his mother's home from about 8:45 P.M. to 9:10 P.M. on November 2. On November 7, he said he had been at his mother's home during the evening until about 11:30 P.M., at which time he returned to his apartment in Woonsocket. At one point he went out to get a pizza and saw a strange car cruising back and forth in the vicinity of his mother's home. He reported it to police by telephone. North Attleborough police received such a call from the defendant at about 9 P.M. on November 7.

With respect to November 9, the defendant said he had asked Tardiff to help him steal some tires from a car dealership. He told Tardiff that he had hidden some tools behind a stone wall near the dealership about one week earlier, and he planned to use them to steal the tires. He instructed Tardiff to leave him at the Route 146 exit off I-295, drive around a while, then pick him up at the restaurant. He said he encountered a high fence at the dealership and gave up on the idea of stealing the tires out of fear he would be discovered. He then walked to the place where Tardiff was to meet him. He said he placed his bag of tools in Tardiff's car and later transferred them to his own car.

The agents told the defendant that on November 9, 1972, two telephone calls concerning a ransom demand were made to the Cavalieri residence, and that the calls had been traced. They said one call was traced to a telephone booth outside Fernandes Supermarket in Plainville, and FBI agents had lifted some

fingerprints from the telephone booth. They told him that a search of his car, to which he consented, resulted in the discovery of a box of plastic bags, one of which was missing. They also told him that the front seat of his car, some gloves found under the front seat, and his jacket yielded positive results to a test for a chemical substance similar to one used to treat the ransom money.

In response, the defendant said he purchased the plastic bags at Fernandes Supermarket in Woonsocket on November 9, and the cashier told him the package had been opened and one of the bags might be missing. He admitted being in the telephone booth in question on November 9, from which he made a telephone call to a client at 2:30 P.M. to arrange a time to demonstrate a vacuum cleaner, but she was not at home. The agents had not told the defendant the first ransom call to the Cavalieris on November 9 occurred at 2:30 P.M. The defendant also admitted making business calls from a diner to which the second ransom call of November 9 was traced. He denied making any ransom calls to the Cavalieris.

The defendant then said he had not told them the truth, and

³ A FBI fingerprint expert reported on November 29, 1972, that no latent prints of value were visible on the telephone receiver or the door handle of the telephone booth.

⁴ In the course of a consent search of the defendant's car, an ultraviolet lamp was directed at the front seat, gloves found under the front seat, and the defendant's jacket, and in each instance produced a greenish-yellow glow similar to that produced by the chemical powder applied to the ransom money.

proceeded to give a different account of his activities from November 8 to November 10, 1972. He said that a stranger approached him in a restaurant on November 8. The stranger offered him \$500 to pick up a package in the area of Route 146 and I-295 and drop it in the second trash barrel at the first rest area on Interstate Route 95 (I-95) in Attleboro. The stranger offered him \$200 at that time, and said the remaining \$300 would be mailed after the job was completed. The defendant assumed he would be handling drugs. He described the man as twenty-seven or twenty-eight years old, weighing about 130 pounds, having long brown hair and a Van Dyke beard. The man drove a red MG or Triumph automobile.

The defendant said he concocted a story about stealing tires when he enlisted Tardiff's help because he did not want to share the \$500 delivery fee with Tardiff. He found the package where the drug dealer said it would be, carried it to Tardiff's car, and told Tardiff it contained the tools he planned to use to steal the tires. After he transferred the package from Tardiff's car to his own car, he became curious and opened it. He saw what he thought was \$200,000 in cash, and became frightened. The next morning he deposited the package, as directed. He said he had not touched or taken any of the money. He also said he never

⁵ The defendant also told FBI agents on November 11, 1972, that he had a .38 caliber Detective Colt Special revolver and some ammunition in his Woonsocket, Rhode Island, apartment. The gun had belonged to his late father, a former North Attleborough chief of police. Agents saw the gun during a consent search of the apartment, but it was not seized because they were not aware

received the final \$300 payment.

The defendant was arrested on Federal charges on November 11, 1972, immediately after his interview. In the course of the inventory of his personal effects, a ten dollar bill was found bearing a serial number that had been recorded with the other ransom money. The FBI used an ultraviolet light to scan the five trash barrels at the rest area on I-95 in Attleboro where the defendant said he dropped off the money, but there was no response.

On November 14, 1972, a ten dollar bill from the ransom money turned up at the Attleboro Trust Company as part of its general receipt of cash from November 10 and 11. On November 22, seventy-one ten dollar bills from the ransom money were recovered from the garage behind the defendant's mother's house. The defendant arranged through counsel to speak to the FBI, and an interview took place in the presence of counsel at the Bristol County house of correction on December 1. The defendant proceeded to change his account of his activities of November 2, the day Paul Cavalieri disappeared, and November 10. We relate

at the time that Paul Cavalieri had been murdered. In response to questioning the defendant told the agents that two weeks earlier he, Tardiff, and Bob Blais had fired the gun at some pumpkins.

⁶ A Bristol County grand jury indicted the defendant on February 6, 1973, for kidnaping and extortion, and on June 8, for murder. The Federal charges were dismissed without prejudice some time before March 22, 1973, for want of evidence of interstate transportation of the victim.

only the details as to November 10.

The defendant said that on November 10, 1972, he found an unpostmarked envelop containing \$300 in his mailbox after he dropped off the bag of money in the trash barrel at the rest area on I-95. He previously denied receiving the payment. He also said some of the money he delivered for the drug dealer must have fallen out of the bag because he found a packet containing about \$500 in the back of his car. He said he took \$90 and exchanged it for other denominations at a bank in North Attleborough.

On April 12, 1973, Paul Cavalieri's body was found. Death was caused by gunshot wounds. Two .38 caliber spent projectiles were removed from the body. On April 15, 1973, police seized the defendant's .38 caliber Detective Colt Special revolver from the home of his in-laws, where his wife moved his belongings after his arrest. Two days later police returned and seized a box containing .38 caliber ammunition belonging to the defendant. As a result of the discovery of the body and the seizure of his gun and ammunition, the defendant once again asked to speak with police. On May 15, in the presence of counsel, the defendant told Detective Lieutenant Gordon Clarkson of the State police that when he first spoke to FBI agents Cavalieri's body had not been found, and he did not know if the boy was dead. Now that the body had been found and his gun was in the possession of police, he wanted to offer an explanation about the gun.

The defendant said that on October 31, 1972, or November 1, he had given his gun to Anthony "Bobo" Cavalieri, the victim's

brother, and asked him to try to sell it for \$75. He said he also gave Bobo a box of ammunition. Bobo returned the gun and ammunition on November 5, and offered him \$500 to pick up a bag of narcotics. The defendant then repeated the details he told the FBI on November 11, about picking up what he thought would be narcotics and the pretext he had used with Tardiff, except this time he said he helped himself to one packet of bills, or about \$500, plus a couple of ten dollar bills. The defendant stated that the description he gave the FBI about the unknown man with the beard was untrue, and he had concealed the fact that all along it was Bobo Cavalieri.

The defendant also said that while awaiting trial he met an inmate named Bob Langevin in the Bristol County house of correction. Langevin told him that during the first week of November, 1972, he attended a party at which Bobo Cavalieri said he had a gun belonging to the defendant and was trying to sell it for \$90. The defendant said Langevin would be a defense witness at trial. Langevin never testified.

William Delaney, another inmate the defendant met while awaiting trial, hoping for favorable treatment as to the balance on his sentence, came forward in early June, 1973, with information the defendant gave him in confidence. The defendant

⁷ William Delaney, who had a history of forging checks, came to Massachusetts from Florida on December 3, 1972. He was arrested on February 3, 1973, on process issued by the District Court in Attleboro based on numerous complaints of forged checks written shortly after he arrived here.

told Delaney he had driven a car in which Rick Tardiff, Bobo Cavalieri, and Paul Cavalieri (the victim) were passengers. He told Delaney the four of them were plotting to extort \$50,000 from the Cavalieris' father to cover money that Bobo and Paul owed some drug dealers in Providence. An argument erupted in the back seat between Bobo and Paul. The defendant's gun, which was in Bobo's possession, accidentally discharged, killing Paul.

Delaney returned to the house of correction from a furlough on May 20, 1973, and the defendant asked for his help in picking up \$49,000 in ransom money the next time Delaney was given a furlough. Delaney gave police a map he created based on the defendant's directions. On June 8, police followed the directions on the map and recovered \$48,980 of the ransom money in Cumberland, Rhode Island. The money was in a black plastic bag.

At the bottom of the bag was a receipt from Fernandes Supermarket, date stamped November 10, 1972, indicating a purchase of sixty-nine cents. The price tag on the box of plastic bags taken from the defendant's car on November 11 showed sixty-nine cents. The black plastic bag containing the ransom money and the box of plastic bags taken from the defendant's car

⁸ Rick Tardiff and Anthony "Bobo" Cavalieri denied this ever occurred, and each said he had never met the other before trial.

⁹ For his assistance in the case, the district attorney interceded on behalf of Delaney before the parole board. Delaney was paroled on June 13, 1973, nearly four months early.

were analyzed by an FBI expert and determined to have "emanated from the same source of manufacture."

As a result of oxidation, the two spent projectiles recovered from Paul Cavalieri's body had insufficient marks for purposes of ballistics identification. However, the projectiles could have been fired from the defendant's .38 caliber revolver.

The .38 caliber ammunition in the box belonging to the defendant was an unusual type of ordnance.

Special Agent John P. Riley testified that the fatal projectiles and the .38 caliber ammunition belonging to the defendant were similar in chemical composition and "could have originated from the same source of lead," although he stated this was not necessarily so. He acknowledged the "possibility exists" that the fatal projectiles could have come from a different box of ammunition, but such a possibility was "remote." On cross-examination he said he could not swear that the fatal projectiles and the defendant's box of ammunition came from the same batch of lead, and he estimated that about 100,000 bullets could have been manufactured from a single batch of lead and therefore would have the same chemical composition.

An FBI metallurgist testified that staples used in the ransom note were consistent in manufacture and size with those in a stapler and a box of staples owned by the defendant. An FBI handwriting expert was unable to determine whether the defendant authored the ransom note and envelop due to the distortion of, or efforts to disguise, the writing.

No blood was found on the defendant's clothing or in his car. Surface soil taken from under the victim's body did not match soil on the defendant's boots or a shovel seized from the trunk of his car.

Eight witnesses listened at trial to a tape recording of the third telephone call to the Cavalieri home regarding delivery of the ransom money (the first call on November 9, 1972, in which the caller spoke audibly). Seven of them previously had spoken to the defendant over the telephone. Six of the seven positively identified the caller's voice as that of the defendant. The seventh recognized the defendant's voice but could not positively identify him as the caller. The eighth witness, William Delaney, had never spoken to the defendant over the telephone, but positively identified him as the caller. The seven who positively identified the defendant as the caller were particularly definite in identifying certain words that were spoken aloud, in contrast to the words that had been whispered.

Dr. Oscar Tosi, a professor at Michigan State University and director of the Speech and Hearing Research Laboratory and of

¹⁰ One witness who identified the defendant's voice had known him for approximately sixteen years, and had been his employer for five years. Three witnesses who had been close friends of the defendant in school, having known him for seven, fifteen, and nineteen years, respectively, asserted without doubt that he was the caller. An acquaintance and a close friend (Richard Tardiff), both of whom knew the defendant about two years, positively identified him as the caller. The seventh person who identified the defendant as the caller was William Delaney, who had spoken to him at least fifty to eighty times at the Bristol County house of correction.

the Research Services Center, testified as an expert in the field of voice identification. He was a leading proponent of the newly emerging science of voice spectrogram analysis. He testified that voice spectrogram analysis was reliable when performed by an expert professional examiner, and generally was accepted in the scientific community that was familiar with it and that had worked effectively with it. The recordings of the four ransom telephone calls and the voice exemplars of the defendant speaking and whispering the same words used in the recorded telephone calls were sent to Lieutenant Ernest W. Nash of the Michigan State police for voice spectrogram analysis. Nash testified that the voice on the tape where the caller spoke aloud, not in a whisper, was the same voice in the exemplar given by the defendant.

The defendant called Dr. Louis J. Gerstman, professor of psychology and of speech and hearing sciences at City College of the City University of New York, who, while working at Bell Telephone Laboratories, coined the first computer program to enable a computer to talk. He qualified as an expert in voice spectrograms, voice identifications, and acoustical phonetics. Dr. Gerstman testified that only a minuscule number of Dr. Tosi's

¹¹ Voice spectrogram analysis involves a two-step process. The first is a visual comparison of the graphic patterns produced by a spectrogram machine on paper of the known and the unknown voice exemplars. The second step involves an aural comparison of the two exemplars. If there are sufficient points of similarity, the analyst may opine that the voice in the two exemplars is the same. See Commonwealth v. Lykus, 367 Mass. 191, 196-197 (1975).

experiments, thirty-six out of thousands, approximated court room conditions and therefore had potential relevance to forensic use.

He explained that by "courtroom conditions" he meant conditions that included such features as a single examiner making the identification decision (in contrast to members of a panel of examiners who conferred about a decision), and the examiner did not know in advance if the subject speaker was included in the group of speakers against whom comparison was made, that is, the tests were "open." He further testified that although Dr. Tosi's thirty-six tests featured these court room conditions, there were other "courtroom-like" conditions they did not have, which we describe below. In the thousands of other tests conducted by Dr. Tosi there were panels of two or three examiners who jointly decided the question of identification; or examiners were told in advance that the subject speakers were included in the comparison group, that is, the tests were "closed."

Dr. Gerstman testified to various shortcomings in Dr. Tosi's tests. He indicated that the only possible error in the "open" tests was a "false positive," and the only possible error in the "closed" tests was a "mismatch." In contrast, he said, the court room additionally permits the "I cannot tell whose voice it is" answer. He further testified that Dr. Tosi's tests generally focused only on a single spoken word; that only one of three recording conditions used in Dr. Tosi's tests involved telephone recordings with background noise; and the error rate among the thirty-six "open" tests was 16 2/3%. He explained that a

telephone will eliminate certain segments of audible sound used to identify a caller, and the poor quality of the tape recorder used to record the ransom calls in this case, in contrast to the high fidelity recording devices used in Dr. Tosi's tests, aggravated the problem for purposes of voice spectrogram analysis. He also testified that the same person usually does not articulate even the same word uniformly from time to time, and the Tosi tests usually involved subject speakers whose utterances, for comparison purposes, were made virtually contemporaneously, unlike this case.

Finally, Dr. Gerstman testified that different speakers can produce nearly identical voice spectrograms, and similar sounding voices can produce different spectrograms. He concluded with his opinion that no published data existed to support the claim that viewing voice spectrograms and listening, together, is superior to doing either, separately.

Dr. Gerstman testified that he listened to the defendant's voice exemplar and the recording of telephone call number 3, and subjected them to various tests, including listening to one recording in one ear and the other recording simultaneously in the other ear, and concluded that the defendant was not the speaker in telephone call number 3.

2. Newly discovered material. a. FBI voiceprint (voice spectrogram) report. In August, 1993, the defendant made a request under 5 U.S.C. § 552, the Federal Freedom of Information Act (FOIA), to the United States Department of Justice in which

he sought all information in connection with his case. He received four separate packages between February, 1999, and September, 2000. Among the materials was a report dated December 7, 1972, from the FBI laboratory in Washington, D.C., to the special agent in charge of the Boston field office of the FBI. The report stated: "A spectral comparison of the voice of the unknown caller and the known voice sample of [the defendant] . . . was conducted. It was not possible to definitely determine whether the unknown voice was that of [the defendant]." The FBI laboratory sent a memorandum to the Boston field office the same day that stated: "Numerous spectral similarities were noted between the whispered voice sample of [the defendant] and the voice samples of the unknown caller. These similarities are normally associated with the same speaker but are not conclusive."

On February 21, 1973, just two and one-half months after these documents were sent to the Boston field office, a Superior Court judge allowed the defendant's general request for "scientific tests conducted by the [FBI]" in what was then a kidnapping and extortion case. A memorandum from the acting director of the FBI to its Boston field office, dated March 22, 1973, acknowledged a request by the Commonwealth for certain material, including a copy of FBI laboratory reports, in response to the Superior Court judge's allowance of the defendant's discovery motion. On March 28, 1973, the acting director sent a memorandum to the Boston field office stating:

"The results of the Laboratory voiceprint examination, contained in a report [redacted] to you dated 12/7/72, are to be used for the investigative guidance of the Boston Office only as specified in The [redacted]. Since no testimony will be provided by Bureau voiceprint experts, no purpose would be served in making this report available to the District Attorney's Office. It is, therefore, not to be included with those items to be forwarded to the District Attorney's Office."

After the defendant was indicted for murder, he filed a motion for production of various materials, including

- "4) Any results of any scientific tests conducted by either the [FBI] or police officials for the Commonwealth, including . . . voice exemplars . . .
- "7) Statements made by witnesses favorable to the [d]efendant.
- "8) Statements or facts discovered during the course of investigating the [murder] charge which are favorable to the [d]efendant."

On August 10, 1973, the motion was allowed as to these requests.

As to item 4, the indorsement on the motion stated "allowed but limited to voice tapes and phone calls concerning alleged kidnapping."

In a memorandum to the FBI laboratory, dated September 6, 1973, the special agent in charge of the Boston field office confirmed: "as directed by [the acting director's memo of March 28, 1973], the results of the Laboratory voiceprint examinations were not turned over to District Attorney Rollins when other AUSA Laboratory reports were furnished to him by AUSA Richard Bachman in April, 1973. Mr. Bachman, with the approval of the Department, did furnish Mr. Rollins with tape recordings of the kidnap telephone calls and the voice exemplars of [the

defendant]." Neither the Commonwealth nor the defendant was aware of the existence of the FBI voiceprint report until the defendant received these memoranda and reports in response to the defendant's FOIA request.

b. Report of the committee on evaluation of sound spectrograms. In March, 1976, the FBI asked the National Academy of Sciences to review the reliability of voice identification (voice spectrogram) techniques. In response, the NRC in July, 1976, appointed a committee to study the matter.

The NRC committee noted, among other things: "The practice of voice identification [indeed, its 'very foundation], rests on the assumption that intraspeaker variability is less than interspeaker variability. [That] assumption . . . is not adequately supported by scientific theory and data." NRC, *On the Theory and Practice of Voice Identification* 2, 10, 16 (1979).

The NRC committee found, among other things:

"Estimates of error rates now available pertain to only a few of the many combinations of conditions encountered in real-life situations. These estimates do not constitute a generally adequate basis for a judicial or legislative body to use in making judgments concerning the reliability and acceptability of aural-visual voice identification in forensic applications."

Id. at 60. Based on the NRC report, the FBI discontinued offering voice identification testimony in judicial proceedings.

See 5 D.L. Faigman, M.J. Saks, J. Sanders, & E.K. Cheng, *Modern Scientific Evidence: The Law and Science of Expert Testimony* § 37:1, at 8 (2006).

c. Report of the committee on scientific assessment of

compositional analysis of bullet lead (CABL). The FBI asked the NRC to conduct a scientific assessment of the principles underlying CABL. In response, the NRC appointed a committee in February, 2003, to study the matter. The NRC committee made the following findings, among others:

"Finding: The committee's review of the literature and discussions with manufacturers indicates that the size of a CIVL [compositionally indistinguishable volume of lead] ranges from 70 lbs in a billet to 200,000 lbs in a melt. That is equivalent to 12,000 to 35 million 40-grain, .22 caliber longrifle bullets from a CIVL compared with a total of 9 billion bullets produced each year.

"Finding: CABL is sufficiently reliable to support testimony that bullets from the same [CIVL] are more likely to be analytically indistinguishable than bullets from different CIVLs. An examiner may also testify that having CABL evidence that two bullets are analytically indistinguishable increases the probability that two bullets came from the same CIVL, versus no evidence of match status

"The available data do not support any statement that a crime bullet came from, or is likely to have come from, a particular box of ammunition, and references to 'boxes' of ammunition in any form is seriously misleading under Federal Rule of Evidence 403. . . .

"Finding: Detailed patterns of distribution of ammunition are unknown, and as a result an expert should not testify as to the probability that crime scene bullet came from the defendant. Geographic distribution data on bullets and ammunition are needed before such testimony can be given."

The NRC, Forensic Analysis: Weighing Bullet Lead Evidence 107-108 (2004).

3. The decision granting a new trial. The motion judge determined that the FBI laboratory report on voice spectrogram analysis was exculpatory evidence that should have been disclosed to the defendant. The judge further determined that the decision

not to disclose the report was made solely by the FBI, and indeed the FBI did not disclose the report to the Commonwealth.

Nevertheless, the failure to disclose the report is imputed to the Commonwealth due to the "substantial level of cooperation that existed in this case between the FBI and the state police and the District Attorney's Office." The judge concluded that, where the exculpatory evidence had been requested specifically and the defendant has shown that a substantial basis exists for claiming prejudice from nondisclosure, a new trial is required, citing Commonwealth v. Tucceri, 412 Mass. 401, 407 (1992), and Commonwealth v. Gallarelli, 399 Mass. 17, 20-21 (1987).

The judge determined, in the alternative, that the FBI laboratory reports constituted newly discovered evidence whose use at trial would have "cast[] real doubt on the justice of the conviction," quoting Commonwealth v. Grace, 397 Mass. 303, 305 (1986).

The motion judge determined that the NRC report on the theory and practice of voice identification, published in 1979, six years after the defendant's trial, was newly discovered evidence, but he concluded that it did not "cast[] real doubt on the justice of the conviction," citing Commonwealth v. Grace, supra. He reasoned that the NRC report, although critical of voice identification theory and practice, nevertheless did not repudiate its use in the court room. Instead, he observed, the NRC report recommended certain precautions be taken when voice identification testimony is used at trial, such as explaining the

limitations of such evidence to the fact finder, and instructing the fact finder as to the possibility of error inherent in determining whether two recorded voices match to the same voice.

He also noted what he termed the "clairvoyance" of the trial judge in addressing many of the concerns illustrated in the NRC report when he instructed the jury.

Finally, the motion judge determined that the NRC report on the compositional analysis of bullet lead constituted newly discovered evidence, and although the NRC report did not repudiate the use of CABL testimony, its finding that "[t]he available data do not support any statement that a crime bullet came from . . . a particular box of ammunition" and its recommendation that such testimony should be "avoided as misleading under Federal Rule of Evidence 403" tended to negate

¹² NRC, *On the Theory and Practice of Voice Identification* 68-69 (1979).

¹³ The judge instructed the jury that, when deciding whether to accept or reject the voice spectrogram testimony, or how much weight to give such testimony, that a portion of what has been described as a tape recording of the third telephone call was whispered; that a whispered voice is a disguised voice; and that a disguised voice is difficult or impossible to identify by voice spectrograms. He further advised the jury they could consider the fact that the third conversation was recorded from a telephone call, that they could consider the quality of the tape recording of the conversation, and they also could consider the background noise as it may affect the spectrogram and the expert's opinion. He also reminded them that there were other factors described in the testimony that they could consider as bearing on the weight and credibility of the expert witnesses, but he did not review the other factors with them.

¹⁴ NRC, *Forensic Analysis: Weighing Bullet Lead Evidence* 107 (2004).

the justice of the defendant's murder conviction in view of the precisely offending testimony of Special Agent Riley.

4. Standard of review. A judge "may grant a new trial at any time if it appears that justice may not have been done." Mass. R. Crim. P. 30 (b), as appearing in 435 Mass. 1501 (2001).

Ordinarily we review the grant or denial of a motion for a new trial under the abuse of discretion or other error of law standard. Special deference is accorded a motion judge who also was the trial judge. We defer to a judge's assessment of the credibility of witnesses at a hearing on the motion for a new trial. However, we regard ourselves in as good a position as a motion judge who was not the trial judge to assess the trial record. Commonwealth v. Grace, 397 Mass. 303, 307 (1986). If a motion for a new trial is constitutionally based, we exercise our independent judgment on the ultimate factual and legal determinations. Commonwealth v. Tucceri, 412 Mass. 401, 409 (1992). Distilling these principles, where the motion judge was not the trial judge and where no evidence was taken on the motion, as here, our review is de novo.

A defendant seeking a new trial on the ground that the prosecution failed to provide exculpatory evidence that was requested specifically has the burden of showing that the undisclosed evidence existed and was exculpatory, that he made a specific request for the evidence, that the prosecution failed to produce the evidence, Commonwealth v. Adrey, 376 Mass. 747, 753 (1978), and cases cited, and that a "substantial basis exists for

claiming prejudice from the nondisclosure." Commonwealth v. Tucceri, supra at 412. In other words, if the prosecution fails to turn over exculpatory evidence for which a specific request has been made, "the reviewing judge must set aside the verdict and judgment unless his 'conviction is sure that the error did not influence the jury, or had but very slight effect.'" Commonwealth v. Ellison, 376 Mass. 1, 24-25 (1978), quoting United States v. Agurs, 427 U.S. 97, 112 (1976).

A defendant seeking a new trial on the ground of newly discovered evidence must show that the evidence is newly discovered, that it is material and credible, and that it casts real doubt on the justice of the conviction. Newly discovered evidence that is merely cumulative of evidence admitted at the trial will carry little weight. The task of the motion judge is to decide whether the new evidence probably would have been a real factor in the jury's deliberations, and in that regard the judge must consider the strength of the case against the defendant. Commonwealth v. Grace, supra at 305-306.

5. Nondisclosure of exculpatory evidence. The Commonwealth argues that the judge erred by imputing to it the FBI's nondisclosure of the FBI voiceprint laboratory report. The Commonwealth does not dispute that the evidence was exculpatory, that it had been requested specifically, or that it had not been disclosed. Rather, the Commonwealth contends that the prosecutor's duty to disclose such evidence applies only to exculpatory evidence "in the possession of the prosecutor and

information in the possession of persons 'sufficiently subject to the prosecutor's control,'" and it asserts that it cannot be held responsible for the failure of the FBI to disclose the report because the FBI was not under its control. Commonwealth v. Beal, 429 Mass. 530, 531 (1999), quoting Commonwealth v. Martin, 427 Mass. 816, 824 (1998). See Commonwealth v. Tucceri, 412 Mass. 401, 407 (1992) ("A prosecutor's duty, however, extends only to exculpatory evidence in the prosecutor's possession or in the possession of the police who participated in the investigation and presentation of the case"). The Commonwealth acknowledges that a "prosecutor has a duty to learn of any [exculpatory] evidence known to the others acting on the government's behalf in the case, including the police." Commonwealth v. Beal, supra, quoting Kyles v. Whitley, 514 U.S. 419, 437 (1995). However, it asserts, it requested all FBI laboratory reports, as indicated by the record, but the FBI withheld the voiceprint report based on its own internal policies. For these reasons the Commonwealth urges that the actions of the FBI not be imputed to the Commonwealth.

This court has said that, in dual sovereign situations, where a "motion [for specific exculpatory evidence] is allowed . . . cooperation between State and Federal prosecutors is and should be common enough so that the burden of securing Federal cooperation should be placed on the State prosecutor rather than on the defendant." Commonwealth v. Liebman, 379 Mass. 671, 675 (1980), S.C., 388 Mass. 483 (1983). In that case, the defendant

appealed from his conviction of conspiracy to commit armed robbery of a bank while masked or disguised. He unsuccessfully had sought in Federal and State courts production of Federal grand jury minutes of the two principal witnesses against him in Massachusetts involving the same alleged incident that was the subject of a Federal grand jury investigation. The case was remanded with instructions that the prosecutor seek the grand jury minutes from the Federal court. The court added that if the Federal court did not order release of the grand jury minutes the indictment against the defendant was to be dismissed. However, if the grand jury minutes were obtained, the case was to "proceed as if State grand jury minutes were involved. If the minutes might create a reasonable doubt that did not otherwise exist, a new trial may be appropriate." Id. at 676.

We need not concern ourselves with the question whether the Commonwealth should be ordered to request the voiceprint laboratory report, because it did. See Commonwealth v. Donahue, 396 Mass. 590, 599 (1986) (discussing factors to be applied in determining whether prosecutor obligated to seek requested exculpatory evidence from Federal authorities). The defendant, due to his own efforts, obtained the report. The question before us is whether the failure to produce the report in 1973 should be imputed to the Commonwealth. We think it should.

Without defining the scope of the issue, the circumstances of this case fall well within the core of the principle under which the actions of one sovereign may be imputed to another.

This is not a case in which the FBI had little or no involvement.

This was, at the very least, a joint investigation by Federal and State authorities. No less than nineteen FBI agents testified before the jury at the defendant's trial, and others were involved in the investigation. The heft of the Commonwealth's case was provided by the FBI, and if ever an FBI failure to disclose exculpatory evidence should be imputed to the Commonwealth, this is that case. The "potentiality for unfairness" arising out of the presence of two sovereigns that concerned the Liebman court was fully realized here, and "need[s] correction." Commonwealth v. Liebman, supra at 674. The degree of cooperation between State and Federal prosecutors in this case specifically was very high, and the FBI was aware that the defendant's motion for all laboratory reports had been allowed. The judge correctly determined that the burden for the failure to disclose the FBI voiceprint laboratory report should fall on the Commonwealth, not the defendant.

We turn to the question of prejudice from the nondisclosure. The undisclosed report did not repudiate the theory or practice of voice spectrogram analysis. Rather, it embraced it, and thus would have contradicted the defense strategy of denouncing altogether the science as suitable for forensic use. The report did not exclude the defendant as the speaker in the ransom calls, but in fact noted similarities between the defendant's voice and the speaker. The report merely stated that "[i]t was not possible to definitely determine whether the unknown voice was

that of [the defendant]." To the extent that it may have undermined the testimony of Lieutenant Nash, if at all, it would have done so only in a minor way, and it would have done more damage to the defendant's wholesale attack on the suitability of voice spectrogram analysis in the court room.

More important, however, were the seven lay witnesses, all friends of the defendant (except, of course, the victim's brother), who identified him as the speaker in telephone call number 3. Several had known the defendant long periods of time.

Their testimony, properly admitted, was based on their familiarity with his voice and certain mannerisms in his speech.

See Commonwealth v. Lykus, 367 Mass. 191, 195, 201-202 n.4 (1975). Their testimony was independent of, and unaffected by, the voice spectrogram testimony. Thus, while some voice identification evidence was scientific, it was cumulative of the strong voice identification testimony that was provided by the seven lay witnesses who had been close friends or associates of the defendant. The voice spectrogram testimony was little more than "overkill," and the prosecutor gave it no more time or emphasis in his closing argument than he gave any other evidence and he did not urge the jury to give it special weight. He actually gave it less attention than the lay witness voice identification testimony. The judge also alerted the jury to special problems with voice spectrogram analysis testimony in his instructions.

The defendant's effort to minimize the vast body of

circumstantial evidence as "equivocal at best," by questioning each segment severally, as if it had no relation to the other segments or to the case as a whole, is totally unpersuasive. "[A]lthough 'indirect,' [circumstantial evidence] can carry persuasive value equal to or even greater than that of direct proof." M.S. Brodin & M. Avery, *Massachusetts Evidence* § 4.2, at 112 (8th ed. 2007). See *Abraham v. Woburn*, 383 Mass. 724, 729 (1981). This is such a case. The integrated body of circumstantial evidence against the defendant, including the self-contradictory series of statements he initiated in response to each new development in the case, his admission that he placed a call on the telephone from which and at the precise time ransom call number 3 was made, his known possession of portions of the ransom money and his subsequent disclosure of the location of the remainder of the ransom money to William Delaney, the discovery of the ransom money in a plastic bag that had come from a box of plastic bags purchased by the defendant (there also was no reason for the defendant to place the bag of money in a protective plastic bag for the benefit of an unknown drug dealer), and his admission to Delaney that he was in his car when the victim was shot to death, created an overwhelming circumstantial case against him. Add to this the testimony of seven of his friends who identified his voice as that of the ransom caller, and the weight of the case became crushing. The judge correctly concluded that the "evidence against the defendant was voluminous and, ultimately, overwhelming."

Inexplicably, the judge's decision as to exculpatory evidence turned solely on the fact that there was a failure to disclose specifically requested exculpatory evidence. From that fact alone he concluded "it most certainly is the case that 'it appears that justice may not have been done' and therefore a new trial is required." This ruling was error. There also must be a determination that there is "a substantial basis . . . for claiming prejudice from the nondisclosure." Commonwealth v. Tucceri, 412 Mass. 401, 412 (1992). We also conclude that the case against the defendant was overwhelming, and we further conclude that there is no reasonable possibility that the nondisclosed specifically requested exculpatory evidence created a substantial basis for claiming prejudice.

6. Newly discovered evidence. a. The FBI voiceprint laboratory report. To the extent that the FBI voiceprint laboratory report constituted newly discovered evidence, it did not cast real doubt on the justice of the conviction. Commonwealth v. Grace, 397 Mass. 303, 305 (1986). At best, it was cumulative of the testing of Dr. Gerstman, who testified that the defendant was not the caller. "[E]vidence that is cumulative of evidence admitted at the trial tends to carry less weight than new evidence that is different in kind." Id. at 305-306. As previously discussed the case against the defendant was overwhelming, and as newly discovered evidence, the FBI report does not cast real doubt on the justice of the conviction. Id. at 306. The same conclusion applies to the remaining claims,

which we discuss briefly.

b. The NRC CABL report. The applicable portion of the NRC report on CABL contains the same kind of evidence that was elicited from Special Agent Riley on cross-examination. He was forced to admit that he could not swear that the fatal bullets came from the defendant's box of ammunition, and he also estimated that as many as 100,000 bullets may have been manufactured from a single batch of lead. Although the NRC report contains a much more dramatic set of numbers, i.e., nine billion bullets could have been manufactured from the same source of lead, the witness's testimony was impeached sufficiently. In his closing argument the prosecutor did not ask the jury to give Riley's testimony any special weight. More importantly, the defendant had admitted to Delaney that he was present when the victim was killed in the back seat of his car by his gun and his bullets. The only thing he did not admit was that he did the shooting.

c. The NRC report on voice identification. The judge correctly determined that although newly discovered evidence, the NRC report on the use of sound spectrograms does not cast real doubt on the justice of the defendant's conviction. The NRC did not repudiate the use of the underlying science in the court room, but instead recommended a series of prophylactic measures for its use. Two of the recommended measures were deployed in this case. One, cited by the motion judge and discussed above, supra at , would require the trial judge to alert the jury to

many of the problems in the forensic use of voice spectrogram analysis. The second would require the jury to hear testimony from an expert with strong views against the validity of using voice spectrogram analysis in the court room. Dr. Gerstman provided such testimony.

For the foregoing reasons, we reverse the order granting the defendant a new trial and direct entry of an order denying his third motion for a new trial.

So ordered.

¹⁵ The NRC report suggested that, in the forensic context, "[o]ne way to reduce the danger that a jury will overvalue the evidence is to ensure that they hear the testimony of an expert who disputes the validity of the technique itself, and who can call attention to particular limitations of the technique in the case at hand." NRC, *On the Theory and Practice of Voice Identification* 49 (1979).