

SUPREME JUDICIAL COURT OF MASSACHUSETTS

Commonwealth v. Greineder

458 Mass. 207 (2010) · No. SJC-08866 · Decided November 4, 2010

SUMMARY

The Supreme Judicial Court of Massachusetts reviewed Dirk K. Greineder's convictions for the deliberately premeditated murder of his wife and the denial of his amended motion for a new trial. The defendant raised claims involving closure of jury selection, admission of DNA and prior-bad-acts evidence, prosecutorial questioning, witness recantation, juror exposure to extraneous information, ineffective assistance of counsel, and suppression issues. The court affirmed the convictions and denial of the amended new-trial motion and declined to exercise its powers under G. L. c. 278, § 33E.

OPINION

SPINA, J.

458 Mass. 207 (2010) COMMONWEALTH v. DIRK K. GREINEDER. No. SJC-08866. Supreme Judicial Court of Massachusetts, Norfolk. October 9, 2009. November 4, 2010. Present: MARSHALL, C.J., SPINA, COWIN, BOTSFORD, & GANTS, JJ. *208 James L. Sultan for the defendant. Varsha Kukafka, Assistant District Attorney, for the Commonwealth. SPINA, J. The defendant was convicted of the deliberately premeditated murder of his wife.

He filed a motion for a new trial. After an evidentiary hearing the motion was denied as was an amended motion for a new trial. The defendant appeals from his conviction and from the denial of his amended motion for a new trial.

The appeals have been consolidated in this court. The defendant argues that (1) he was denied a public trial because a portion of his jury selection proceeding was closed to *209 the public; (2) his State and Federal constitutional rights to confront and cross-examine witnesses were violated by the admission of deoxyribonucleic acid (DNA) evidence that constituted hearsay; (3) the judge erred by admitting as prior bad acts evidence of the defendant's extramarital sexual activity; (4) the prosecutor cross-examined the defendant in a manner that improperly elicited evidence of prearrest and postarrest silence, and then exploited the matter in his closing argument; (5) he should have been granted a new trial based on recantation by a Commonwealth witness; (6) he should have been granted a new trial based on the jury's exposure to extraneous information during deliberations; (7) counsel was ineffective for failing to challenge unreliable DNA evidence; (8) counsel was ineffective for failing to file a meritorious motion to suppress a receipt for a purchase of nails seized pursuant to a general warrant for a search of the defendant's home; and (9) counsel was ineffective for failing to file a meritorious motion to suppress evidence of details

of a towel observed by police during a search of the defendant's car, where police had a warrant to search the defendant's residence but not the car, and the car was not within the curtilage of the residence.

The defendant also contends that the cumulative effect of the alleged errors justify the reversal of the conviction. We affirm the convictions and the denial of his amended motion for a new trial, and we decline to exercise our powers under G. L. c. 278, § 33E. 1. Background.

We recite facts the jury could have found, and reserve further details for discussion of particular issues. On the morning of October 31, 1999, the defendant and his wife of thirty-one years parked their van at the entrance to the access road to Morses Pond (pond) in Wellesley, just outside the gate that blocks vehicular access, and walked their German shepherd dog around the park at the pond.

William Kear was walking his small dog that morning on the pond access road, a two-lane paved road leading to a parking lot and a beach at the pond, when the defendant crossed in front of him from right to left (east to west). This occurred when Kear was at the first (south) entrance to the parking lot off the pond access road.

The defendant was just beyond the second (north) entrance to the parking lot, where the lanes separate to form a circle. The defendant had emerged from the woods on a dirt path, crossed the *210 pond access road just beyond the circle, then continued westerly down an unnamed road and out of sight.

The defendant had a backpack, and he was walking rapidly with a dog on a leash. He made no noise. About forty-five to ninety seconds later Kear entered the circle and the defendant reemerged from the road where Kear had last seen him.

The defendant approached Kear and asked if he had a cellular telephone. Kear did not have one. The defendant asked Kear to go and make a telephone call for him. Kear declined, then asked the defendant what happened. He said his wife had been attacked, and pointed up the path beginning where Kear first saw him.

The defendant said he had a cellular telephone in his van and he would make the call. On the way to his van the defendant passed Rick Magnan. He yelled to Magnan and asked if he had a cellular telephone. Magnan said he did not.

The defendant walked to the start of the access road and telephoned Wellesley police from his van. In the meantime, Kear had walked up the path in the direction the defendant said his wife had been attacked to see if he could be of help. Officer Paul Fitzpatrick was the first Wellesley police officer to arrive. He opened the gate to the access road and proceeded driving when the defendant, who was walking back toward his wife, yelled to him and said his wife had been attacked.

The defendant entered Fitzpatrick's cruiser and directed him to the circle in the road. Fitzpatrick parked his cruiser, then followed the defendant up the dirt path to the area where his wife lay. Paramedics were right behind them. There was a significant area of bloodstain on the path, with a drag mark through the bloodstain.

The drag mark led to the victim's body. The victim later was pronounced dead at the scene. The cause of death was a horizontal stab wound into the left side of the neck. The wound was large, five and one-half inches long and two and one-half inches wide, caused either by two thrusts with a knife, or movement by the victim during a single thrust. Every muscle on the left side of her neck was damaged, as were the jugular veins, causing rapid exsanguination.

A second and potentially fatal stab wound was inflicted horizontally into the left side of her chest, penetrating the pulmonary artery and left lung. However, so little blood was found in the left chest cavity that the wound must have been inflicted either after death or around the time the victim's body had ceased to function. Other stab wounds, all nonfatal, included one to the victim's lower left chest, two to the back of her head, and three to her forehead.

The victim sustained two other nonfatal wounds. One was a laceration on the back of her head that tore the skin and pushed it, consistent with an impact by a metal object with heft, such as a hammer. The other was a contusion on the left side of her face aligned with a fracture at the base of the skull, consistent with an impact by a padded, blunt object, such as a hand, knee, or foot.

Neither of these wounds would have rendered her unconscious. The victim had an abrasion on her lower back, at the base of the spine. The skin in that area displayed a piling up, as if the victim had been dragged by her shoulders. Her shirt had been pulled up and her pants opened, and blood spatter appeared on her abdomen and lower chest.[1] She also had blood spatter on her hands, but she had no defensive wounds.

Seminal fluid was not detected on any swabs prepared at the autopsy. (a) The defendant's statements. The defendant made several statements on October 31, 1999, the details of which were not consistent. He told a paramedic at the scene that his wife twisted her back throwing a ball to their dog. She stopped walking and the defendant went ahead to retrieve the dog.

After putting the dog in the van he returned and found his wife lying in the path. Officer Fitzpatrick escorted the defendant away from the scene to the circle in the road while police processed the crime scene. The defendant told Fitzpatrick that he and his wife went for a walk and she tripped on something, injuring her back. She told him to go on without him and she would meet him at the entrance to the parking area.

When he and the dog reached the gate to the beach, the dog started "acting funny" and it turned back. The defendant followed, and discovered his wife lying in the path. He checked her and

found a weak carotid pulse, so he ran to the van to telephone police. About twenty minutes after talking to Fitzpatrick the defendant asked if his wife was dead. Fitzpatrick said she was.

Five minutes later the defendant asked *212 whether Fitzpatrick was going to arrest him. Fitzpatrick said it was not his decision to make. Sergeant Peter Nahass of the Wellesley police department went to the circle where the defendant and Officer Fitzpatrick were waiting. He observed a reddish stain on the sleeve of the defendant's windbreaker jacket (jacket), all the way down to the wrist, and also on his running shoes.

The defendant's hands were clean. He had two scratches on his neck. Nahass asked him what happened. The defendant said he and his wife were walking their dog when she hurt her back throwing a ball to the dog. He told her to wait there while he went ahead with the dog. He turned back at the gate to the pond, which was locked, and the dog ran ahead. When he caught up to the dog, it was licking his wife's face.

She was lying in the path. The defendant, who is a doctor, said he tried to take his wife's pulse at the carotid artery. The dog's leash was secured around his wife's waist. He removed the leash, attached it to the dog, then returned to their van and telephoned police. He gave a similar account to Detective Jill McDermott of the Wellesley police, but added that as he first approached his wife lying in the path he realized something was wrong because her pants were open and she had blood on her neck.

She had no pulse; but she was warm, so he tried to rouse her. At the Wellesley police station the defendant told Detective McDermott he had told her everything and was not hiding anything. He then stated, "You asked me for my clothing, and it suddenly scares me." Ten minutes later the defendant said his wife had given him a back rub the night before and would have his skin under her fingernails.

Trooper Martin Foley of the Massachusetts State police noticed at the scene that the defendant's jacket had reddish-brown stains on the chest area, both upper arms and elbows, and that there was a large stain on the left cuff that ended abruptly about two and one-half inches from the end of the sleeve. He also observed a reddish-brown stain on the defendant's sneakers, and a reddish-brown "swipe" on the left lens of his glasses.

He observed that the victim's pants were open at the waist and her shirt was pulled up. Detective McDermott had told him of her conversation with the defendant. Foley asked the defendant what he had done the night before.

The defendant said he helped his wife *213 with a slide presentation she was working on for a course she was taking to become a nurse practitioner. The defendant said his wife went to bed around 11 P.M., and he retired at 12:30 A.M. Foley asked if they slept in the same bedroom.

The defendant said they did. Because of the possibility this might be a sexual assault, Foley asked the defendant if he and his wife had intercourse that morning, the night before, or during the previous week, in the event police found semen.

The defendant said he did not, and offered that they had not been sexually active for a few years because his wife had neck problems. The defendant described for Foley the course of his walk that morning with his wife, which was similar to the description he gave Officer Fitzpatrick and Detective McDermott.

However, the only wound he mentioned seeing was a wound on her forehead, and he made no mention of her neck wound. The defendant said he checked the carotid artery on the right side of her neck. He also said he tried to move her, but he was unable to do so. He said she weighed 120 pounds, and at one time he could lift more than twice that, but she was like dead weight.

He then tried to find a jogger with a cellular telephone. He said he thought he saw one, and pointed toward the road that William Kear saw him walk down after crossing the pond's access road at the circle. The defendant said he ran as fast as he could, to the point he felt he would vomit. He then met Kear and asked if he had a cellular telephone. He told Foley that he checked the carotid artery on the left side of his wife's neck when he returned after he telephoned police from their van.

He said that was the first time he noticed the wound in her neck. Foley asked the defendant if he had washed his hands, which were clean, and the defendant replied he had not. Foley asked him why he had no blood on his hands, and the defendant was unable to give an explanation.

The defendant told Ilse Stark, his wife's sister, that he and his wife had simultaneous nosebleeds as they were getting ready to go to the pond. He removed a towel from his car, which was in the driveway, and they both used it to stop their nose bleeds. He explained that it was possible that his DNA could have been transferred from the towel to her gloves. He told Stark that his wife twisted her back while they were walking in the park, and she did not want to continue.

She insisted that he go ahead *214 without her and exercise the dog. About ten minutes later he returned and discovered his wife lying in the path; he saw a lot of blood. He said he took her pulse and saw that someone had "slit" her neck. He jumped up, saw a jogger, and gave chase. While chasing the jogger he saw a man with a small dog (Kear). He went back and asked the man if he had a cellular telephone.

On November 1, 1999, the defendant told Belinda Markel, Stark's daughter, that he and his wife had intercourse the morning she died. He gave a similar description of events that he had given to Stark. He told her he was concerned that police had searched his house for a glove and took his pants, and they might have fibers from gloves he had once worn. He also told her he was concerned that police photographed him and he had red marks on his neck from shaving.

He said his wife's throat had been cut, and she had been hit in the head multiple times. (b) Extramarital sexual activity. Police executed search warrants at the defendant's home on November 1 and November 12, 1999. During the latter they seized several computers, credit card statements, a box from the garage that contained a bottle of Viagra tablets (a prescription medicine that promotes sexual activity) that the defendant, a physician, had prescribed for himself on June 2, and a twelve-pack of condoms.

Some Viagra pills and one condom were missing from their containers. The computer hard drives and the credit card statements contained, and led to, information about the defendant's extramarital sexual activity, which the Commonwealth offered as evidence of motive to kill. Approximately one week before the murder the defendant had a date with a prostitute in New Jersey.

He paid for the hotel room with a corporate credit card account he opened on July 12, 1998, in the name of a college classmate he had not seen in nearly thirty years. On October 10, 1999, the defendant opened an Internet account under the user name "pussyryder@yahoo.com." During the week before the murder the defendant opened an Internet account under the user name "casualguy2000."

He then opened an account with an online dating service under that user name. On October 25, 1999, he sent messages to two users, seeking "a discreet relationship," and "mutual petting and more," *215 respectively. He described himself as age forty-nine in one message, and age fifty-nine in another. He was fifty-nine at the time.

On October 25 and 26, 1999, the defendant exchanged graphic electronic mail messages (e-mails) with two couples (and nude photographs with one couple), negotiating for "discreet" sexual relations as a threesome. He said he could not host, but would be willing to cover hotel accommodations. He described himself as age forty-nine. Around this time, the defendant's wife's computer "crashed."

As a result, she used his computer to prepare papers for courses she was taking. The defendant tried to fix her computer on October 29, and a workman who was renovating a bathroom in their home heard the defendant ask his wife if she had been using his computer.

The defendant arranged to meet a local prostitute at a hotel in Dedham in the spring of 1999. He telephoned her in September and expressed a desire to see her again, but he seemed confused so she suggested he not see her until he first found some peace. They spoke again, but he told her not to contact him because it was not "the right time." He telephoned her escort service on October 30 and November 1 (the days immediately before and after his wife's murder), but she did not speak to him. (c) Physical evidence.

On October 31, 1999, the defendant voluntarily surrendered his clothing to police. He also consented to searches of his house and van, and to scrapings from under his fingernails. His

backpack was taken from inside the van. Three plastic bags (two inside the third) were found at the scene of the crime on October 31. Three boxes of plastic bags were seized during the execution of a search warrant at the defendant's home on November 12.[2] At approximately 1 P.M. on October 31, police found a brown right-hand glove, a two-pound Estwing drilling hammer, and a folding knife in a storm drain in the road where William Kear saw the defendant walk down and back.

These items had reddish-brown stains and tested positive for the presence of blood. On November 1, police found a matching brown left-hand glove in the storm drain outside the gate to the entrance of the pond's access road, near the place the defendant had parked his van on *216 October 31. It, too, tested positive for the presence of blood.

The gloves are brown, made of cotton, and have a raised-dot plastic grip texture on the palm, thumb, and fingers. F. Diehl & Son, a hardware store in Wellesley, is the only store in Massachusetts east of Springfield that sells these gloves. It sold forty pairs between January 1, 1999, and October 31, 1999. Police seized (pursuant to a warrant) an identical pair of gloves on November 12, from a dog house behind the defendant's Wellesley home.

The hardware store also sells Estwing two-pound drilling hammers, which is not a popular model. While executing the search warrant at the defendant's home on November 12, police seized a Diehl's sales receipt for nails purchased at 8:55 A.M. on September 3, 1999. Diehl's records indicated that an Estwing two-pound drilling hammer was purchased three minutes later at the same cash register.

At the time, such hammers were displayed behind the cash registers. (d) Facts based on expert testimony. Fibers from the glove found in the storm drain near the defendant's van, from the gloves in the doghouse at the defendant's home, and from scrapings of the defendant's fingernails, were consistent. Bloody patterns on the knife, the hammer, and a plastic bag containing two other bags found at the scene were consistent with the raised-dot pattern on the gloves.

A unique "swipe stain" transfer pattern, consistent with the raised-dot pattern on the palm side of the gloves, was detected on the hammer, the outer plastic bag, the defendant's jacket, and the defendant's glasses. Two of the three plastic bags found at the scene and the bags in one box of plastic bags seized from the defendant's home were manufactured from the same sheet of plastic.

Blood spatter on the victim's abdomen and left leg indicate she was struck after her pants had been opened and while she was in a horizontal position. Blood spatter on the sleeves of the defendant's jacket, jeans, shirt, and sneakers indicate he was in close proximity to a bloodshed incident. Blood transfer stains on the left sleeve and right shoulder areas of the defendant's jacket were consistent with placement of his arms under the victim, with his palms upward, and moving the victim's body *217 by pulling it backward.

A bloodstain on the defendant's jacket was consistent with the raised-dot pattern on the gloves. Marks on the ground at the crime scene and the skin piling at the base of the victim's back indicate that she had been dragged by her shoulders. A heel mark from the defendant's left sneaker could have made an impression at the beginning of the drag mark in the path that led to the victim's final resting place.

Samples containing a single source of DNA on the defendant's shirt and the plastic bag (containing the two other plastic bags) found at the scene of the crime, respectively, were from the victim. The victim's DNA profile matched at nine loci the profile of the primary contributor of a mixture of DNA in a sample taken from the defendant's backpack. Samples on the defendant's jacket and sneakers were consistent with the victim's DNA.

The only conclusion that could be drawn from DNA tests on swabbings from the hammer was that the victim could not be excluded as the source. DNA tests on swabbings from the knife indicated a mixture with a primary female source and a secondary male source.

The test results were consistent with the DNA profiles of both the victim (whose DNA profile matched the knife sample at eight loci) and the defendant, a Caucasian (whose DNA profile matched the knife sample at four loci). A statistical analysis based on the match at four loci indicated that one in 1,400 unrelated African-Americans and one in 2,200 unrelated Caucasians would be included with the defendant as possible secondary contributors.

The right-hand glove found with the hammer and knife also contained a mixture of DNA, with a female as the primary source and a male as the secondary source. The victim's DNA profile matched the glove sample at thirteen loci, and the defendant's profile matched at eight loci. A statistical analysis of the match between the victim's profile and the glove sample indicated that only "one in 2.4 times ten to the eighteenth" power (2.4 quintillion) unrelated African-Americans, and only "one in one times ten to the eighteenth" power (one quintillion) unrelated Caucasians would duplicate this match.

The victim was Caucasian. A statistical analysis indicated that one in 680 million unrelated African-Americans, and one in 170 million Caucasians *218 would be included with the defendant as possible secondary contributors.

The left-hand glove found in the storm drain near where the defendant parked his van contained a DNA mixture, but it could not be determined if one contributor was a female. The defendant's DNA profile matched the glove sample at seven loci. A statistical analysis indicated one in fifteen million unrelated African-Americans, and one in 680,000 Caucasians would be included with the defendant as possible contributors.

2. The defense. The defense presented ten witnesses over six days. The defendant testified and denied killing his wife. He said he was happily married and his family was the center of his life.

His extramarital activity was not a motive to kill, but was his response to his wife's inability to continue with normal sexual relations due to severe back and neck problems.

The defense presented expert testimony challenging Cellmark's testing procedures as unreliable. This also was developed in cross-examination of Dr. Robin Cotton, Cellmark's forensic laboratory director, who acknowledged that Cellmark's threshold of forty relative fluorescent units (RFUs)[3] was lower than that recommended by manufacturers of equipment used by Cellmark, as well as the threshold set by the Federal Bureau of Investigation (FBI) for its DNA laboratory.

The defense developed from cross-examination of Dr. Cotton and through his own experts that Cellmark's test results indicate the presence of DNA from a "stranger." He also elicited evidence of two recent unsolved murders at recreational areas in Norfolk County.

The defense explained the presence of the defendant's DNA on various items through the phenomenon of transfer of DNA. Transfer may occur when people casually exchange an item, and the DNA of one may pass to the other in the exchange.

The defendant produced expert testimony from two witnesses who explained that the defendant's alleles could have been transferred first to the victim from the bloody towel they shared to suppress their nose bleeds, and then from the victim to the gloves and other items held by the stranger who killed the victim. *219 The defense called an expert who testified that the type of blood spatter caused by a medium velocity impact is easily confused with satellite spatter.

He opined that the spatter on the defendant's sneakers and other items of clothing was satellite spatter resulting when the defendant tried to lift the victim. The defense suggested that the police investigation was shoddy in many respects, including the failure to test the defendant's hands for nonvisible blood, failure to identify all the people who were at the pond that morning, including the owner of the car parked next to the defendant's van, the unreliability of Cellmark's test procedures, police confusion about a towel inside the defendant's Toyota Avalon, and other aspects of the investigation.

3. Jury selection. The defendant argues that the individual voir dire portion of the jury selection proceeding at his trial was closed to the public, in violation of his right to a public trial under the First and Sixth Amendments to the United States Constitution. See *Commonwealth v. Cohen* (No. 1), 456 Mass. 94, 106 (2010). He initially based his claim only on a statement made by the judge on May 21, 2001, at the beginning of the individual voir dire, to the effect that the proceedings had been moved from the main court room to "Room 8 for the purposes of conducting a non-public individual voir dire of the jurors" (room 8), and a statement the judge made on May 18, 2001, while attending to pretrial matters, to the effect he had met with members of the media "who have an interest in being present during the public part of this case" (emphases added).

After oral argument, by order dated October 23, 2009, we remanded the case to the trial judge for specific findings because "the trial record does not otherwise present a sufficient factual record for meaningful consideration of the defendant's claim."

We requested the judge to address nine questions or topics in his findings, as well as any others he deemed relevant. We specifically did not require an evidentiary hearing, but did not foreclose one from taking place.

We retained jurisdiction of the case and requested the judge to file his findings within sixty days. The judge prepared a response to the order of remand within five days indicating that he felt he should "respond without delay... without the necessity of an evidentiary hearing." It *220 was filed with this court on October 28, 2009. Shortly thereafter, the judge received a letter by facsimile transmission from Tom Farmer, a former reporter with the Boston Herald newspaper who covered the trial.

The letter contained a description of events that differed from the judge's recollection. The judge telephoned the clerk of this court and stated that he had received a letter from Farmer, that he intended to hold a conference in open court with the parties, and he requested that we take no action on his response at that time.

The judge prepared a written memorandum of his conversation with the clerk and sent copies to both counsel by facsimile and surface mail. A conference took place on November 23, 2009, at which time the judge considered two motions filed by defense counsel: a motion that the judge recuse himself, and a motion for an evidentiary hearing.

The motion to recuse was denied, and the motion for an evidentiary hearing was allowed. The judge informed counsel that he would request an extension of the sixty-day period within which he was to have filed his findings. Neither counsel objected.

We allowed the judge's request. An evidentiary hearing was held on three days between January 14, 2010, and February 1, 2010, at which twenty-one witnesses testified and an affidavit of an unavailable defense witness was accepted in lieu of testimony.

The judge prepared a second response to our questions, dated February 16, 2010. He prefaced that response with a statement that the evidentiary hearing served to refresh his memory since his first response. He prepared findings in two parts: first, findings based on the evidence at the three-day hearing (which he states "deviate from [his] present memory on only a few points" [emphasis added]); and second, his "current refreshed memory of past events."

We begin with a summary of the judge's findings and recollections, indicating areas of appreciable difference. At the end of the court day on May 17, 2001, during which he held hearings on some

remaining pretrial motions, the judge announced that he would be meeting with members of the media the following morning, and he invited counsel to attend.

The meeting with members of the media occurred at 8:45 A.M. on Friday, May 18, 2001. At that meeting the judge reviewed existing rules proscribing videotaping or photographing jurors or prospective jurors, or identifying them by name. He also reviewed the proscription *221 against audio recording or taking close-up photographs of conferences between the defendant and counsel.[4] Court staff was introduced to the members of the press, and there was a discussion about how the press and the court could be of mutual assistance.

The meeting was not on the record.[5] It took place before any decision had been made as to the location of the individual voir dire. The decision was made some time after court adjourned on Friday, May 18, 2001, and before court reconvened on May 21.

The judge previously had allowed counsel's request for an individual voir dire of jurors and the use of a comprehensive questionnaire to be distributed to each juror for use at the individual voir dire. The record indicates that the last matter of business on May 18 was a discussion of the form of the questions for the questionnaire.

Although some members of the press believed they could not attend the voir dire hearing, it was not because of anything the judge said, or anything a court officer or court employee said or did. The sole exception was Farmer, whose letter to the judge indicated that he remembered the judge telling the media that the court room would be closed to them and that they could appeal to a single justice.

This did not comport with the judge's memory. Those members of the media who did not attend the meeting and who believed they could not attend the voir dire received information on the matter from an unknown source, probably Farmer.

The judge's current recollection was refreshed by the evidence. At the meeting on May 18, 2001, the judge reviewed Superior Court protocol and S.J.C. Rule 1:19 (b) & (c), 428 Mass. 1301 (1998), with members of the press.

As a practical matter, this meant that cameras could not be used in a court room full of jurors, or in another court room that might be used for an individual voir dire. The judge stated: "One should have taken away from my meeting with the media that the video and photo media people were not going to be able to work in the courtroom during the individual voir dire.

That was the standard protocol *222 and did not require a further order from me. I cannot remember ever advising non-attorneys of the availability of appellate review through a single justice. If I did so here, it would have been in reference to the existing court protocol."

The judge stated that had there been an order excluding anyone from the court room it would have been discussed first with his law clerk and then announced on the record or reduced to writing and filed. In his second response to our questions the judge explained that his reference on May 18, 2001, to the "public part of the proceedings" occurred before any decision was made about the location of the individual voir dire; and that his reference on Monday, May 21, the first day of the voir dire, to a "nonpublic voir dire" was a "refer[ence]" to the fact that the many video and still photo media people, who were visible inside and outside of the court house and intended to video the trial for national consumption, were not going to be working either in a courtroom filled with jurors or in one hosting only an individual voir dire."

In his first response he explained that it was not his intention to close the court room to the public or the press. Rather, he meant to encourage candid answers from prospective jurors and he retained the right to limit attendance if he saw that the presence of the public had a chilling effect on a prospective juror's ability to answer sensitive questions fully and honestly.

He indicated that, as it turned out, he had no occasion so to limit access. On Monday, May 21, 2001, prospective jurors assembled in the main court room on the second floor. The criminal case being tried in that court room was in recess that day, allowing the main court room to be used for this case.

The judge explained the process they would follow for empanelment. In order to avoid the physical strain on himself, the lawyers, and the defendant at having to stand at sidebar for an individual voir dire in the main court room, and to avoid the mental fatigue on the 150 or so prospective jurors quietly waiting their turn in that court room, the judge announced that panels of prospective jurors would be moved from the main court room to benches in a corridor behind the court room, then called individually into room 8, one at a time, for an individual voir dire.[6] He also announced *223 that each juror would be given a questionnaire to complete.

The main court room was open to the public and the media at that time. Members of the media were present. The judge stated in his first response to our questions that members of the defendant's family were present. He stated in his second response that he could not find whether Britt Cavalletto (Britt), the defendant's younger daughter, was present; but he found that his other two children were not present.

There were no signs on the door to the main court room prohibiting entry. No one was denied access to the main court room by the judge, a court officer, or other person. A portion of the court room had been reserved for the public.

The court officers helped seat people. The proceedings in the main court room were brief, and lasted no more than one hour. The proceedings were then moved to room 8, also on the second floor, for the individual voir dire. Room 8 is a relatively small court room, approximately twenty-

four feet by twenty-five feet. It has three doors: one opens into a corridor behind the main court room; a second opens onto a marble staircase to a public corridor that leads to the office of the clerk for civil business; a third door opens into the judge's lobby.

As a practical matter, no member of the public could have entered room 8 from the corridor where jurors were waiting because the path through the court room from that entrance had been narrowed by the placement of the movable witness stand adjacent to, and to the left of, the judge's bench.

The glass front door to room 8 was accessible to the public. A painted sign on the wall near the foot of a marble staircase directs the public to room 8, and includes a sketch of a hand pointing up the staircase. There was never more than one prospective juror in room 8 at any time. Each prospective juror sat in the witness stand to the left of the judge; the court reporter sat directly in front of the witness stand; the prosecutors, counsel, and the defendant sat in front of the judge at one table; four benches behind the counsel table could accommodate about twenty people, and ten additional chairs could fit in the court room.

No member of the media was ever present during the individual *224 voir dire. Two members of the press were seated outside the glass door to the court room, and they believed they had been excluded. They were able to observe the proceedings inside room 8 through the glass door. They never requested entry. A few unidentified persons were present for at least some of the voir dire proceedings.

Two of the defendant's children never were present during the voir dire because someone not affiliated with the court told them over the weekend they could not or should not attend. Based on all of the hearing evidence, the judge found "it is probable that [Britt, the defendant's youngest child,] spent some time in Room 8 during the individual voir dire."

The judge initially recalled seeing a few spectators in the court room during portions of the voir dire, including a daughter of the defendant. The judge's current memory is that one or two males were present who he did not recognize as affiliated with the parties, the court, or the media. He also currently remembers that a young woman with light hair was seated in the first row during much of the voir dire, but he hesitates to say he recalls that she was one of the defendant's daughters.

There was no sign on the door to room 8 prohibiting entry, and the door was not locked. No sign or barrier prohibiting entry to room 8 had been authorized. The judge specifically noted that "there was no evidence of any writing indicating that entry was not permitted" in room 8. No court officer or court employee affirmatively denied any person entry to observe the voir dire proceedings.

The defendant's three children felt they could not or should not attend the voir dire, and at least one of them was so told by someone, probably defense counsel. The judge concluded that the evidence did not support a finding that on Tuesday, May 22, 2001, an unidentified male court officer told Britt to sit in a chair on the first floor and remain there until the court room was open, as she had testified.

At the conclusion of the individual voir dire, which lasted about one and one-half days, the defendant's case was moved to a larger room, court room 10 (room 10) on the first floor, for the exercise of peremptory challenges.

The proceedings in room 10 were open to the public. Family members or friends of the defendant, members of the media, and members of the public were among those in attendance. There was no sign on the door to room 10 prohibiting entry.

The court officers permitted people *225 to enter, and no one was denied entry by the judge, a court officer, or other person. Empanelment was concluded in room 10 after about one hour, and trial was adjourned at 5:15 P.M. Trial counsel's strategy originally was to obtain a change of venue, but his request was denied. He thereafter requested the individual voir dire and the use of questionnaires.

The defendant himself neither expressly agreed nor assented to the process, but at no time did he indicate any dissatisfaction by body language or otherwise, and both he and his attorney sat within ten feet of the judge in room 8.

The judge perceived nothing from counsel that indicated he felt any aspect of the individual voir dire worked to the disadvantage of the defendant. Counsel never specifically stated, by way of assent or request, that the individual voir dire procedure used in room 8 was a matter of trial strategy.

The judge received no indication that the defendant had any strategy as to the individual voir dire. The judge asserts that defense counsel's ethics are beyond reproach, and he does not believe counsel failed to make a record of his client's assent to the process in order to create an appellate issue. (a) Presence of the public.

The defendant contends that the testimony was conflicting and the judge's findings are equivocal, [7] and therefore we should conclude, based on the record as a whole, that no member of the public was present during the voir dire.

The posture of the issue before us is similar to the review of a decision on a motion for a new trial. When reviewing the grant or denial of a motion for a new trial, we extend special deference to the action of a motion judge who also was the trial judge, as here. *Commonwealth v. Grace*, 397

Mass. 303, 307 (1986). A judge's subsidiary findings of fact will not be disturbed on appeal unless they are shown to be the result of a "clear abuse of discretion or... were clearly erroneous."

Commonwealth v. Torres, 437 Mass. 460, 469 (2002), quoting *Commonwealth v. Amirault*, 399 Mass. 617, 626 (1987). Where, as in this case, the new trial claim is constitutionally based we exercise our own judgment on the ultimate factual and legal *226 conclusions. *Commonwealth v. Tucceri*, 412 Mass. 401, 409 (1992). Whether the public was present is a subsidiary question of fact.

Neither the presence nor the absence of members of the public during jury voir dire is determinative of the question before us. The Sixth Amendment does not require members of the public to attend the trial. It prohibits their exclusion by the State, except in limited circumstances. See *Commonwealth v. Cohen* (No. 1), 456 Mass. 94, 108, 109-110 (2010).

The ultimate question of fact before us is whether there was a court order or other official action that excluded the public (or the media) from room 8. *Id.* at 107, 111. We review the judge's findings that members of the public and Britt were present under the "clear abuse of discretion" and "clearly erroneous" standards.

The defendant begins with the judge's comments about the "public part of this case" and the "non-public individual voir dire of the [prospective] jurors." He urges us to give presumptive meaning to the judge's use of the word "non-public" and conclude that the voir dire proceedings were closed to the public.

The defendant also cites evidence adduced at the hearing on remand that he claims should compel us to conclude that the voir dire was closed to the public, as follows. (1) Defense counsel and his legal assistant testified unequivocally that no member of the public was there; (2) Tom Farmer, the newspaper reporter, was "camped" outside room 8 throughout the individual voir dire and did not recall any member of the public entering the court room at any time during those two days; (3) the Commonwealth witnesses who testified that members of the public were present were unable to name a single person other than Britt (who testified she was not present); (4) an article published on May 22, 2001, stated that the jury selection process "has been closed to the public"; (5) the implausibility that in a case that attracted such massive public interest, only a handful of people would have attended if the court room actually were open to the public; (6) there was a long-standing practice of the Norfolk County Superior Court to exclude the public from jury selection proceedings; (7) the defense lawyer who was trying the case in the main court room at the time of empanelment in the defendant's case filed an affidavit stating that the three-day *227 empanelment in the case he was defending was closed to the public by virtue of a sign placed on the door stating that the court room was closed; (8) the acting chief court officer reaffirmed the accuracy of testimony she had given in the *Cohen* case, *supra*, about the Norfolk County Superior Court practice of closing court rooms during empanelment; (9) an assistant clerk testified that

"usually the court officers would ask people to step outside for empanelment"; and (10) Britt, defense counsel, and his legal assistant all testified that Britt was not present during the voir dire, contrary to the evidence of others and contrary to the judge's findings and the defendant contends "it is incumbent upon this Court to decide the matter" based on who would be the person most likely to remember accurately.

We address each point. We decline to adopt the defendant's view of the judge's use of the word "non-public" to mean that the public had been excluded from the voir dire. See *Commonwealth v. Cohen* (No. 1), *supra* at 108 (some official action excluding public from voir dire is required for Sixth Amendment violation). Our order of remand specifically stated that the record was not sufficient to allow meaningful consideration of the defendant's claim.

The judge has now explained his use of the word "non-public," stating he never intended to exclude the public and he did not order room 8 closed. He used the word "non-public" to describe the measures taken to ensure that jurors would be encouraged to give candid answers to questions on voir dire without fear of criticism, ridicule, or reprisal, and to describe his exclusion of cameras from the court room during individual voir dire of prospective jurors.

We note that the use of the written questionnaire, which contained thirty questions designed to identify jurors who could not be fair and impartial, was itself a "non-public" measure, as the judge used that term. That is, jurors' written answers on the questionnaires were seen only by the parties and the judge, and the judge announced to prospective jurors as the questionnaires were being handed out for the voir dire that their answers would not be accessible to the general public.

Extremely little about their written answers was publicly discussed while they were in room 8. Only clarification of certain questions was sought, as needed. The entire voir dire process consumed over 500 pages *228 of trial transcript over one and one-half days, averaging approximately five pages for each of the more than one hundred prospective jurors interviewed.

Cf. *Commonwealth v. Cohen* (No. 1), *supra* at 117 (individual juror voir dire conducted out of hearing of public permissible if conducted in open court where public may observe process). In these circumstances, the judge's choice of the word "non-public" may have been unfortunate, but we will not presume that he meant the voir dire proceeding itself was closed to the public.

The defendant correctly states that defense counsel testified that no member of the public was present during voir dire,[8] and Farmer testified he did not recall seeing a member of the public enter room 8 during voir dire.

However, the three prosecutors and the judge's law clerk testified that members of the public did attend. Although they were unable to name any such people if asked, they had no duty to ascertain the names of such people, and their lack of such knowledge went to the weight of their testimony.

The judge, who was facing the spectator section of room 8 for the entire proceeding, recalled seeing spectators he did not recognize as associated with the parties, the court, or the media, and he concluded they were members of the public. Significantly, there were two bench conferences during the voir dire when no prospective juror was present.

The only reason to have a bench conference in the absence of a prospective juror would be to discuss a sensitive matter outside the hearing of the public so that it would not later be repeated publicly and possibly compromise the impartiality of the jury. This was a matter of credibility for the judge, and there has been no showing that his rejection of the recollection of counsel and Farmer was an abuse of discretion or clearly erroneous.

The media article referring to the first day of "jury selection" as "closed to the public" was not an exhibit at the hearing, but was attached to the defendant's motion for an evidentiary hearing on remand. It was written by a Metrowest Daily News staff writer and published on the "townonline" Web site on May 22, 2001.

The article constitutes hearsay, there is no *229 indication that the reporter was at the court house to observe any closure, and the reporter did not testify at the hearing. Moreover, there is no dispute that the initial portion of "jury selection" in the main court room was open to the public, as was the last portion in room 10.

The judge properly could have disregarded this article without explanation. See *Commonwealth v. De Christoforo*, 360 Mass. 531, 543 (1971). There is no merit to the argument that it is implausible that only a handful of people would have attended voir dire in a case that attracted national attention, and that the only plausible explanation is that the court room was closed to the public.

Tom Farmer testified that reporters "traditionally did not cover jury selection." Where the vast majority of the prospective jurors' responses were written and not available to the public, just as if the voir dire had been conducted in view of the public but out of the hearing of the public, the proceeding was far from being keenly interesting to an onlooker.

There is nothing implausible about a general lack of interest in this portion of the trial. The evidence of a long-standing practice at the Norfolk County Superior Court of excluding the public from jury selection, see *Commonwealth v. Cohen* (No. 1), *supra* at 109, was used here solely to impeach the acting chief court officer, and not for substantive purposes.

Even if it had been used substantively, the evidence, consisting of her prior recorded testimony in the Cohen case was significantly undermined by evidence that the policy was not followed in this case. Here, in contrast to the Cohen case, there was no testimony that a sign had been placed outside room 8 declaring it closed to the public, and there was no evidence that a court officer was stationed outside room 8 turning away members of the public.

See *id.* There was no evidence that anyone had been asked to leave room 8 or had been removed. Farmer testified, without contradiction, that members of the media had in fact attended the initial and concluding portions of jury selection in the main court room and in room 10, respectively. Britt testified that she attended the final phase of jury selection in room 10.

Both the acting chief court officer and the assistant clerk testified without contradiction that the "policy" of exclusion varied from judge to judge. There was no evidence that this judge had followed such a policy either in this case or in any case.

The judge stated that he did not *230 authorize any exclusionary sign or barrier; that he used both doors to room 8 each day and saw no sign or barrier; and if he had seen anything barring entry to the court room he would have had it removed.

We conclude that the judge would have acted well within his discretion to give no credence to the evidence of such a policy if it had been admitted for substantive purposes. We decline the defendant's invitation to resolve the conflict in testimony as to the presence of Britt in room 8 during the jury voir dire. That is the function of the trial judge, not a reviewing court.

The judge heard, and observed the demeanor of, the witnesses. As such, he was in a superior position to assess their credibility than an appellate court, which is constrained by a printed record. See *Commonwealth v. Novo*, 442 Mass. 262, 266 (2004).

The judge resolved the question, without equivocation. He concluded that, based on all the hearing evidence, "it is probable that she spent some time in Room 8 during the individual voir dire." This was a matter for the judge to determine, and the defendant has not shown that the judge clearly abused his discretion in making the finding, or that the finding is clearly erroneous.

For the foregoing reasons, we conclude that the judge's findings that members of the public and Britt attended portions of the individual voir dire in room 8 were neither the result of a clear abuse of discretion nor clearly erroneous. (b) Exclusion of the public.

The defendant contends that, although there was no written order excluding the public from room 8, the absence of the public is attributable to the court. His focus is on the judge's finding that Kirsten Greineder Engel (Kirsten) and Colin Greineder (Colin), were told by an unknown, noncourt person over the weekend of May 19 to 20, 2001, that they "could not or should not attend the individual voir dire" (emphasis added).

The defendant argues that this person must have been counsel because the judge recalled that he probably made the decision to use room 8 for the voir dire on Friday, May 18, after court hours, and he probably made his decision known to both counsel on that same day to give attorneys reasonable notice of his decision. He further argues that the judge must have told counsel the voir

dire would be closed to the public because that is what the Greineder children understood, *231 and it was directly contrary to counsel's instruction that they attend the entire trial.

Communication of the decision to use room 8 does not necessarily mean the judge told counsel room 8 would be closed. Defense counsel had no recollection of the judge's saying the voir dire would be closed, and he had no recollection of telling any of the defendant's children that they could not attend the voir dire or that it would be closed. He said he thought their presence throughout the trial would be an important signal to the jury that they were supportive of their father, who was charged with the murder of their mother.

The judge was not required to accept counsel's testimony that his strategy was to have all the defendant's children in the court room at all times. While it may have been his strategy to have the jury see them at all times, the jury were not selected until late on May 22, 2001. Individual voir dire averaged slightly over four minutes per prospective juror, and where no more than one prospective juror was in room 8 at a time, collectively they would have had no idea how long the defendant's children would have been in room 8.

The judge had instructed the prospective jurors they could not discuss the case among themselves. Where attendance for two of the defendant's children, who were living out of State, was a professional hardship, the judge reasonably could have concluded that counsel, or even the defendant, believed the impact of their attendance at the voir dire would have been de minimis and some accommodation for their hardship was appropriate.

Alternatively, the judge could have believed that counsel told the defendant or Britt that the voir dire would be conducted primarily by questionnaire and cameras would not be allowed, and that this message was miscommunicated to the Greineder children by someone other than counsel, namely, by the defendant or, as Colin had testified, by Britt.

The defendant testified that he had no specific recollection of counsel telling him that the voir dire would be closed. He said no family member complained about being unable to attend the voir dire, and although he felt lonely and isolated he did not ask counsel why his children could not attend. Colin and Kirsten testified that they lived out of State and that attendance at trial was a hardship to them professionally, but they would have attended the voir dire if counsel requested. *232 Colin testified that he could not remember if he was told he could not attend the voir dire or if he did not have to attend until the jury were selected, and he could not remember who told him, but he remembered it was either his sister Britt or the defendant.

The judge appears to have credited this testimony. Kirsten testified that counsel told her she could not attend the voir dire, and consequently she did not come to Massachusetts until May 23, 2001. The judge appears to have credited her testimony that she was told she could not attend the voir dire, but he rejected her testimony that it was counsel who told her.

Britt testified that counsel had told her it was important for her and her siblings to attend the entire trial. She further testified that she sat on a bench between the lockup and the main court room the entire day on May 21. She did not enter the main court room because the door was barricaded and a sign saying "no entry" was affixed to a post outside the main court room.

She testified on direct examination by appellate counsel that at the end of the first day she had a conversation with defense counsel. When asked about the substance of that conversation she said counsel told her the voir dire would continue the next day and he needed her there, "[p]resent in the court room with my father, supporting my father," "as soon as I possibly could" be there.

She testified that the next day an unnamed male court officer told her to stay on the first floor of the court house and talk to no one because the people around her were potential jurors in her father's case. He said he would let her know when she could enter the court room.

On cross-examination Britt testified that at the end of the first day counsel and her father walked past her and counsel told her she could not attend the voir dire because it was closed. She did not mention this during direct examination. She had not asked counsel earlier that day why she could not attend.

The judge did not credit her testimony. Farmer testified that he attended the initial jury selection proceeding in the main court room and he recalled seeing no sign barring entry. The three court officers assigned to the voir dire testified they never told anyone that attendance was prohibited. One of the two male court officers sat behind the defendant at all times in the court room; the other was escorting prospective jurors from the benches behind room 8 into and from the court room.

Neither was physically in a position *233 to have done or said what Britt described in her testimony. The judge credited these portions of the testimony of these witnesses. The judge found, based on the hearing evidence, that there was no oral or written order barring the media or any other segment of the public from the individual voir dire. He also found that, based on all the evidence, Britt and members of the public attended portions of the voir dire; that no one was prevented from entering room 8, and no one was asked to leave room 8.

There was no evidence that anyone had stayed outside room 8 during the voir dire because of knowledge of a court house policy that excluded spectators from jury selection proceedings. Spectators who did attend were noticed and they were not asked to leave, which, in the circumstances of this case, strongly suggests that there was no closure of the court room in the constitutional sense.

Compare and contrast Commonwealth v. Cohen (No. 1), 456 Mass. 94, 109 (2010) (existence of spectators bold enough to gain admission does not convert officially closed court room into open one). We have exercised our own independent judgment, and we are satisfied that the defendant

has failed to show that the public, including Britt, was excluded from the voir dire in the constitutional sense. (c) Exclusion of the media.

The defendant argues that the media had been excluded from the voir dire, and although there was no written order to that effect, the exclusion was attributable to the court. Unlike the issue involving the public and members of the defendant's family, the judge found no member of the media attended any portion of the voir dire.

The only evidence of media exclusion is the testimony of Farmer, who said the judge told the media on the morning of May 18, 2001, that the hearing would be closed. Neither of the other two members of the media who testified, or the member whose affidavit was accepted in lieu of testimony, claimed that the judge or a court officer or other court personnel prohibited the media from attending the voir dire.

The judge said he did not tell the members of the media that the court room would be closed, and that Farmer was mistaken. He found, with record support, that Farmer likely conveyed his understanding to the members of the media who had waited outside room 8 with him during voir dire or who had spoken to him on May 21. *234 The lead prosecutor testified that the subject of closure of the court room for voir dire was not discussed at the meeting on the morning of May 18, 2001.

He recalled that the judge stated that no photographs of prospective jurors would be allowed, and that no identifying information could be released to the public. The judge's law clerk testified that the judge's practice was to put all important rulings in writing or on the record, and closure of a court room would have been such a ruling and treated accordingly.

The judge credited the testimony of these witnesses; he found that he could not have told the members of the media on the morning of Friday, May 18, 2001, that the voir dire would be closed because the trial record shows that no decision had even been made as of the end of that day whether there would be a "traditional individual voir dire at side bar" in the main court room, or whether it would be moved to a different court room.

The media were present in the main court room on Monday, May 21, for the initial phase of jury selection, and there was no mention of closure of room 8 when the judge announced that the voir dire would take place there.

The judge told prospective jurors in the main court room that there was considerable media interest in the case, but they would not appear on television, be photographed, or videotaped. He also told them that their answers on the individual questionnaires being distributed for the voir dire would not be accessible by the general public. He said nothing about the absence of the media from any portion of the trial.

The judge rejected Farmer's testimony as to closure and concluded that the defendant failed to show that the media were excluded from the voir dire in the constitutional sense. Although no member of the media attended the voir dire, he found it was not because of any official action, but most likely because of misinformation received from Farmer. These findings were not clearly erroneous or an abuse of discretion.

We have exercised our independent judgment as to this issue, and we are satisfied that room 8 was not closed to the media, in the constitutional sense, during the individual voir dire of prospective jurors. (d) Motion to recuse.

The defendant argues that the judge should have recused himself because he made findings in his first response to our questions before considering any evidence *235 other than his own memory. The defendant contends he was thereby prejudiced because the judge prejudged the facts. When deciding a question of recusal, a judge must first consult his or her own emotions and conscience.

If the judge passes "the internal test of freedom from disabling prejudice," the judge must then attempt an "objective appraisal" of whether the proceeding is one in which the judge's impartiality might reasonably be questioned. *Lena v. Commonwealth*, 369 Mass. 571, 575 (1976). See Code of Judicial Conduct, S.J.C. Rule 3:09, Canon 3 (E) (1), as appearing in 440 Mass. 1319 (2003) ("A judge shall disqualify himself or herself in a proceeding in which the judge's impartiality might reasonably be questioned...").

Recusal is a matter that rests in the first instance in the discretion of the judge. *Commonwealth v. Coyne*, 372 Mass. 599, 602 (1977). To show that the judge abused his discretion a defendant ordinarily must show that "the judge demonstrated a bias or prejudice arising from an extrajudicial source, and not from something learned from participation in the case."

Commonwealth v. Adkinson, 442 Mass. 410, 415 (2004), citing *Liteky v. United States*, 510 U.S. 540, 551 (1994). The judge applied this test. He first examined his own conscience (with penetrating self-awareness) and concluded that he could be fair and impartial. He then applied the second prong of the test, stating what is objectively obvious in the circumstances: judges are often called on to review, reexamine, or reconsider findings and rulings, and often modify or even completely revise prior determinations, and thus the issuance of his first response did not disqualify him from further consideration of the matter.

The defendant has offered no evidence to show that the judge was not fair and impartial, or that his impartiality in further considering the matter might reasonably be questioned based on the fact he issued his first response. There was no evidence of bias or prejudice from an extrajudicial source.

We are satisfied that the judge did not abuse his discretion in denying the motion to recuse himself. 4. Right to confront witnesses. The defendant argues that his right to confront witnesses

pursuant to the Sixth Amendment to the United States Constitution was violated when Dr. Robin Cotton, forensic laboratory director of Cellmark Diagnostics, *236 was allowed to testify as to details of DNA test results obtained by staff analyst Wendy Magee and reviewed by Dr. Jennifer Reynolds or Dr. Lewis Maddox, none of whom testified at trial, and express a statistical opinion based on those test results.

We first address the question of Dr. Cotton's opinion. The defendant did not object to Dr. Cotton's opinion testimony, so we review the matter under the standard of a substantial likelihood of a miscarriage of justice. *Commonwealth v. Wright*, 411 Mass. 678, 681 (1992). Opinion testimony may, as here, be based on hearsay and not offend the Sixth Amendment. If the particular hearsay is independently admissible (the defendant does not argue that Magee could not have testified as to details contained in her reports and on which Dr. Cotton relied) and if it is the kind of evidence on which experts customarily rely as a basis for opinion testimony (which it is, see *Commonwealth v. Banville*, 457 Mass. 530, 541 [2010]), then an expert may give opinion testimony based on such material.

See *Department of Youth Servs. v. A Juvenile*, 398 Mass. 516, 531-532 (1986); Mass. G. Evid. § 703 (c) (2010). Such testimony does not violate the Sixth Amendment because the expert witness is subject to cross-examination about her opinion, as well as "the risk of evidence being mishandled or mislabeled, or of data being fabricated or manipulated, and as to whether the expert's opinion is vulnerable to these risks."

Commonwealth v. Barbosa, 457 Mass. 773, 791 (2010). See *Commonwealth v. Banville*, *supra*. The defendant had an adequate opportunity to conduct such cross-examination, and he availed himself of that opportunity, with vigor, for the better part of two days.

We add that the record reflects that Dr. Cotton testified that she reviewed Magee's work, including six reports prepared by Magee, and reviewed by Reynolds or Maddox. She conducted her own independent evaluation of the data that were produced during testing. She expressed her own opinion, and did not merely act as a conduit for the opinions of others. See *Commonwealth v. Avila*, 454 Mass. 744, 762 (2009); *Commonwealth v. Nardi*, 452 Mass. 379, 387-391 (2008).

There was no error in the admission of Dr. Cotton's opinion testimony. The defendant next challenges Dr. Cotton's testimony as to the details and results of DNA tests conducted by Magee. His *237 objection at trial to such testimony was precise: "I would like to register my objection to Doctor Cotton's testifying about the data in this case given the fact that she hasn't done any of the work on it."

This evidence, while providing basis for Dr. Cotton's opinion, was hearsay. As such, it was error to permit her to testify on direct examination to the details of the test results obtained by Magee. See *Commonwealth v. McNickles*, 434 Mass. 839, 857 (2001); *Department of Youth Servs. v. A*

Juvenile, *supra*. Inquiry into the hearsay basis for expert opinion is the decision of the cross-examiner.

Id. at 532, quoting Advisory Committee Note on Proposed Mass. R. Evid. 705. The issue is preserved, so we review under the prejudicial error standard. The defendant asks us to review under the harmless beyond a reasonable doubt standard because the error is of constitutional magnitude. Relying on *Crawford v. Washington*, 541 U.S. 36 (2004), the defendant argues that the admission of the details of Magee's test results through Dr. Cotton violates his right of confrontation and cross-examination under the Sixth Amendment.[9] See *Commonwealth v. Nardi*, *supra* at 392-393.

We agree with the defendant that the nature of the hearsay was testimonial in the Sixth Amendment sense because "a reasonable person in [Magee's] position would anticipate [her findings and conclusions] being used against the accused in investigating and prosecuting a crime." *Commonwealth v. Nardi*, *supra* at 394, quoting *Commonwealth v. Gonsalves*, 445 Mass. 1, 3 (2005), cert. denied, 548 U.S. 926 (2006).

Although *Crawford v. Washington*, *supra*, was decided nearly three years after the defendant's trial, he is entitled to the new rule announced in that case because his direct appeal was pending at that time. See *Griffith v. Kentucky*, 479 U.S. 314, 320-328 (1987); *Commonwealth v. Bray*, 407 Mass. 296, 299 (1990).

However, where the defendant's objection to the testimony did not precisely raise the constitutional question, "[t]he adequacy of the objection has to be assessed in the context of the trial as a whole." *Commonwealth v. Koney*, 421 Mass. 295, 299 (1995). See *Commonwealth v. Nardi*, *supra* at 394-395; *Commonwealth v. Galicia*, 447 Mass. 737, 746 (2006). *238 Defense counsel gave his opening statement immediately after the prosecutor's opening.

In his opening counsel stated that Cellmark found an unknown human's DNA on the victim's blue left-hand glove. He quoted from a Cellmark report, and let the jury know that a significant part of the defense would be the failure of the "police and the prosecutors" to "conduct a fair and objective search for the truth. They never sought out other suspects." He also promised the jury they were "going to hear a lot about DNA testing in the course of this case."

Cellmark had been using a standard minimum interpretation threshold setting on its computer software of forty RFUs for "inclusion" of someone as a possible DNA source. Cellmark raised its threshold to sixty RFUs during testing of items in this case. Counsel challenged the reliability of Cellmark's test results by attacking its decision to use the forty RFU and the sixty RFU thresholds, and he highlighted the interpretive difficulties when using low RFU thresholds.

On cross-examination, defense counsel elicited from Dr. Cotton that the FBI used a threshold of 200 RFUs, and the manufacturers of the equipment Cellmark used had recommended a setting of

150 RFUs. Counsel elicited testimony from Dr. Cotton that if Cellmark used a setting of sixty RFUs instead of forty RFUs for tests done on the brown left-hand glove found in the storm drain near the defendant's parked van, five of the ten "peaks" representing alleles on the electropherograms, or computer printouts of DNA test results, would have been eliminated, and her statistical calculation would change, inferentially in favor of the defendant.

Similarly, using the equipment manufacturer's recommended setting of 150 RFUs, Cellmark would have obtained only two detectable alleles; and at the FBI's setting of 200 RFUs, there would have been no detectable results. Counsel elicited from Dr. Cotton that Cellmark had concluded that the defendant was "excluded" as a contributor of the DNA on one sample taken from the hammer.

She further admitted that if Cellmark's tests on the knife had been at the FBI's threshold of 200 RFUs, the only alleles detected would have been those of the victim. As trial counsel predicted in his opening statement, there was evidence of a stranger's DNA on the victim's left-hand glove. *239 Dr. Cotton testified to a total of five alleles on that glove indicating possible DNA from more than two people.

In addition, an allele inconsistent with the DNA profiles of both the defendant and the victim was found in a sample taken from the right-hand glove found with the hammer and the knife. Defense counsel made extensive use of the data prepared by Magee in his cross-examination of Dr. Cotton. This cross-examination buttressed two pillars of the defense, namely, the unreliability of Cellmark's testing procedures, which necessarily affected the credibility of Dr. Cotton's opinion as to the high probability of the defendant's being a contributor to the DNA on the knife and brown gloves, and the defense theory that a third party committed the murder.

As discussed above, Dr. Cotton's opinion was admissible, and experienced defense counsel prepared and pursued two effective strategies as a response to the very high likelihood her opinion would be admitted. One strategy was to reduce some of the sting of Dr. Cotton's opinion; the other was to elicit support for his third-party culprit defense. Both strategies depended entirely on the use of Magee's data in cross-examination of Dr. Cotton.

Moreover, counsel benefited from not having Magee testify because it enabled him to frustrate Dr. Cotton's testimony at points where she simply had no knowledge about analytical choices that Magee made in producing the electropherograms, which probably reflected negatively on Dr. Cotton's credibility.

The data were an integral part of the defense, and it was going to be the subject of inquiry by the defense whether Magee testified or not. We conclude that, in the context of this case, there was no prejudice in the admission of Magee's DNA test results. Cf. *Commonwealth v. Nardi*, 452 Mas. 379, 395-396 (2008) (admission of nontestifying medical examiner's findings during opinion

testimony of pathologist was unpreserved error, but evidence was "equally, if not more, important to the defense," and thereby deemed not to create substantial likelihood of miscarriage of justice).

5. Prior bad acts. The defendant asserts error in the admission of evidence of his extramarital sexual activity, where there was no evidence of prior overt hostility toward the victim. He *240 asks us to adopt the view expressed in *Casterline v. State*, 736 S.W.2d 207, 211-212 (Tex. Ct. App. 1987), where the court held that it would be highly speculative to infer that marital infidelity, standing alone, created a homicidal motive, particularly where spouses in a troubled marriage may be neither jealous nor emotional, but even if they were, that does not necessarily create a homicidal motive.

Evidence of bad acts is not admissible to prove bad character or propensity to commit the crime charged, but it may be admissible, if relevant, for other purposes, including proof of motive. *Commonwealth v. Barrett*, 418 Mass. 788, 793-794 (1994). "[W]here the relevance is not substantial but borderline, the evidence must be excluded unless its probative value on the issue in contention outweighs the undue prejudice that may flow from it."

Commonwealth v. Helfant, 398 Mass. 214, 225 (1986). See Mass. G. Evid. § 404 (b) (2010). The decision to admit or reject such evidence rests in the sound discretion of the trial judge. *Commonwealth v. Butler*, 445 Mass. 568, 574-575 (2005).

Here, the evidence of the defendant's extramarital sexual activity was highly relevant to a motive to kill. The defendant gave contradictory statements to Trooper Foley and Belinda Markel about recent sexual relations with the victim. During the week before the murder the defendant feverishly sought a wide range of sexual relations and activity.

In addition, he was insistent with people he solicited that their relations be discreet, and that he could not host a tryst but he would arrange for hotel accommodations. The defendant was both circumspect and impulsive in his quest.

In an e-mail to one couple he said he first would like to meet them to see if they were compatible, but wrote, "I will tend to be impatient if we find we are, indeed, compatible." The defendant became concerned on October 29, 1999, two days before the victim was murdered, that she had used his computer, through which he conducted his search for sexual relations.

In September the defendant told a prostitute with whom he sought to revive a relationship not to telephone him because "it was not the right time," then he telephoned her the day before and the day after the murder. This evidence supported a reasonable inference that the victim's presence had become an inconvenience to the defendant, *241 and an obstacle to a lifestyle he pursued and kept secret from his entire family and the public.

The jury could have inferred that when he contacted the prostitute just before and after the murder, the time had come to kill his wife. In the words he expressed to the prostitute, the time was now "right." The evidence was highly probative of a motive to kill. "Without the challenged evidence [the murder] could have appeared to the jury as an essentially inexplicable act of violence."

Commonwealth v. Mendes, 441 Mass. 459, 464 (2004), quoting *Commonwealth v. Bradshaw*, 385 Mass. 244, 269 (1982). The judge did not abuse his discretion by admitting this evidence. We decline the defendant's request that we adopt the rule of *Casterline v. State*, supra at 212, where the court said "that jealousy or emotion need not necessarily create a homicidal motive," and that "[i]t would be highly speculative to infer that marital infidelity, standing alone, created a homicidal motive" (emphasis added).

Our rule is somewhat different. Our test for admissibility is more nuanced than that in the *Casterline* case. In our jurisprudence, inferences, such as motive, need not be "inescapable or necessary"; they need only be "reasonable and possible." *Commonwealth v. Angelo Todesca Corp.*, 446 Mass. 128, 132-133 (2006).

We recognize that evidence of an existing sexual relationship between a defendant and a third person is relevant on the issue of the defendant's motive to kill his or her spouse. See *Commonwealth v. Raposa*, 440 Mass. 684, 691 (2004). Of course, a judge must consider whether the probative value of such evidence outweighs its prejudicial value in the context of the case.

Commonwealth v. Helfant, supra. The context of the instant case did not leave the evidence of extramarital conduct "standing alone." Here, as previously discussed, the probative value of the evidence was very high. It provided a reasonable basis to infer a motive to kill, and it was connected in time and place with the facts of this case. See *Commonwealth v. Barrett*, 418 Mass. 788, 794 (1994).

It tended to establish that the defendant intended to kill his wife, an element of the crime, and there was no reason to exclude it. The evidence was both relevant and admissible. See Mass. G. Evid., supra at §§ 401, 402. There is no merit to the defendant's claim that the prosecutor *242 should not have argued as he did to the jury because the Commonwealth had abandoned this evidence and theory of motive.

The prosecutor's statement in closing argument that he wished he could explain how a person gets to the point in his life where he kills another was not abandonment of motive, but merely a statement of something he did not have to prove, see *Commonwealth v. Bonomi*, 335 Mass. 327, 355 (1957), and he asked the jury to return a verdict based on what he had proved.

The prosecutor's reference to certain instances of the defendant's extramarital activity that were not objected to at trial and about which the defendant now complains were made with record support and were not unfair. 6. Cross-examination of the defendant.

The defendant asserts that the prosecutor improperly cross-examined him about his prearrest and postarrest silence, and improperly exploited this evidence in his closing argument. The defendant testified that he tried to lift his wife three times, describing his various efforts.

On cross-examination the prosecutor asked if he recalled telling Trooper Foley that he had not washed his hands, which were clean. The defendant said he believed so. The prosecutor then asked if he told police, prior to his testimony, that he tried three times to move his wife.

The defendant said they did not ask. The prosecutor then asked if the first time he ever mentioned trying to lift his wife three times to anyone in law enforcement was during his testimony. The judge sustained defense counsel's objection. When the prosecutor rephrased the question, the judge again sustained counsel's objection.

The next day the prosecutor pursued the difference between what the defendant told police and his testimony about attempting to lift his wife three times. He also showed the defendant photographs of his hands (clean) taken on October 31, 1999, at the Wellesley police station.

The prosecutor asked the defendant if hearing expert testimony about the blood on his jacket prompted his recollection that he tried three times to lift her. The defendant said it did not. The prosecutor challenged the defendant's testimony about one particular attempt to pick up his wife, in which he said he was on his knees and backed up on his knees into a pool of *243 blood.

The prosecutor asked if he ever mentioned that to Trooper Foley. The defendant said he could not recall saying that to Foley. The prosecutor asked the defendant whether hearing the testimony of Sergeant Rebeiro of the State police concerning the detection of his heel mark in a bloodstain near the victim's body prompted his testimony about kneeling in a pool of blood.

The defendant said it did not. The prosecutor also asked the defendant if speaking to Stuart James, a defense expert on crime scene reconstruction and bloodstain pattern analysis who had not yet testified, helped him to recollect trying to lift his wife three times.

The defendant said he had never had a conversation with James. Other than the two objections referred to, there was no objection to the other questions. There was no request for a curative instruction. In his closing argument, the prosecutor argued that the defendant's testimony about trying three times to lift the victim essentially was concocted to support Stuart James's blood spatter testimony.

The prosecutor also argued that the defendant had had one and one-half years to think about this, and the first mention of it did not emerge until Stuart James told him that a type of blood spatter known as satellite spatter would occur on his pants and sneakers if he lifted up the victim and blood droplets fell off her, rebound, and then fall into each other, forming small pools on his pants and sneakers.

There was no objection to the prosecutor's closing argument. All assertions of error or prosecutorial misconduct are unpreserved, so we review to determine if there was error or misconduct, and if so, whether it created a substantial likelihood of a miscarriage of justice. *Commonwealth v. Wright*, 411 Mass. 678, 681-682 (1992).

The defendant was not in custody and had not been advised of the Miranda warnings at the time he made any of the pretrial statements in question. Consequently, the rule of *Doyle v. Ohio*, 426 U.S. 610, 617-618 (1976), prohibiting comment on a defendant's post-Miranda silence, does not apply. See *Fletcher v. Weir*, 455 U.S. 603 (1982).

Moreover, the defendant did not remain silent, but made several statements, including the one in question to Trooper Foley. He then testified in a different fashion. *244 "The [prosecutor's] questions were not designed to draw meaning from silence, but to elicit an explanation for a prior inconsistent statement." *Anderson v. Charles*, 447 U.S. 404, 409 (1980).

As such, they were not improper. *Id.* See *Commonwealth v. Sherick*, 401 Mass. 302 (1987); *Commonwealth v. Donovan*, 58 Mass. App. Ct. 631, 636-637 (2003). The prosecutor's questions and argument concerning the length of time the defendant had to think about the case, hearing the testimony of Sergeant Rebeiro, and talking to Stuart James, were all fair and grounded in the record.[10] See, e.g., *Anderson v. Charles*, *supra* at 405-406.

This case is distinguishable from *Commonwealth v. Beauchamp*, 424 Mass. 682, 690 (1997), *Commonwealth v. Person*, 400 Mass. 136, 142 (1987), and *Commonwealth v. Ewing*, 67 Mass. App. Ct. 531, 542 (2006), S.C., 449 Mass. 1035 (2007). Those cases all involved defendants who made no pretrial statement, and prosecutors who commented that the defendants tailored their testimony to the Commonwealth's case, and by implication, used their pretrial silence to unfair advantage.

Here, the defendant did not exercise his right to silence and the prosecutor did not comment directly or indirectly on an exercise of the right to remain silent. There was nothing improper in the prosecutor's questions or argument. See *Commonwealth v. Moore*, 408 Mass. 117, 129-132 (1990). 7. Amended motion for a new trial.

The defendant raises five issues in his appeal from the denial of his amended motion for a new trial. (a) Recantation. At trial, State police Sergeant Rebeiro testified that the defendant's left heel could have made some of the impressions in an overlapping print in a drag mark through a bloodstain on the path where the victim was found. Rebeiro further testified that "the heel would be towards the back of the victim as she was in her final resting position."

This, as well as *245 other expert evidence, enabled the prosecutor to state in his opening and argue in his closing that the defendant dragged the victim by walking backward and pulling on the upper portion of her body.

The defendant filed an affidavit of a forensic expert, William J. Bodziak, with his motion for a new trial. Bodziak had averred that the footprint was that of the toe of the defendant's right sneaker, not his left heel. Rebeiro subsequently filed her own affidavit, admitting error and agreeing with Bodziak.

The judge concluded that the newly discovered evidence, if admitted at trial, would not have been a real factor in the jury's deliberations, and that there is not a substantial likelihood the jury would have reached a different result if exposed to the evidence. He reasoned that although this footprint testimony was very important to the Commonwealth's theory that the defendant held the victim from behind and dragged her from the path to a wooded area, other expert evidence supported the theory.

Most foot traffic left no identifiable prints, so the absence of the heel print would not rule out the possibility that the defendant dragged the victim in the manner argued by the prosecutor. Bloodstains on the defendant's clothes supported the inference that the defendant dragged the victim. A motion for a new trial is addressed to the sound discretion of the judge, and the judge's disposition will not be reversed unless it is manifestly unjust.

Commonwealth v. Moore, supra at 125. We accord special deference to the action of a judge on a motion for a new trial where that judge also was the trial judge, as here. *Commonwealth v. Grace*, 397 Mass. 303, 307 (1986). Contrary to the defendant's contention, the judge applied the correct standard. See *Commonwealth v. Weichell*, 446 Mass. 785, 798 (2006), quoting *Commonwealth v. Grace*, supra at 305-306 ("A defendant seeking a new trial on the ground of newly discovered evidence must establish both that the evidence is newly discovered and that it casts real doubt on the justice of the conviction....

[T]he judge must find there is a substantial [likelihood (where motion is heard before direct appeal from conviction of murder in the first degree is decided)] that the jury would have reached a different conclusion had the evidence been admitted at trial [and] whether the new evidence would *246 probably have been a real factor in the jury's deliberations....

This process of judicial analysis requires a thorough knowledge of the trial proceedings... and can, of course, be decided by a trial judge's observation of events at trial...). The judge relied on his knowledge of the trial, he applied the correct standard, and he considered this newly discovered evidence in light of specific strengths of the Commonwealth's case, concluding that it "does not cast real doubt on the justice of the defendant's conviction."

There was no abuse of discretion or other error of law. (b) Jury's exposure to extraneous information. The defendant argues that he is entitled to a new trial because the jury were exposed to extraneous material. A defendant is entitled to be tried by a jury that are impartial and whose

deliberations are unaffected by extraneous matter. *Commonwealth v. Cuffie*, 414 Mass. 632, 638 (1993).

Extraneous matter is information, knowledge, or specific facts about one of the parties or the matter in litigation that did not come from the evidence at trial. See *Commonwealth v. Fidler*, 377 Mass. 192, 200 (1979).

In March, 2005, appellate counsel learned of a book written about this case entitled "Murder at Morses Pond." A portion of the book involves an interview of a juror by the author, describing an experiment by the jury using a banana and the gloves admitted in evidence. Counsel spoke with the author and confirmed the fact of the interview. He learned that the interview was tape recorded and still existed.

Counsel included this information in an affidavit, which provided the basis (undisputed) for a postverdict evidentiary hearing and the taking of testimony from jurors. See *Commonwealth v. Fidler*, *supra* at 201. The judge found the following facts. During their deliberations the jury requested a ruler with millimeter gradations.

After consulting with counsel, who assumed that the jury were interested in measuring spaces between the dots on the gloves, and dots or streaks on certain items of evidence, the judge denied the request. At some point, believed to be during or shortly after lunch, one juror picked up a banana provided with lunch with the intention of eating it. He was wearing the brown gloves with raised dots on the fingers and palms.

After he put down the banana and removed the gloves, he discovered dot impressions from the *247 gloves on the banana peel. The juror then rubbed a gloved finger across the banana peel, which produced a streak on the peel. He and some other jurors then compared the dots and streaks on the peel to those on the defendant's jacket.

The jury returned their verdict the next day. A judge may conduct an evidentiary hearing and inquire of jurors about their exposure to extraneous facts, provided the inquiry is limited to the nature and extent of the jurors' exposure to extraneous matter, and not "the actual effect of the matter on [any] juror's decision." *Id.* The defendant bears the burden at such a hearing of showing that the jury were in fact exposed to extraneous matter.

If the judge finds that extraneous matter was introduced, the burden then shifts to the Commonwealth to show beyond a reasonable doubt that the defendant was not prejudiced thereby. In determining the question of prejudice, the judge must focus on the probable effect of the extraneous matter on a hypothetical average jury, and not the actual thought process of any deliberating juror.

Id. Experimentation with an exhibit during deliberations is generally permissible if it is within the scope of the evidence presented at trial, duplicative of tests or demonstrations performed in the court room, or cumulative of evidence already in the record. See *Commonwealth v. Pixley*, 42 Mass. App. Ct. 927, 928-928 (1997), and cases cited. See also 2 McCormick, Evidence § 220, at 51 (6th ed.

2006) (critical difference is between experiments that constitute closer scrutiny of exhibit and experiments that go beyond lines of trial evidence). The judge concluded that the experiment did not constitute extraneous matter.

The judge found that the experiment was conducted to observe whether the glove was capable of making a pattern similar to the dots and swipe stain on the defendant's glasses and his jacket. He said it was "loosely based on the testimony and arguments presented at trial and did not invade a new field of evidence."

The judge further found that the use of the banana, an outside object not part of the trial evidence, did not transform the experiment into extraneous matter. We agree. The experiment was within the scope of the evidence presented at trial, and cumulative of expert testimony. It was an evaluation of the testimony of experts who opined on the consistency *248 between the dots on the gloves and dots and swipe stains on various pieces of evidence.

See *Banghart v. Origoverken*, A.B., 49 F.3d 1302, 1306-1307 (8th Cir. 1995) (jury not exposed to extraneous evidence where they dropped toothpicks and matches not in evidence into wooden stove, a trial exhibit, in order to evaluate expert's testimony that experiments he conducted with stove showed it was defective).

We discern no abuse of discretion or other error of law in the judge's determination that the jury experiment did not constitute extraneous matter. *Commonwealth v. Moore*, 408 Mass. 117, 125 (1990). (c) Trial counsel's failure to move to exclude or to challenge scientifically unreliable DNA results.

The defendant argues that his trial counsel was constitutionally ineffective in failing to file a pretrial motion to exclude Cellmark's DNA evidence as scientifically unreliable. *Commonwealth v. Lanigan*, 419 Mass. 15, 25-26 (1994). He also faults counsel for failing to employ an expert to challenge Cellmark's DNA evidence at trial as being scientifically unreliable.

The statutory standard under G. L. c. 278, § 33E, is more favorable to a defendant than the constitutional standard for determining the ineffectiveness of counsel. That is, we review counsel's performance to determine if there was an error, and whether it created a substantial likelihood of a miscarriage of justice. *Commonwealth v. Wright*, 411 Mass. 678, 682 (1992).

Here, the defendant must show that a Lanigan motion would have been successful. *Commonwealth v. Beliard*, 443 Mass. 79, 90-91 (2004). In addition, error attributable to an attorney's tactical decision will be deemed ineffective assistance of counsel only if it was manifestly unreasonable when made. *Commonwealth v. Coonan*, 428 Mass. 823, 827 (1999). Defense counsel has a duty to conduct an independent investigation of the forensic, medical, or scientific evidence on which the Commonwealth intends to rely to prove its case.

Commonwealth v. Baker, 440 Mass. 519, 529 (2003), and cases cited. The judge found that counsel knew that Cellmark was the only laboratory using a threshold as low as forty RFUs, and that there are interpretive challenges, including allelic dropout and stutter problems, when analyzing DNA mixtures, particularly those involving low copy number (LCN) DNA. He also found *249 that counsel was aware that his expert, Dr. Christie T. Davis, criticized Cellmark's work as unscientific and unreliable for reasons including its failure adequately to validate its forty RFU threshold.

The judge further found that counsel recognized that courts in Massachusetts and elsewhere had found issues of RFU, sample size, mixtures, and stutter to bear on the weight of DNA test results rather than their admissibility. Counsel was aware of the Hampden County Superior Court judge's ruling in *Commonwealth v. Gaynor*, 443 Mass. 245 (2005), which predated the trial in this case, [11] and addressed issues nearly identical to those presented here.

The judge in that case had concluded that the questions presented went to the weight of the evidence, not its admissibility, and we agreed. *Id.* at 266-267. Counsel's decision not to pursue a pretrial Lanigan motion was made in consultation with his team of experts, including Professor William Thompson, who the judge found was "one of the country's most knowledgeable attorneys on DNA issues."

Counsel's decision took into consideration factors other than those just discussed, including the risk that a Lanigan hearing would serve to educate the prosecution about weaknesses in the DNA evidence. See *Commonwealth v. Bol Choeurn*, 446 Mass. 510, 520-521 (2006).

In addition, the presence of a stranger's alleles on the knife and brown work gloves, which would not have been detectable at one hundred RFUs but were detectable at forty RFUs, could reasonably be considered to have greater impact on the jury than those found on the victim's glove, which were detectable above one hundred RFUs. Consequently, counsel weighed this factor against seeking a Lanigan hearing in order to have the benefit of the stranger alleles detectable at forty RFUs.

The judge concluded that counsel's decision to forgo a Lanigan motion was not manifestly unreasonable. The judge's conclusion was supported by the record and was not an abuse of

discretion. The judge also determined that, acting within his discretion, he most likely would have rejected a Lanigan challenge to the reliability of Cellmark's test results in this case.

See *Canavan's Case*, 432 Mass. 304, 313 (2000). The affidavit of the defendant's *250 expert filed with the amended motion for a new trial opined that there is no scientific justification for a laboratory arbitrarily to lower its RFU threshold from one hundred, which was based on internal validation studies, to forty, which was not.

The judge rejected this opinion. He noted that the defendant's expert based his opinion in part on his informal survey of nine laboratories that were unwilling to perform LCN (i.e., low copy number, or small amount) mixture analysis at low RFUs, but he noted that this survey did not establish that such analysis is scientifically unreliable, and the defendant presented nothing in the scientific literature supporting the notion that the use of a threshold below one hundred RFUs is categorically invalid.

In addition, the judge credited evidence that Cellmark scientists conducted validation studies in which they observed that good data were obtained at a threshold of forty RFUs, and that Cellmark validated stutter values for each individual locus.

The judge further noted that, since the trial of this case, we have upheld trial court findings that Cellmark has conducted validation studies indicating that analysts could reliably interpret test results, at least with respect to single sources of DNA and mixtures yielding strong evidence of a primary contributor, based on readings as low as forty RFUs. See, e.g., *Commonwealth v. Gaynor*, *supra* at 265, 267.

The defendant's expert stresses the difficulty of interpreting LCN mixtures, compared to single source samples of DNA, and contends that Cellmark's guidelines and standard operating procedures are inadequate in guiding analysts in this task.

The judge found that Cellmark analysts are capable of considering and accounting for issues of stutter and dropout based on their experience and expertise. The judge found that any question as to possible analyst bias, like the other issues raised by the defendant's expert, went to the weight of Cellmark's test results, not their admissibility. See *Commonwealth v. Gaynor*, *supra* at 263-267; *Commonwealth v. Vao Sok*, 425 Mass. 787, 806 n.27 (1997).

We conclude that the judge did not abuse his discretion or commit other error of law in concluding that the defendant probably would not have prevailed on a pretrial Lanigan motion. The defendant next argues that counsel was ineffective in *251 failing to challenge the DNA evidence at trial. He first argues that counsel should have retained a forensic scientist to replace Dr. Davis, a molecular biologist retained by counsel and who was prepared to testify that Cellmark's testing was scientifically unreliable.

Defense counsel learned less than two months before trial that testimony of Dr. Davis in a recent case in Australia was "strongly criticized" by the Australian judge. Counsel also learned that the criticism of Dr. Davis in the Australian case had a negative impact on her credibility in a case in California. He began to reconsider calling Dr. Davis as the key defense expert because he believed she was vulnerable to impeachment based on the Australian case.

He also was concerned about doubts she had after hearing Dr. Cotton's testimony that the "stranger" DNA at one particular allele might in fact be an artifact. Counsel previously had retained Dr. Dan E. Krane, associate professor of biological sciences at Wright State University, who also runs a DNA research laboratory there, to duplicate the testimony of Dr. Davis, but from an academic perspective.

Counsel arranged to have Dr. Krane spend approximately twenty-four hours over two days with Dr. Davis regarding her analysis of the DNA testing done by Cellmark. Dr. Krane then offered testimony about shortcomings in Cellmark's DNA test procedures. He testified as to other matters, including the "stranger" DNA and DNA transfer issues. Dr. Davis never testified, and was released as a witness by counsel on June 21, after Dr. Krane testified.

Counsel also challenged Cellmark's test results in his cross-examination of Dr. Cotton over a period of nearly two days with a thorough command of the facts, the science, and Cellmark's electronic data. Dr. Davis sat next to him at counsel table during the entire testimony of Dr. Cotton.

The defendant contends that the electropherograms prepared by Dr. Davis to illustrate the "stranger allele defense" were excluded, and as a result the third party culprit component of the defense "fell flat." Although the electropherograms were not admitted as exhibits, counsel was able to extract from Dr. Cotton that there was DNA from more than two people on the victim's left-hand glove and the right-hand glove found with the hammer and knife.

Dr. Krane also testified that he detected *252 DNA inconsistent with both the victim and the defendant on the victim's left-hand glove and the right-hand glove found with the hammer and knife. He further testified that he detected an allele inconsistent with both the victim and the defendant, not previously reported, in the spatter on the victim's abdomen, on the hammer (inconsistent only with the defendant), the knife, the plastic bag, and the left-hand glove found in the storm drain near the place where the defendant parked his van.

Defense counsel was able to accomplish what he needed without the testimony of Dr. Davis, whose credibility was problematic. The electropherograms were merely cumulative of more compelling evidence. Indeed, any value in the electropherograms would have depended entirely on the cross-examination of Dr. Cotton and the testimony of Dr. Krane. Without their testimony, a jury would not know what to make of such exhibits, which were subject to interpretation.

The third-party culprit defense did anything but "fall flat," and the decision to proceed only with Dr. Krane was not manifestly unreasonable. Counsel's failure to request a continuance in the trial to secure a replacement for Dr. Davis was determined by the judge to have been a decision that was not manifestly unreasonable.

The judge found that a continuance would have taken the trial date beyond Kirsten's early August wedding date, and counsel did not want to lose her support at trial for the defendant, a delicate matter in view of her future husband's lack of support for the defendant.

Before making this decision counsel consulted the defendant and family members of the defendant. The defendant faults counsel for failing to retain a statistics expert to challenge Cellmark's calculations. The judge found that before deciding not to hire such an expert defense counsel consulted his team of experts, including Thompson, and he made a reasoned decision that testimony from such an expert would not significantly reduce the probability that the defendant was a source of DNA on various exhibits, and where there was other strong evidence of guilt.

More significantly, it would distract the jury from the defendant's DNA transfer theory, which would render any statistical calculation irrelevant. The judge concluded that counsel's decision was not manifestly unreasonable, and we agree. *253 We have considered all aspects of the defendant's argument on this issue and conclude that the judge's findings and conclusions about counsel's strategic decisions are grounded in the record, and his conclusions that counsel's decisions were not manifestly unreasonable are not an abuse of his discretion. (d) Counsel's failure to file a motion to suppress the receipt for purchase of nails.

The defendant claims that counsel was ineffective for failing to file a motion to suppress the receipt for the purchase of nails seized during execution of the search warrant that issued on November 12, 1999. He alleges that neither the warrant nor the affidavit in support of the application for the warrant described the receipt with sufficient particularity.

See *Commonwealth v. Rutkowski*, 406 Mass. 673 (1990). In order to prevail on his claim, the defendant must establish that the motion to suppress would have been successful, *Commonwealth v. Comita*, 441 Mass. 86, 91 (2004), and that the failure to file the motion created a substantial likelihood of a miscarriage of justice, that is, that the receipt "was likely to have influenced the jury's conclusion."

Commonwealth v. Wright, 411 Mass. 678, 682 (1992). The judge did not decide whether he would have allowed such a motion, but concluded that even if the defendant would have prevailed in suppressing the receipt, his failure to file the motion would not have created a substantial likelihood of a miscarriage of justice.

The judge found that, although the nails receipt created a strong inference that the defendant purchased the Estwing hammer minutes after the nails purchase, the defendant's son testified that

he had purchased the nails. More important, the judge found that the receipt was not a key piece of evidence. There was evidence that the defendant previously had purchased items at the hardware store, which sells the type of gloves involved here as well as Estwing hammers, and the judge noted the strength of the Commonwealth's case, including "the DNA evidence linking him to the knife and [the brown gloves], the blood spatter and transfer evidence and absence of blood on the defendant's hands and the cuffs of his jacket, the blood pattern on his glasses, the fiber evidence, the consciousness of guilt evidence [the defendant's statements], and the myriad other pieces of circumstantial evidence in the case." *254 We need not decide the question of the motion to suppress because we agree that regardless of its resolution, there was no substantial likelihood of a miscarriage of justice. (e) Counsel's failure to move to suppress the fruits of a search of the defendant's Toyota Avalon automobile.

We summarize the judge's findings. On November 1, 1999, police obtained their first search warrant for the defendant's home. The defendant's Toyota Avalon was parked in the driveway, which runs from the street to the defendant's garage.

The driveway is visible, in its entirety, from the street. There were no trees, fences, gates, or "no trespassing" signs between the street and the driveway. During the search of the home, police seized the keys to the Toyota.

The defendant believed police had searched the Toyota but neglected to seize the towel he had told police he and his wife applied to the bloody nose each had had before going to Morses Pond on October 31. He gave the towel, which had a "Ritz-Carlton logo," to counsel on November 5.

The towel was important to the defense because it corroborated statements he had made, and it supported the defense's DNA transfer theory. On April 10, 2000, in accordance with a court order, counsel turned over the towel to the Commonwealth. Neither the return on the search warrant nor any police report indicated that police actually had entered the Toyota.

At a pretrial hearing on a motion to suppress Trooper Foley testified that police had observed a bloodstained towel in the Toyota, but it was not seized. Counsel felt this testimony helpful because it corroborated the defendant's statement about the bloody towel, and it supported the defense argument that police conducted a sloppy investigation. There was no evidence at the suppression hearing as to the identity of the officers who saw the towel in the car.

At trial, Detective McDermott testified that she searched the defendant's Toyota on November 1, 1999, and observed a white towel inside. However, she described the towel as brown and dirty, not bloodstained, and it did not have a Ritz-Carlton logo.

Although surprised by Detective McDermott's testimony, counsel did not move to strike it as the fruit of an unlawful search. Instead, counsel believed this testimony could be exploited by eliciting

further testimony that McDermott failed to seize or *255 photograph the towel, and by highlighting the inconsistencies given by Detective McDermott and Trooper Foley.

The defendant argues that counsel should have moved to suppress the fruits of the Toyota search, and to strike Detective McDermott's testimony because the Toyota was not within the curtilage of the house. The judge concluded that Detective McDermott's search of the Toyota was unlawful, and the Commonwealth does not dispute this conclusion. He reasoned that the car was in a place that was open to public view and no measures had been taken to define the area as part of the curtilage.

See *Commonwealth v. McCarthy*, 428 Mass. 871, 873 (1999); *Commonwealth v. Simmons*, 392 Mass. 45, 48-49, cert. denied, 469 U.S. 861 (1984). Accordingly, because the Toyota was outside the curtilage, the search warrant that issued on November 1, 1999, did not extend to the Toyota, and the Commonwealth could offer no valid reason for conducting a warrantless search of the Toyota.

The judge concluded, however, that although counsel recognized that the fruits of the search of the Toyota could be suppressed, he deliberately chose not to move to exclude Detective McDermott's testimony for tactical reasons. He further concluded that counsel's decision was not manifestly unreasonable. See *Commonwealth v. Cutts*, 444 Mass. 821, 831 (2005) (counsel had strategic reasons for not challenging admissibility of statements).

Counsel in fact highlighted the inconsistencies just described in his cross-examination of Detective McDermott and Trooper Foley, and he argued the point forcefully in closing. In his closing, the prosecutor did not focus on the towel, and instead disputed the defense theory of simultaneous nosebleeds and the defense theory of DNA transfer.

We conclude, as did the judge, that counsel's decision to forgo any challenge to the fruits of the search of the Toyota was a reasonable tactical decision and was not manifestly unreasonable. 8. G. L. c. 278, § 33E.

We have reviewed the briefs and the entire record, including the transcripts and the 475 trial exhibits and scores of items marked for identification, and it is our *256 considered judgment that there is no reason to grant relief under G. L. c. 278, § 33E. Judgment affirmed. Order denying amended motion for a new trial affirmed. NOTES [1] The defendant pulled the victim's shirt down and closed her pants in the presence of Officer Fitzpatrick after leading him to her body.

[2] Police executed two search warrants at the defendant's home, the first on November 1, 1999, and the second on November 12. [3] A relative fluorescent unit (RFU) is a measure of the amount of amplified deoxyribonucleic acid (DNA) present in a test sample.

[4] See S.J.C. Rule 1:19 (b) & (c), 428 Mass. 1301 (1998); G. L. c. 234A, §§ 22, 23. [5] This case underscores, once again, the importance of a record of all events during trial. [6] The trial transcript indicates the judge told jurors that while they were waiting for their panels to be called they were to wait in the main court room but would be free to move about and socialize with one another.

They were told they could not discuss the case. [7] The judge noted that "memories of long ago events" were difficult, if not impossible, to reconcile. He found that none of the witnesses had been asked to remember the question of closure of room 8 until approximately eight and one-half years after the voir dire, and none had notes that record or refresh recollection.

[8] Contrary to the defendant's assertion, the legal assistant to defense counsel did not testify unequivocally that no member of the public was present. That question was not put to him. [9] The defendant makes no argument that art. 12 of the Massachusetts Declaration of Rights provides greater protection than the Sixth Amendment to the United States Constitution, so we do not address the question.

[10] The defendant contends that the prosecutor had no good faith basis to believe the defendant had spoken to Stuart James over the weekend prior to his testimony. While the prosecutor's use of the verb "spoken," and his time reference to the previous weekend may have been imprecise, the record indicates that James had no information about the defendant trying three times to lift his wife until the week before his testimony.

We are satisfied that the prosecutor had a good faith basis to inquire about and argue the point.

[11] The trial in *Commonwealth v. Gaynor*, 443 Mass. 245 (2005), took place in May, 2000. The trial in this case took place in May and June, 2001.