

# 4

## Zodiac

### A First Date

The story of the Zodiac Killer appears to have begun on the night of Friday, December 20, 1968. Betty Lou Jensen, just sixteen years old, headed out for her first date. She was with David Arthur Faraday, a seventeen-year-old, who was a top student and a varsity wrestler. They ended up parked just off Lake Herman Road, a lovers' lane in Vallejo, California.



FIG. 4.1 Betty Lou Jensen  
© Bettmann / Getty Images

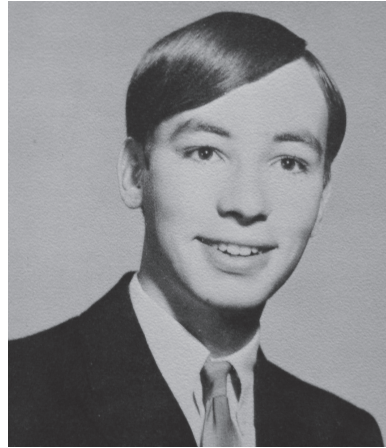


FIG. 4.2 David Arthur Faraday  
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Sometime between 11:10 and 11:15 p.m., they were attacked. The killer put his gun to the boy's head and pulled the trigger, killing him while he was still in the car. Betty exited the vehicle, but the killer shot her in the back five times as she tried to run away. Both teens died. Police later found ten expended .22 casings.

## Another Attack

Minutes after midnight, as July 4, 1969, turned into July 5, the crimes continued with an attack on a man and woman at another lovers' lane in Vallejo—Blue Rock Springs Golf Course. This time, the man survived and offered a description of his attacker. There were also strange details surrounding the episode that may provide further clues as to the identity of the killer. The victims were Darlene Ferrin, age twenty-two, and Michael Mageau (pronounced May-hew), age nineteen. Darlene was married to Dean Ferrin (her second husband) and had a baby girl, so her presence at a lovers' lane with Mageau requires some explanation.

Investigators learned that shortly before midnight, Darlene told her babysitters that she needed to buy fireworks for a party she was having that night. She asked the babysitters if they could stay until 12:15 a.m., so whatever she was up to, she didn't expect it to take long. Indeed, fireworks were readily available, sold at booths all over town. She picked up Michael Mageau, who noticed that they were being followed when Darlene pulled away from his house. Darlene drove faster, and a chase ensued.



FIG. 4.3 Darlene Ferrin  
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FIG. 4.4 Michael Mageau

The chase ended when Darlene hit a log at the golf course, causing her car to stall. Whoever was pursuing them parked behind and to the left of

Darlene's car but then quickly drove off again. Any sense of relief was temporary, as the car returned five minutes later, parked the way it had before, and left the lights on. The driver shined a bright light in the faces of Darlene and Michael, got out of the car, and approached them. The light went out. Michael thought it was a policeman. The two went for their wallets to get their IDs out. The driver came to the passenger side, shined his flashlight in Michael's face again and then began shooting, hitting Michael, but doing far more damage to Darlene, who was hit nine times. When the shooter returned to his car, Michael got a good look at him, but he also saw the man returning. He fired another two shots at each of the victims.

The course caretaker heard the gunshots around midnight, but the police didn't take his report seriously, thinking he heard only Fourth of July firecrackers. Three teenagers found the victims soon thereafter. When one of the teens called the police to report the shooting, the police realized they had made a serious mistake in not responding to the previous call as quickly as possible. They arrived too late to catch the killer, but they were in time to save Michael's life.

Although it was a hot July, Michael was wearing "3 pairs of pants, 3 sweaters, a long-sleeved button shirt, and a T-shirt."<sup>1</sup> Some authors make this into a minimystery, but there's a simple explanation. Michael was incredibly self-conscious about being six feet, two inches tall and very thin. He habitually wore extra layers to make his skinny frame look more filled out.

Michael's survival is the reason that many more details can be related for this second attack than for the first, in which both Betty and David died. Michael's story of the car chase can be questioned, though. It would not be unexpected for someone found on a lovers' lane with a married woman to manufacture some explanation as to how he got there. Indeed, multiple inconsistencies have arisen in his retellings of events that night. However, the speed with which Darlene got from her house to Michael's house, and on to the scene of the attack is consistent with a car chase. Also, when police got to Darlene's vehicle, the ignition was turned on, the car was in low gear, and the hand brake wasn't set, which is consistent with Michael's claim of the car stalling at the end of the chase.

Another contradiction needs to be addressed, though. Darlene told the babysitters that she was leaving to buy fireworks, but her wallet contained only thirteen cents at the time of her death. The simplest explanation is that she picked Michael up, hoping that he would pay for her purchase.

Investigators learned that Darlene went on dates with quite a few men, including policemen from the sheriff's office, despite being married. Thus, jealousy issues may have produced a long list of suspects, but a phone call made things more complex, in a way. The call was received by the Vallejo Police Department switchboard at 12:40 a.m., just two minutes after Darlene was declared dead, and consisted of a man saying this:

"I want to report a double murder. If you will go one mile east on Columbus Parkway to the public park, you will find kids in a brown car. They were shot with a 9-millimeter Luger. I also killed those kids last year. Good-bye."<sup>2</sup>

Although the call was recorded, it was lost sometime before 1986, so only memories of the voice from those who heard it before then could serve as evidence now.

The call was traced to a pay phone in front of the Vallejo Sheriff's Office. Given that the call was received before anyone other than a few police knew of the murders, and a nine-millimeter gun was used as claimed, it was deemed genuine.

Within an hour of the murder, someone made "heavy breathing" phone calls to three of Darlene's relatives. This suggests that her killer knew her. A friend of Darlene later quoted her as saying that she knew the first two victims. Darlene was also quoted as saying that she saw a guy, who she was obviously afraid of, murder someone! Various stories told by people who knew Darlene seem to indicate that she got in over her head in some sort of criminal matter, but the exact nature of the trouble hasn't been satisfactorily pinned down. After her death, Darlene's husband found a yellow photo envelope with strange writing on it in Darlene's hand. He saw the words "hacked," "stuck," "testified," "seen," and the partial words "acrqu," "acci," "calc," and "icio." The words "on," "by," and "at" appeared in circles. The word "highly" was present, but scratched out. On the back was the phone number to Mr. Ed's Restaurant and Drive-In.

## The First Ciphers

The next communication from the killer came in the form of a July 31, 1969, letter sent to three area newspapers, the *San Francisco Chronicle*, the *San Francisco Examiner*, and the *Vallejo Times-Herald*. A transcription of the letter



to the *Chronicle* follows. As with the phone call, the killer gave details not publicly known to verify his identity. All spelling errors in the transcription appeared in the original.

*Dear Editor*

This is the murderer of the 2 teenagers last Christmass at Lake Herman + the girl on the 4th of July near the golf course in Vallejo To prove I killed them I shall state some facts which only I + the police know.

Christmass

1 Brand name of ammo Super X

2 10 shots were fired

3 the boy was on his back with his feet to the car

4 the girl was on her right side feet to the west.

4th July

1 girl was wearing patterned slacks

2 The boy was also shot in the knee.

3 Brand name of ammo was western

Over

The next page continued

Here is part of a cipher the other 2 parts of this cipher are being mailed to the editors of the Vallejo Times and SF Examiner. I want you to print this cipher on the front page of your paper. In this cipher is my idenity. If you do not print this cipher by the afternoon of Fry.1st of Aug 69, I will go on a kill ram-Page Fry. night. I will cruse around all weekend killing lone people in the night then move on to kill again, until I end up with a dozen people over the weekend.

In lieu of a signature, the killer drew the following symbol.



Investigators, both professional and amateur, have found a great many interpretations of what this symbol represents. What does it make you think of? A few possibilities are discussed later in this chapter.

The other two newspapers received similar letters. Each of the three letters was accompanied by a distinct cipher. They're all shown in figs. 4.5–4.7.<sup>3</sup>

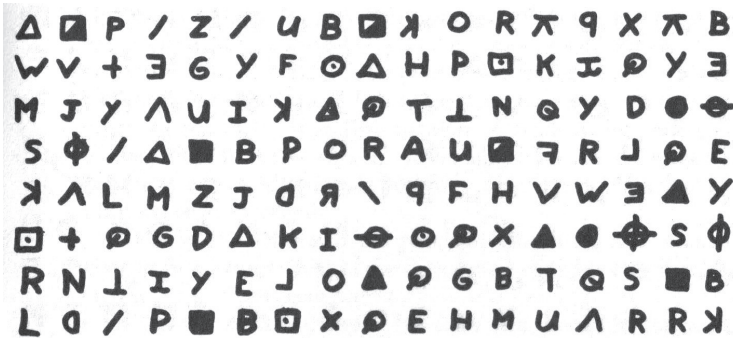


FIG. 4.5 Cipher sent to the *Vallejo Times-Herald*

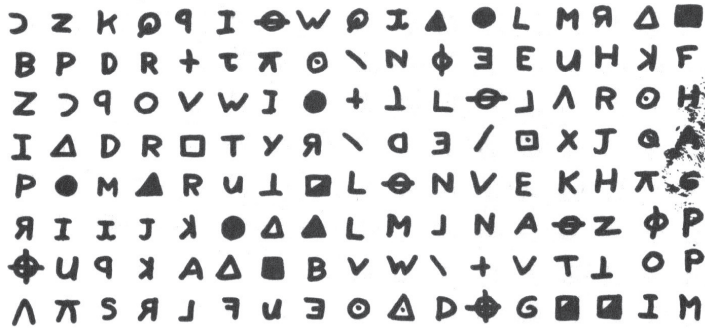


FIG. 4.6 Cipher sent to the *San Francisco Chronicle*



FIG. 4.7 Cipher sent to the *San Francisco Examiner*

Without a great deal of work, it cannot be determined if the ciphers offer three separate messages or are meant to be combined to form a single message. What is clear is that we're not dealing with a MASC. Simply counting the fifty-four distinct symbols makes that clear. If we had thirty-six symbols, they might represent the twenty-six letters and ten digits (0 through 9), but with fifty-four, we still have an extra eighteen symbols to account for. Punctuation can get a few more, i.e., period, question mark, comma, apostrophe, etc. There are other punctuation symbols, but getting to fifty-four still seems like an unreasonable stretch.

So, we have too many symbols for a MASC, but we have far too few for the symbols to represent pairs of letters, or syllables, or words. It appears that the killer took one of the most basic steps in improving on a MASC, using multiple symbols to represent the most common letters. We could have, for example, R, M, T, and + all representing the letter E. Although this is a simple way to improve on a MASC, it does make breaking the cipher significantly harder. The multiple symbols for each letter are called *homophones*, and the entire scheme is a homophonic cipher. Such systems go back to at least 1412, so the killer wasn't treading new ground cryptographically.

Frequency counts and pattern words, two of our most useful tools, are worthless against homophonic ciphers. Also, it seems likely that the deciphered message will have misspelled words, just like the "Dear Editor" portion of the letter, providing another complication.

On another note, it's interesting that we have every letter of the alphabet except for C. Several letters appear in more than one form (i.e., backward or upside down). We do have a backward C, but no normal C. Why is this?

With every communication a killer makes, he or she risks unwittingly revealing a clue that could lead to his or her identification and capture. Knowing this, Vallejo Police Chief Jack E. Stiltz made an open request to the writer to send more facts to prove that he was the killer. The killer accepted this invitation.

## August 7, 1969, Letter

The killer's next letter was three pages long. It was the first in which he referred to himself as "the Zodiac." It's reproduced below.

*Dear Editor*

This is the Zodiac speaking.

In answer to your asking for more details about the good times I have had in Vallejo, I shall be very happy to supply even more material. By the

way, are the police having a good time with the code? If not, tell them to cheer up; when they do crack it they will have me.

On the 4th of July:

I did not open the car door, The window was rolled down all ready. The boy was originally sitting in the front seat when I began firing. When I fired the first shot at his head, he leaped backwards at the same time thus spoiling my aim. He ended up on the back seat then the floor in back thashing out very violently with his legs; thats how I shot him in the knee. I did not leave the cene of the killing with squealling tires + racing engine as described in the Vallejo paper,. I drove away quite slowly so as not to draw attention to my car. The man who told the police that my car was brown was a negro about 40-45 rather shabbly dressed. I was at this phone booth haveing some fun with the Vallejo cops when he was walking by. When I hung the phone up the dam X@ thing began to ring & that drew his attention to me + my car.

Last Christmass

In that epasode the police were wondering as to how I could shoot + hit my victoms in the dark. They did not openly state this, but implied this by saying it was a well lit night + I could see the silowets on the horizon. Bullshit that area is srouded by high hills + trees. What I did was tape a small pencil flash light to the barrel of my gun. If you notice, in the center of the beam of light if you aim it at a wall or ceiling you will see a black or darck spot in the center of the circle of light about 3 to 6 inches across. When taped to a gun barrel, the bullet will strike exactly in the center of the black dot in the light. All I had to do was spray them as if it was a water hose; there was no need to use the gun sights. I was not happy to see that I did not get front page coverage.



*NO ADDRESS*

When the killer wrote, "By the way, are the police having a good time with the code? If not, tell them to cheer up; when they do crack it they will have me," he had no idea that his cipher had already been broken.

## A Solution to the Cipher

The ciphertexts were made available to the NSA, CIA, and FBI, but it was a pair of amateurs, who saw the ciphers in a newspaper article, who broke them. Donald

Harden, a high school history and economics teacher, began working on the ciphers and was later joined by his wife, Bettye Harden, who had no previous experience with cryptology. Their method of decipherment is detailed below, but you may wish to stop reading at the end of this paragraph and try cracking the cipher yourself. Be warned that it is difficult! However, if you're clever enough, you may be able to beat the husband and wife decipherment time of twenty hours.

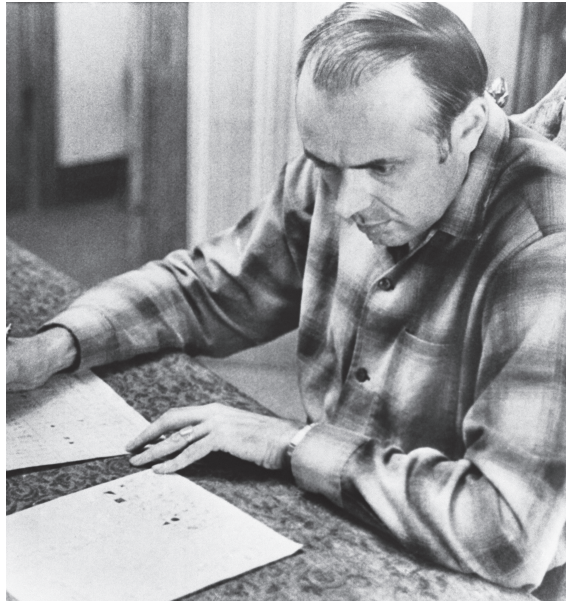







FIG. 4.8 Donald Harden  
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## The Decipherment

Donald had been interested in cryptology as a boy and had books on the subject to refer to, but Bettye had two characteristics that are tremendously valuable in breaking ciphers—persistence and creativity. When Donald was ready to give up, Bettye wasn't. She dragged him back into it. Finally, she had the key insight of applying the psychological method. The killer obviously wanted attention, or he wouldn't have written the letters. Someone so self-centered would likely begin his message with "I." Also, she suspected that the word "KILL" would appear in the message. She even went as far as to suggest that the message might begin with a phrase like "I LIKE KILLING."

Trying to get inside the head of the person who created the cipher and guess words or phrases he or she might use is a technique that has been successfully applied numerous times. It even helped break a great many Nazi Enigma ciphers during World War II, when combined with some more sophisticated mathematical techniques and specially designed machines (the Bombes).

Cryptanalysts refer to “probable words” or sometimes a “probable word search” when they are trying to locate a word such as “KILL” in a particular cipher. The word is also called a “crib” and the attempt to locate it “cribbing.” Cribbing paid off for the Hardens.

“KILL” ends with LL, so in a MASC, we would simply look for a doubled ciphertext letter. However, in the cipher in question, L might be represented by more than one symbol, so we have to have some flexibility. By a lucky break, some doubled cipher letters do appear. The pair  appears twice (in separate cipher pieces) and  appears once. We also have one appearance of **RR**. Some letters, like Q, never appear doubled in normal English. The letter L is, in fact, the one that’s doubled the most often. So, it’s reasonable to assume that the pair  represents LL. But again, it must be recalled that there may well be other symbols in this cipher that represent L. In any case, assuming that  is LL, and that this is part of the word KILL, we can make the appropriate substitutions above the ciphertext symbols of one of the appearances of  to get  $\begin{matrix} K & I & L & L \\ / & \Delta & \square & \square \end{matrix}$ . That is, / is tentatively identified as K, and  $\Delta$  is tentatively identified as I.

For the record, we could do the same for the other appearance of , but that will lead us in the wrong direction. When trying to break a cipher, one encounters many false leads. It eventually becomes clear that a mistake was made, and the attacker then backtracks. Describing such false leads and backtracking would drastically increase the length of the discussion, so authors typically only show the approaches that worked.

Now that we believe we know some of the symbols that replaced K, I, and L, these may be identified throughout the cipher. When this is done, the first line of one piece becomes  $\begin{matrix} I & L & P & / & Z & / & U & B & \square & \lambda & O & R & \pi & q & X & \pi & B \end{matrix}$ .

Imagine the excitement when the Hardens saw this and realized that the message apparently did begin with “I LIKE KILLING,” just as Bettye had guessed! Not only did this reveal which portion of the cipher came first, but it also identified **P**, **U**, and **λ**, as the letter I, **Z** as the letter E, **B** as the letter L, **O** as N, and **R** as G.

As often happens with ciphers, once a major break is made, the rest unravels much more rapidly. Feel free to stop reading at the end of this paragraph



and try to complete the decipherment yourself. But remember, it's likely that there will be some misspelled words. I present the complete solution below.

The decipherment hinged on finding letters that represented LL. Our initial choices were **■ ■**, **■ ■**, and **R R**. The first seemed like the best choice, because it appeared twice, while the other pairs occurred just once each. However, as the complete decipherment reveals, both **■ ■** and **■ ■** represent LL. The pair **R R** ends up deciphering as GG.

The Hardens' work was complicated, as expected, by the presence of several errors. They are all shown here. The message deciphered to

I LIKE KILLING PEOPLE BECAUSE IT IS SO MUCH FUN IT  
IS MORE FUN THAN KILLING WILD GAME IN THE FORREST  
BECAUSE MAN IS THE MOST DANGEROUE ANAMAL OF ALL TO  
KILL SOMETHING GIVES ME THE MOST THRILLING EXPERENCE  
IT IS EVEN BETTER THAN GETTING YOUR ROCKS OFF WITH A  
GIRL THE BEST PART OF IT IS THAE WHEN I DIE I WILL  
BE REBORN IN PARADICE AND ALL THE I HAVE KILLED WILL  
BECOME MY SLAVES I WILL NOT GIVE YOU MY NAME BECAUSE  
YOU WILL TRY TO SLOI DOWN OR ATOP MY COLLECTIOG OF  
SLAVES FOR MY AFTERLIFE. EBEORIE TEMETHHPITI

Newspapers published solutions in various forms—correcting spelling errors, introducing new errors, etc. The deciphered message above doesn't contain the letters J, Q, or Z. This could explain why the symbol C didn't appear in the cipher. Maybe C wasn't needed because it stood for either J, Q, or Z.

Many attempts have been made to make a name out of the letters EBEORIE TEMETHHPITI that appear at the end, as if it could reveal the killer's identity.<sup>4</sup>

It seems unlikely that any could be correct, as the portion already deciphered stated "I WILL NOT GIVE YOU MY NAME." Donald Harden himself doubted that the letters served any purpose other than to fill out the last rectangle of ciphertext.

Although the Hardens broke the message on August 4, 1969, they had trouble convincing anyone that they had really done it, and the decipherment wasn't published until August 12, 1969.

It was only after this decipherment that Robert Graysmith, a political cartoonist for the *San Francisco Chronicle* who had taken a strong interest in the case, realized that the envelopes provided a clue as to the order of the

three-part cipher message. The envelopes for parts 1, 2, and 3, bore 2, 3, and 4 postage stamps, respectively.

Oddly, before the Harden's solution was published, an anonymous writer mailed the cipher key to Vallejo Detective Sergeant John Lynch. Was this a communication from the killer or a scared "Concerned Citizen," as the letter was signed, who didn't want to attract the killer's attention?

Every confirmed communication from the killer has potential value. As you should suspect, the case would not be included here if there didn't remain an unsolved cipher. Will one of the letters reproduced here give some reader the psychological insight that helps break the unsolved cipher soon to be presented?

### Lake Berryessa, September 27, 1969

Another attack came on Saturday, September 27, 1969. This time it occurred in daylight, but still in a secluded area.

Bryan Hartnell, twenty, arrived by car with Cecilia Sheperd, twenty-two, at the man-made Lake Berryessa, thirty-six miles north of Vallejo, at 4:00 p.m. They enjoyed a picnic on a peninsula that jutted into the lake.



FIG. 4.9 Cecilia Sheperd  
© Associated Press



FIG. 4.10 Bryan Hartnell  
© Associated Press

As the killer approached the couple, he was armed with a gun, as in his past attacks, but this time he also had a large knife in a wooden sheath on his belt, some lengths of rope, and a costume. The costume included a black hood that made him somewhat resemble an executioner. A reconstruction for a magazine cover is reproduced below. As you can see, the hood extended over the chest and



FIG. 4.11 Lake Berryessa © Bettmann / Getty Images

bore the symbol the killer used as a signature in his letters. The reconstruction is not completely accurate, though. The killer's hood bore a slit for his mouth, and he also wore clip-on sunglasses over the hood, so his eyes were not visible.

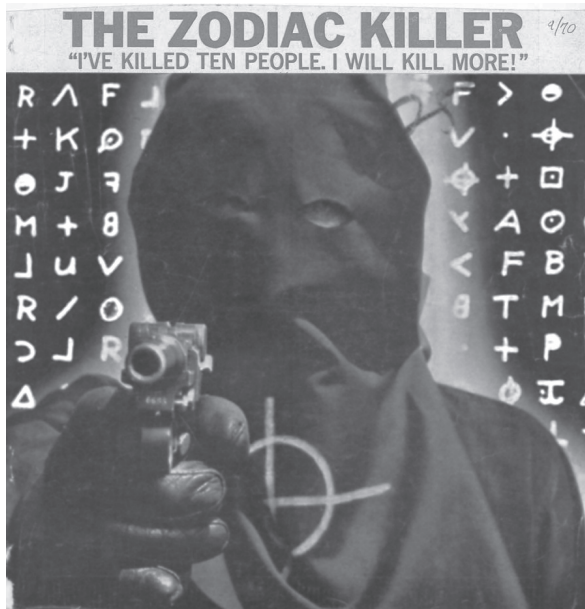


FIG. 4.12 A re-creation of the costumed killer

Holding out a semiautomatic pistol, he said, "I want your money and your car keys. I want your car to go to Mexico."<sup>5</sup> Bryan handed over all the money he had on him, less than a dollar, and his car keys. He was cooperative, believing that he was only being robbed, albeit it by a deranged individual. The killer pocketed the items and holstered his gun. He told the couple, "I'm an escaped convict from Deer Lodge, Montana. I've killed a prison guard there. I have a stolen car and nothing to lose. I'm flat broke." There was more conversation, and then the killer took his sections of rope in hand. It was hollow-core plastic clothesline cut into three-foot lengths. He said, "Lie face down on the ground. I'm going to have to tie you up."<sup>6</sup> Bryan argued a bit, but eventually complied. The killer ordered Cecilia to do the tying, which she did loosely. He then tied her up, and redid the ropes on Bryan very tightly. More calm conversation ensued as the area gradually darkened. Finally, the killer said, "I'm going to have to stab you people."<sup>7</sup>

He began stabbing Bryan first, in the back. He moved on to Cecilia and did the same, but she rolled on to her back in her struggles and was then stabbed repeatedly on her front side as well. Bryan pretended to be dead. The killer left, but not before tossing the change and keys on the blanket, proving that the encounter had nothing to do with money or transportation, as he originally claimed. On his way out, he paused to write a message in black felt-tip pen on Bryan's car door. It began with the symbol that had appeared on his letters, a circle with a pair of perpendicular lines intersecting at the circle's center, and was followed by words and dates. A picture of the door and the message left on it appears below.

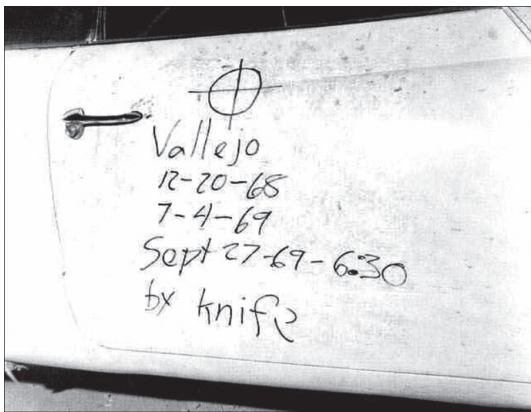


FIG. 4.13 A message left by the killer on a car door

This message provided the first link to previous Zodiac crimes. So many elements of the attack were different (the time of day, the use of a knife instead of just a gun) from previous Zodiac crimes that it's not certain the incidents would have been connected otherwise.

Amazingly, both Bryan and Cecilia were still alive when the killer departed. They even managed to get out of the ropes used to bind them, but they were too weak to get to the car. A pair of fishermen heard their moans and went to get help.

The car door was not the only link provided to previous Zodiac crimes. Following this attack, Zodiac called the Napa Police Department at 7:40 p.m. and said,

"I want to report a murder—no, a double murder. They are two miles north of Park Headquarters. They were in a white Volkswagen Karmann Ghia. I'm the one that did it."<sup>8</sup>

Police traced the call and got a palm print off the public phone the killer used. The attacker didn't know that help had arrived for his victims. Both made it to the hospital, but only Bryan survived. Cecilia had been stabbed twenty-four times and died at 3:45 p.m. the day after the attack.

## October 11, 1969

To recap, Zodiac began his string of murders by killing a teenage man and woman, but then in his next two attacks, although he thought he murdered couples, he only actually killed the women. It seems clear that the men survived because they weren't attacked with quite the same intensity as the women. Perhaps because of this, he felt that he had to prove something and therefore targeted a male. In any case, he struck again only two weeks after the Lake Berryessa attack.

On Saturday, October 11, 1969, the killer was in downtown San Francisco, where he hailed a cab and instructed the driver, Paul Stine, to head to Washington Street and Maple, in the residential district of Presidio Heights. Upon arriving at the specified location, the cab's headlights revealed a man walking his dog. The killer, seeing this, instructed the driver to "Go another block."<sup>9</sup> At the corner of Washington Street and Cherry, the killer put a nine-millimeter gun to Paul's head while wrapping his free arm around Paul's neck. He pulled the trigger, exited the rear of the cab, and then opened the front passenger

door and got back in the cab. While holding Paul's destroyed head in his lap, he took his wallet.



FIG. 4.14 Paul Stine  
© Associated Press

Paul was a twenty-nine-year-old San Francisco State University English Ph.D. student. All previous victims were also students, at one level or another. This may well be a consequence of the killer stalking lovers' lanes, where he would be likely to encounter younger individuals. Like Darlene, Stine was married.

In the minutes after this murder, the killer came close to being caught. Although he had Paul drive an extra block, presumably to avoid a potential witness, he was still seen. A fourteen-year-old girl saw him in the front of the cab with Paul's head in his lap as he robbed him and proceeded to wipe down the cab's interior. She called to two brothers, who also became witnesses. After the killer exited the cab, the teens saw him wipe down parts of the cab's exterior. He then closed the door and walked away.

The witnesses phoned the police at 9:58 p.m. and gave a description of a white man wearing a dark jacket, but this was mangled on the receiving end and turned into "NMA—Negro Male Adult."<sup>10</sup> Within minutes, patrolmen Donald Fouke and Eric Zelms arrived and spotted a white man walking in the



direction the killer was seen heading. They shouted to him, asking him if he'd seen anything, and he responded, claiming that he saw a man waving a gun running east on Washington. The police then followed the false lead, and the white man was not seen by the police again. Given the combination of their distance from the man, his dark clothes, the night, and the shadows, they did not see what must have been substantial blood stains. Later that night, a corrected description of the killer was put out. Also, a police sketch was made based on the teenage witnesses' descriptions.

Fouke and Zelms became aware of the error and eventually revealed to their superiors that they believed the man they talked to was likely the killer. It took courage for these men to do the right thing and speak up, adding what they could recall to his description. Just a few months later, on New Year's Day 1970, Zelms was killed in the line of duty, at the age of twenty-two.

Less courageous was the manner in which the new information brought forth by Fouke and Zelms was handled by their superiors. A new composite sketch of the killer was made, but the police never publicly explained why, and they officially denied that any police officers had seen the killer.

Looking back, we see that the killer lied when he claimed that his three-part cipher would reveal his identity; police lied when they said that they hadn't stopped the killer following the Stine attack; and witness Michael Mageau's inconsistent accounts may have included some lies. Are there other lies out there relating to the case that have passed undiscovered? When everything can be brought into question, it makes getting at the truth all the more difficult.

The killer was spotted again, after his encounter with the police, by other witnesses, who saw him go into "the dense undergrowth of the Presidio."<sup>11</sup> This park was searched, with dogs, but perhaps too late. Nobody was found.

But the police had another clue from this murder—bloody prints of someone's right hand left on the cab. They decided to keep this lead confidential. A check showed that the prints did not belong to Stine.

### October 13, 1969, Letter

As with the other murders, the killer followed up with a letter to the *San Francisco Chronicle* for which the authenticity cannot be disputed. It was accompanied by "a three-by-five-inch piece of gray and white cloth, neatly torn, not cut, and spattered with blood."<sup>12</sup> It was a fit for a piece missing from Paul Stine's shirt. The letter read

This is the Zodiac speaking.

I am the murderer of the taxi driver over by Washington St + Maple St last night, to prove this here is a blood stained piece of his shirt. I am the same man who did in the people in the north bay area.

The S.F. Police could have caught me last night if they had searched the park properly instead of holding road races with their motorcycles seeing who could make the most noise. The car drivers should have just parked their cars and sat there quietly waiting for me to come out of cover.

School children make nice targets, I think I shall wipe out a school bus some morning. Just shoot out the front tire + then pick off the kiddies as they come bouncing out.



As was noted, the killer didn't balk at lying in his letters, but the risk of dismissing his threat on the school bus as a bluff, if it wasn't, was a risk too great to take. The response from area school officials was, "How can you overreact to a threat like that?"<sup>13</sup>

Napa Valley Unified School District placed an extra man on every bus as a lookout for a sniper attack. Seventy police units also rode guard on the buses, heavily armed. Others followed the buses in forestry department and ranger station pickup trucks. Plainclothes cops watched the buses in San Francisco from unmarked cars, and more than a hundred police vehicles were alerted. There were even air patrols.

Whether one or more of these measures deterred the killer from acting on his threat or if he never intended to carry it out in the first place may never be known. What we do know is that the children were kept safe. No attack on them was attempted, but letters from the killer continued to arrive.

### November 8, 1969, Letter

The killer's first letter in November was written in a greeting card. His contribution was

This is the Zodiac speaking I though you would need a good laugh before you get the bad news you won't get the news for a while yet

PS could you print this new cipher on your frunt page? I get awfully lonely when I am ignored, so lonely I could do my Thing!!!!!!



Des July Aug Sept Oct = 7

By this time, the killer had attacked seven people, two of whom survived. Was the seven meant to indicate seven attacked or seven killed? If the latter, we don't know who the next two victims were. The only unsolved murders from August were a pair of teenage girls, but someone unconnected with established Zodiac murders was tied to these murders almost two years later.

If he wasn't claiming some previously unconnected attack, why include August? Maybe he read about the murder of the teenage girls and thought he could "get credit" in this way. But, if it was a months-old murder, why would he write "you won't get the news for a while yet"? Absolutely no evidence or inside information was provided this time, unlike in previous communications. A convincing case was later made by Michael D. Kelleher and David van Nuys<sup>14</sup> in their book *"This Is the Zodiac Speaking": Into the Mind of a Serial Killer* that the killer was severely rattled by his close call with police following the Stine murder and that he, in fact, committed no more attacks after this. He did continue to write and claim victims, though.

His card was accompanied by a new cipher. It's often called the 340 cipher, because it contains three hundred forty characters. It's reproduced in fig. 4.15.

This appears to be another homophonic cipher, like the one that came in three parts and was solved by the Hardens. However, they didn't turn in a solution for this one. Nor did anyone else. The substitutions that worked before give gibberish this time. Could this be what the killer wrote? Was he playing a joke on the police by sending them a cipher that didn't really contain a message? According to Graysmith, "The NSA said that there was definitely a message in the cipher."<sup>15</sup> Besides this argument from authority, Graysmith provided another convincing reason why there should be some meaning to the cipher, namely, the crossed out and corrected character in the sixth row, twelfth column. If the killer was simply writing random characters, why change one of them? What possible difference could it make?

Graysmith claimed a decipherment in his book *Zodiac*, but it has not met with wide acceptance. It's reproduced below, so you can judge its merits for yourself.<sup>16</sup>



FIG. 4.15 The 340 Cipher

*HERB CAEN:*

I GIVE THEM HELL TOO.  
 BLAST THESE LIES. SLUETH  
 SHOELD [SHOULD] SEE A NAME  
 BELOW KILLEERS FILM. A PILLS  
 GAME. PARDON ME AGCEPT TO  
 BLAST NE [ME]. BULLSHIT.  
 THESE FOOLS SHALL MEET  
 KILLER. PLEAS ASK LUNBLAD.

SOEL [SOUL] AT H LSD UL  
CLEAR LAKE. SO STARE I  
EAT A PILL. ASSHOLE. I  
PLANT MR. A. H. PHONE LAKE B.  
ALL SSLAVES BECAUSE LSD  
WILL STOLEN EITHER SLAVE  
SHALL I HELL SLASH TOSCHI?  
THE PIG STALLS DEALS OC [OF]  
EIGHTH SOEL [SOUL] SLAIN.

In my opinion, the phrasing is too awkward for this to be the correct solution. And Graysmith had to use some flexibility to get it even this readable. He not only made substitutions, but he also reordered some of the letters. That is, he performed some transpositions, at the level of words (letters could be exchanged within what he perceived as a word, but not swapped for letters farther away than that). In his solution, **Q** doesn't stand for anything. That is, it's a null, and **K** stood for both K and S.

The police sought help with this cipher from the American Cryptogram Association and Mensa. One Mensa member, Gareth Penn, was the first to notice that the cipher ends with a distortion of "Zodiac," followed by two other symbols. Is this a coincidence or does it indicate that some letters are enciphered as themselves and that transposition does indeed play some role in the cipher?

The killer followed up on this still unsolved cipher (as I see it), with a long letter.

## November 9, 1969, Letter

This letter was sent to the *San Francisco Chronicle*. In it, he makes it clear that he's claiming seven murders, not just *attacks* on seven people.

This is the Zodiac speaking up to the end of Oct I have killed 7 people. I have grown rather angry with the police for their telling lies about me. So I shall change the way the collecting of slaves. I shall no longer announce to anyone. When I committ my murders, they shall look like routine robberies, killings of anger, + a few fake accidents, etc.

The police shall never catch me, because I have been too clever for them.

1 I look like the description passed out only when I do my thing, the rest of the time I look entirle different. I shall not tell you what my descise consists of when I kill

- 2 As of yet I have left no fingerprints behind me contrary to what the police say in my killings I wear transparent finger tip guards. All it is is 2 coats of airplane cement coated on my fingertips -- quite unnoticable + very effective
- 3 my killing tools have been boughten through the mail order outfits before the ban went into efect. Except one & it was bought out of the state. So as you can see the police don't have much to work on. If you wonder why I was wipeing the cab down I was leaving fake clews for the police to run all over town with, as one might say, I gave the cops som bussy work to do to keep them happy. I enjoy needling the blue pigs. Hey blue pig I was in the park -- you were using fire trucks to mask the sound of your cruzeing prowl cars. The dogs never came with in 2 blocks of me + they were to the west + there was only 2 groups of parking about 10 min apart then the motor cicles went by about 150 ft away going from south to north west.

p.s. 2 cops pulled a goof abot 3 min after I left the cab. I was walking down the hill to the park when this cop car pulled up + one of them called me over + asked if I saw anyone acting suspicious or strange in the last 5 to 10 min + I said yes there was this man who was runnig by waveing a gun & the cops peeled rubber + went around the corner as I directed them + I disappeared into the park a block + a half away never to be seen again.

Hey pig doesnt it rile you up to have your noze rubed in your boobooos?

If you cops think I'm going to take on a bus the way I stated I was, you deserve to have holes in your heads.

Take one bag of ammonium nitrate fertilizer + 1 gal of stove oil & dump a few bags of gravel on top + then set the shit off + will positivily ventalate any thing that should be in the way of the blast.

The death machine is all ready made. I would have sent you pictures but you would be nasty enough to trace them back to developer + then to me, so I shall describe my masterpiece to you. The nice part of it is all the parts can be bought on the open market with no questions asked.

1 bat. Pow clock -- will run for aprox 1 year

1 photoelectric switch

2 copper leaf springs

2 6V car bat

1 flash light bulb + reflector

1 mirror

2 18" cardboard tubes black with shoe polish inside + oute



[A full page diagram of the “death machine” appears at this point.]

the system checks out from one end to the other in my tests. What you do not know is whether the death machine is at the sight or whether it is being stored in my basement for future use. I think you do not have the manpower to stop this one by continually searching the road sides looking for this thing. + it wont do to re roat + re schedule the busses because the bomb can be adapted to new conditions.

Have fun!! By the way it could be rather messy if you try to bluff me.

The letter then presented a diagram. It's reproduced in fig. 4.16, along with the accompanying text. What do you make of it?

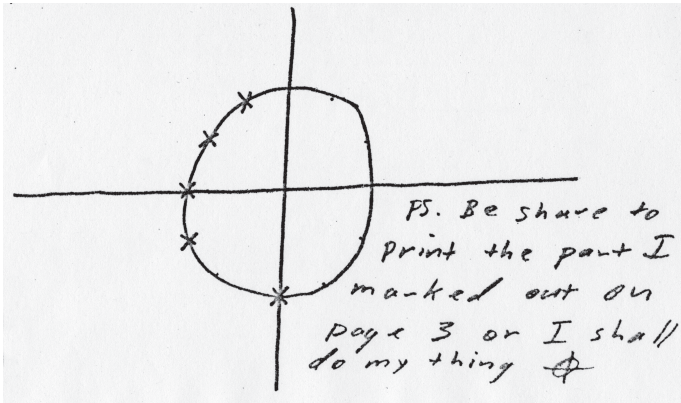


FIG. 4.16 An odd diagram from the killer

Police believed the diagram was a sort of calendar with the months of the killings marked on it. The letter finally ended with a postscript.

PS. Be shure to print the part I marked out on page 3 or I shall do my thing.  
To prove that I am the Zodiac, Ask the Vallejo cop about my electric gun sight which I used to start my collecting of slaves.

Although he gave details of the Stine murder, and his getaway, the killer provided no evidence of a connection to any unsuspected crimes. The claim “I have killed 7 people” is doubtful.

## December 20, 1969, Letter

Melvin Belli, a high-profile lawyer, received the next Zodiac letter. It's reproduced below.

*Dear Melvin*

This is the Zodiac speaking I wish you a happy Christmass. The one thing I ask of you is this, please help me. I cannot reach out for help because of this thing in me won't let me. I am finding it extremely difficult to hold it in check I am afraid I will loose control again and take my nineth & possibly tenth victim. Please help me I am drowning. At the moment the children are safe from the bomb because it is so massive to dig in & the trigger mech requires much work to get it adjusted right. But if I hold back too long from no nine I will loose ~~complet~~ all control of my self & set the bomb up. Please help me I can not remain in control for much longer.



Much has been made of the words "happy Christmass." In America, people say "Merry Christmas." Spelling aside, Zodiac's phrasing is a better match for England and Canada. Was the killer British?

Previously, on October 22, 1969, someone claiming to be Zodiac had phoned the Oakland Police Department saying that he would talk to F. Lee

Bailey or Melvin Belli, if he would appear on the Channel 7 talk show. Belli did, and he spent a great deal of time talking to someone claiming to be Zodiac, but the call was eventually traced to a mental institution.

The strange thing is that the letter reproduced above contained another piece of Paul Stine's bloody shirt. Is it a coincidence that an institutionalized man and the real killer both reached out to Melvin, or did the killer hear the call-in show and get the idea to contact the lawyer from someone having no connection to himself?

Graysmith speculated on the identity of the possible eighth murder victim, but one (Leona Larell Roberts) doesn't fit Zodiac's style at all, and the other (Elaine Davis) was never found, so we cannot make a comparison. I side with Kelleher and Van Nuys in that I believe Stine was the last victim. The theory of the killer being too scared to act on his impulses is reinforced by this letter. His fear may have been what motivated him to think of a lawyer in the first place. Someone not worried about being caught wouldn't anticipate needing a lawyer's help. If he really wanted help to stop killing, he might contact someone in the medical, psychiatric, or religious community, but probably not a lawyer.

Was the killer's repeatedly expressed fear of losing control genuine? This a question to ponder when considering an incident that followed almost three months later.

### March 17, 1970, 92 Miles East of San Francisco

Kathleen Johns, who was seven months pregnant and also had her ten-month-old daughter with her, was driving close to midnight on 132 west, heading away from Modesto, California, when a man in a car behind her began flashing his lights and honking his horn. Having caught her attention, the man then sped up, pulled alongside her, and shouted that her left rear wheel was wobbling. Kathleen, though scared, eventually pulled over. The man who had yelled to her parked behind her. He had a tire iron and said that he would tighten the lug nuts holding her wheel on. After he indicated that he was done, he went back to his car and drove off.

However, when Kathleen tried to drive off again, her left rear wheel almost immediately fell off. It seems that instead of tightening the nuts, the man had removed them. The man hadn't driven far, and he backed up to where Kathleen's car was now stranded, and said, "Oh, no, the trouble's worse than

I thought!" That is, he was trying to indicate that the problem was not caused by him. He then offered her a ride to a service station.

Kathleen could see the station about a quarter mile down the road, but she accepted the ride, rather than walking there. Once she was in the man's car, he drove right past the station. He got on deserted farm roads and repeatedly began to pull off to the roadside, only to get back on the road again without stopping. He kept telling Kathleen, "You know I'm going to kill you" and "You know you're going to die."<sup>17</sup> The ride along the back roads went on for two or three hours.

When the man made a mistake by driving onto a freeway off ramp, Kathleen realized that she finally had a chance to escape. As he stopped, she fled the vehicle with her baby daughter in her arms. With nobody in the area to appeal to, she hid in an irrigation ditch. The man searched for her with a flashlight, but before he could find her, a trucker trying to exit the freeway saw the car parked there and slammed on his brakes. When he got out of the semi and yelled, "What the hell is going on?" Kathleen's abductor got in his car and sped off. Not such a brave hunter after all!

By this time, Kathleen was too scared to ride with another man, but the trucker stayed at the scene until a woman came down the road. Kathleen rode with the woman, who dropped her off at a police station. As she reported her abduction, she noticed a wanted poster featuring a composite sketch of Zodiac and immediately recognized him as the man who said he was going to kill her. Police later found her car. Someone had put the tire back on, moved it to another location, and set it on fire.

There are some big unanswered questions here. Why did the ride last for hours? Why did the killer repeatedly pull to the side of the road, only to get back on again? Was he enjoying Kathleen's agony as she wondered for hours if the next minute might bring her death? Was he dragging things out for his own perverted pleasure? Or was he fighting to control his evil urges, as he indicated in his letter to Melvin Belli? Perhaps he was just too afraid of getting caught to follow through on his murderous plan.

On many occasions, his behavior was seen to be cowardly. He fled and hid from the police after the Stine murder, and he fled the scene on this night as soon as the trucker got out of his semi. The hunter of the "most dangerous game" preferred unarmed, unsuspecting targets.

A little more than a month later, he got his nerve up enough to return to the safer activity of letter writing.

## April 20, 1970, Letter

The letter mailed to the *Chronicle* began

This is the Zodiac speaking

By the way have you cracked the last cipher I sent you?

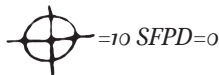
My name is ——

A E N ⊕ ⊗ K ⊗ M ● ↓ N A M

I am mildly cerous as to how much money you have on my head now. I hope you do not think that I was the one who wiped out that blue meannie with a bomb at the cop station. Even though I talked about killing school children with one. It just wouldn't doo to move in on someone else's teritory. But there is more glory in killing a cop than a cid because a cop can shoot back. I have killed ten people to date. It would have been a lot more except that my bus bomb was a dud. I was swamped out by the rain we had a while back.

The letter continued on another page with “The new bomb is set up like this” and a diagram that fills most of the page. Text on the diagram labels items and explains how the whole thing is supposed to work. The letter ends with a taunt and the score thus far, according to Zodiac.

PS I hope you have fun trying  
to figgure out who I killed



He now claimed ten kills, but again, unlike early letters, there was absolutely no evidence provided that he took lives. Why would he suddenly stop providing inside information and evidence, if he was still at it? In searching for victims nine and ten, Graysmith came up with Kathleen Johns (who, as was mentioned earlier, was taken for a frightening ride, but was not killed) and Marie Antoinette Anstey, who was found dead off a country road in Lake County on March 21, 1970.

The letter writer also paints a false portrait of himself when he states, “But there is more glory in killing a cop than a cid because a cop can shoot back.”

He never risked taking on a cop. He fled the scene of every murder to *avoid* the cops. He hid from them following the Stine murder. There was no glory in any of his attacks, only defenseless unsuspecting targets.

Although the “My name is ...” cipher is considered unsolved by some, a claimed solution has been presented, and I believe it’s correct.<sup>18</sup> Recall that the killer previously promised to reveal his identity, but the deciphered message didn’t deliver (unless the last few letters were not used simply to fill out the rectangle). It seems to me that he was, once again, teasing the reader. The solution I accept is

A L F R E D E N E U M A N  
A E N ⊕ ⊗ K ⊗ M ⊙ ↓ N A M

It isn’t quite perfect—N decipheres to F in position 3, but decipheres to M in position 11. Still it’s damn close, and the killer did make frequent mistakes in his writings.

For those who missed this aspect of pop culture, Alfred E. Neuman has served as a sort of mascot for the humor periodical *Mad Magazine* since the mid-1950s.



FIG. 4.17 Alfred E. Neuman

The killer seemed to still be worried about being caught eight days later, for when he struck again, it was with another greeting card.




## April 28, 1970, Letter


The message inside the card received by the *Chronicle* read

I hope you enjoy your selves when I have my Blast.



The postscript on the back was much longer.

If you don't want me to have this blast you must do two things. 1 Tell everyone about the bus bomb with all the details. 2 I would like to see some nice Zodiac butons wandering about town. Every one else has these buttons like, , black power, melvin eats bluber, etc. Well it would cheer me up considerably if I saw a lot of people wearing my buton. Please no nasty ones like melvin's

Thank you 

Graysmith wrote, "No buttons were ever made."<sup>19</sup> Punk rockers did eventually make some, but they were meant to be worn ironically.

Almost two months elapsed before the letter writer was heard from again.

## June 26, 1970, Letter

The letter that arrived at the *Chronicle* near the end of June is of such interest that I'm reproducing the full image instead of simply transcribing the text.

There was a murder like the one described in the letter, but police already had an arrest warrant for a man who was not the Zodiac. This combined with the complete lack of any details not publicly available makes a convincing case that Zodiac was indeed not connected with this crime.

As for the cipher, no one was able to break it. But this letter was different from any that came before, for it was paired with a map, shown in fig. 4.19.

The connection between the cipher and the map was not immediately clear to anyone. The map had a symbol drawn on it similar to the one the killer used to sign his letters. It was centered at Mt. Diablo, in particular, at the location of a Naval Radio Station on the south peak, although this detail isn't shown on the map the letter writer modified.

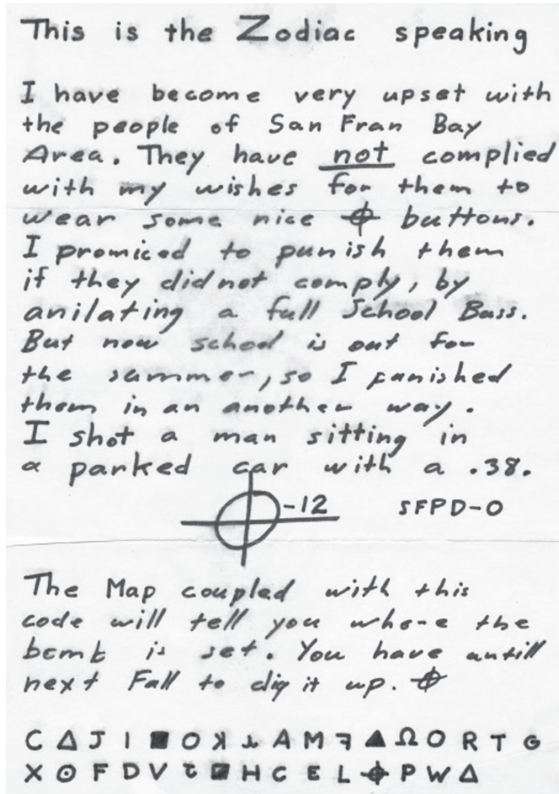


FIG. 4.18 June 26, 1970, letter (came with a cipher and a map)

The cipher that ended the letter is unsolved, but I have an idea that's worth considering. Could it be that the Zodiac tried to throw off would-be deciphers by making a big change in how he made his substitutions? In his solved three-part cipher, no letter represents itself. So, in this new cipher, I think he may have made several letters represent themselves, figuring that those attacking the cipher wouldn't consider such a possibility. I believe the message could begin with "CALIFORNIA." This method would pair the letters C, I, O, and A with themselves. One letter of plaintext is missing between the O and the A, but we could attribute this to his lousy spelling. Some speculation on what the rest of the cipher letters might represent is provided after considering a clue from a later letter. But another letter without a cipher or any clues came first.




FIG. 4.19 Could this map provide a key to the cipher and the killings?

July 24, 1970, Letter

Near the end of July, the *Chronicle's* correspondent felt the need to talk about his proposed buttons once again.

This is the Zodiac speaking

I am rather unhappy because you people will not wear some nice  buttons. So I now have a little list, starting with the woeman + her

baby that I gave a rather interesting ride for a couple hours one evening a few months back that ended in my burning her car where I found them.







This letter seems to confirm that the man identified by Kathleen Johns was indeed Zodiac. If so, it raises an interesting psychological question because the killer failed to act as he did in the past. Again, the question can be posed, was it an attempt at self-control or did fear of being caught prevent him from carrying through with the attack? Perhaps he simply couldn't get his nerve up.


The letter that might shed the most light on the crimes arrived at the *Chronicle* two days later.

### July 26, 1970, Letter

Zodiac's next letter was mostly plagiarized (with many errors, perhaps intentional, perhaps not) from "A More Humane Mikado" and "As Some Day It May Happen," songs in the Gilbert and Sullivan comic opera *The Mikado*, but it contained a very interesting postscript about the killer's most recent cipher. So, be patient—the important material is at the end!

This is the Zodiac speaking

Being that you will not wear some nice  buttons, how about wearing some nasty  buttons. Or any type of  buttons that you can think up. If you do not wear any type of  buttons, I shall (on top of everything else) torture all 13 of my slaves that I have waiting for me in Paradise. Some I shall tie over ant hills and watch them scream + twitch and squirm. Others shall have pine splinters driven under their nails + then burned. Others shall be placed in cages + fed salt beef until they are gorged then I shall listen to their pleas for water and I shall laugh at them. Others will hang by their thumbs + burn in the sun then I will rub them down with deep heat to warm them up. Others I shall skin them alive + let them run around screaming. And all billiard players I shall have them play in a darkened dungeon cell with crooked cues + Twisted Shoes. Yes I shall have great fun inflicting the most delicious of pain to my slaves

SFPD=0  =13

As some day it may hapen that a victom must be found. I've got a little list. I've got a little list, of society offenders who might well be underground who would never be missed who would never be missed. There is the pestulential nuncences who whrite for autographs, all people who have flabby hands and irritating laughs. All children who are up in dates and implore you with im platt. All people who are shakeing hands shake hands like that. And all third persons who with unspoiling take thoes who insist. They'd none of them be missed. They'd none of them be missed. There's a banjo seranader and the others of his race and the piano orginast I got him on the list. All people who eat pepermint and phomphit in your face, they would never be missed They would never be missed And the Idiout who phraises with inthusastic tone of centuries but this and every country but his own. And the lady from the provences who dress like a guy who doesn't cry and the singlarly abnormily the girl who never kissed. I don't think she would be missed Im shure she wouldn't be missed. And that nice impriest that is rather rife the judicial hummerest I've got him on the list. All funny fellows, commic men and clowns of private life. They'd none of them be missed. They'd none of them be missed. And uncompromising kind such as wachmacallit, thingmebob, and like wise, well - - nevermind, and tut tut tut tut, and whashisname, and you know who, but the task of filling up the blanks I rather leave up to you. But it really doesn't matter whom you place upon the list, for none of them be missed, none of them be missed.

PS. The Mt. Diablo Code concerns Radians & # inches along the radians

The postscript bears a closer look. The original for this portion is reproduced below.

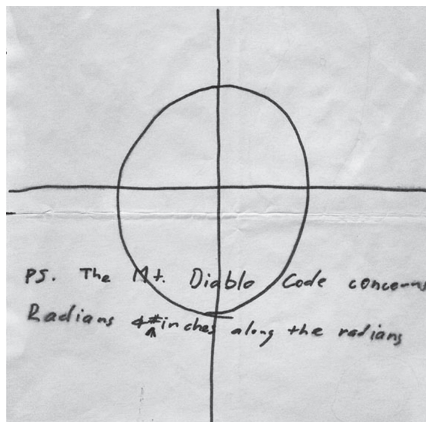


FIG. 4.20 A clue for the most recent cipher

So, in addition to confirming that the killer was not making a living as an author, this letter reveals that he knew what a radian is. For those who are unfamiliar with the term, it's a way of measuring angles. Most people first learn to measure angles in degrees. A full circle is three hundred sixty degrees, but this is artificial. The number three hundred sixty is completely arbitrary. It may have something to do with there being roughly three hundred sixty days in the year, or the fact that the Sumerians used a base sixty number system (which in turn may have been influenced by the number of days in the year). In any case, there is no good reason to divide a circle up into three hundred sixty degrees. Any other number could have been used.

On the other hand, radian measure is natural. Consider the angle drawn below.

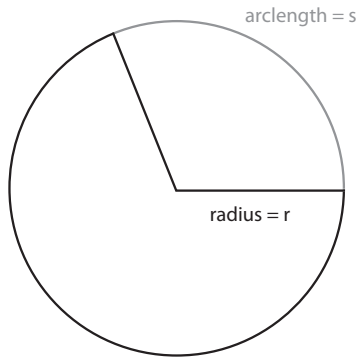


FIG. 4.21 Angle measure in radians

We say that its radian measure is  $\frac{s}{r}$  radians, where  $s$  is the distance along the curve of the circle (an arclength) and  $r$  is the radius. This is lovely because it doesn't force us to make up some number of degrees to go full circle. Rather it *gives* us values. A circle has circumference  $2\pi r$ , so the radian measure of a full circle is  $\frac{2\pi r}{r} = 2\pi \approx 6.28$ .

To get the radian measure to be exactly 1, we need to have the arclength match the radius. This happens when the angle is about  $57.296^\circ$ .

So why is a serial killer talking about radians? Did he have a little deeper background in mathematics than most people?



Gareth Penn found an explanation that connects radians with the map the killer provided along with his fourth cipher. I'll let him explain his theory in his own words.

I was shocked and horrified to the point of nausea to discover that a radian whose apex rests on the peak of Mount Diablo, and one of whose legs passes through the scene of the murder at Blue Rock Springs, has another leg which passes directly through Presidio Heights in San Francisco, where the Zodiac murdered the cabby. All of a sudden, there *was* an m.o., a mathematical one. The Zodiac had been constructing a gigantic geometric design on the map of the San Francisco Bay Area, using the lives of his victims as markers.<sup>20</sup>

A map illustrates this observation (fig. 4.22).

Penn's discovery led him to reevaluate the intelligence level of both the killer and the police investigating the case. He wrote

It was shocking to discover that so many lives had been wasted in the furtherance of such a vain objective and that a coldly calculating, highly intelligent mind was hiding behind the guise of an idiot. I was almost as shocked to discover that in the more than 10 years that had elapsed since the receipt of this letter, the police had never tried the radian exercise. In fact, in more than a decade of having been confronted with this problem, they had not even taken the trouble to look up the word "radian" in a dictionary to find out what it meant. Once I pointed out to them why the information was significant, they immediately understood why the Zodiac had murdered the cabby, which had been troubling them for years. What I got out of this was to be promoted, for about two weeks, to the status of chief suspect. When it was discovered that the most I could be charged with was possession of a dictionary and protractor, the police lost interest in me and turned their attention to more pressing matters.<sup>21</sup>

Penn further endeared himself to law enforcement by writing, "My other research has established that the Bay Area police are of the learned opinion that pi is 3.1, and that binary numbers larger than 12 cannot be written."<sup>22</sup>

This raises an interesting point. Very few people find themselves in professions that require knowledge of radian measure for angles. Those who

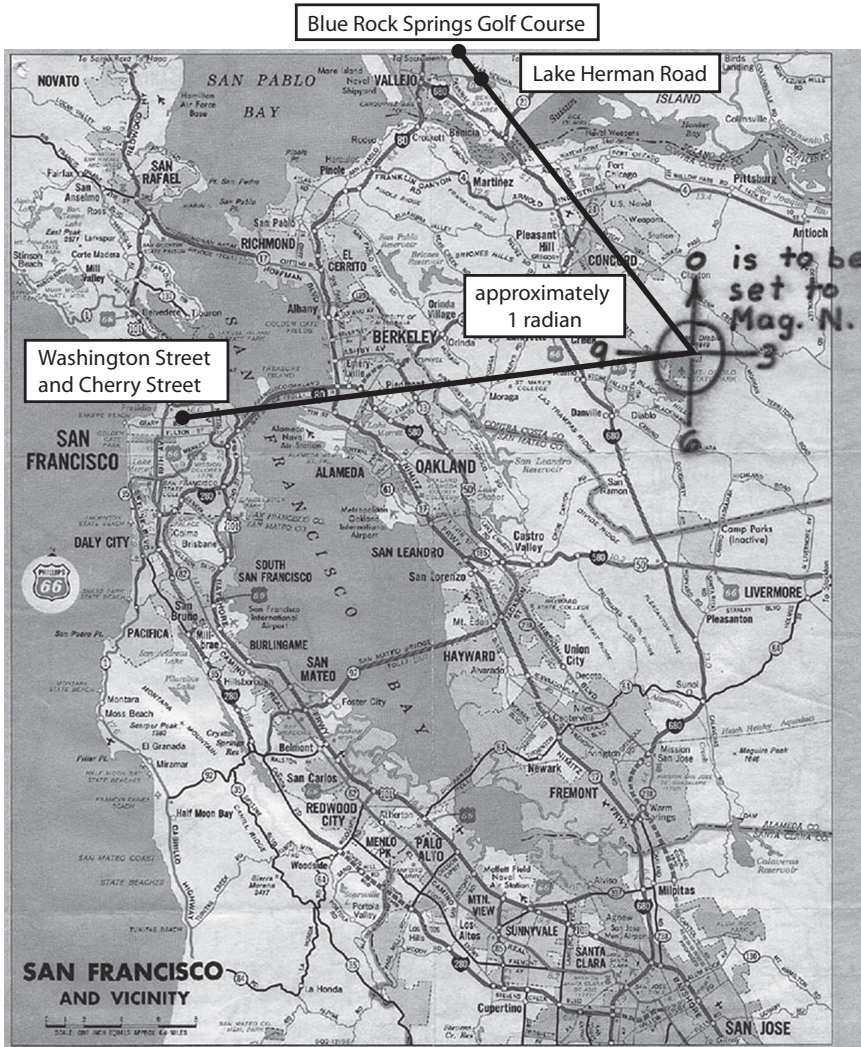


FIG. 4.22 Map marked to illustrate a radian theory

happened to see it in some high school or college math class will certainly not store it in long-term memory if they don't anticipate ever needing it again. So, why did Zodiac not only know the meaning of radian, but also choose to make use of it? Did he use it in his career? This is one of many pieces of evidence that indicates he was smarter than his poorly spelled letters indicate. For that matter, his misspellings were likely intentional.

Though he misspelled simple words, he sometimes wrote more complicated ones correctly.

In light of the radian theory, the Stine murder may have had two motivating factors. One, a cab driver could be led anywhere the killer desired. Thus, Stine's occupation made him an easy victim for someone intent on committing a murder at a specific location to create a pair of deaths separated by a radian subtended from Mt. Diablo. Two, in his previous attacks, the killer had unintentionally allowed the male victim to survive. Psychologically, he may have felt a need to prove that he could kill men as well. Stine, being male, conveniently fit this need.

Some researchers claim that the angle formed by these killings is not 1 radian, but a bit larger, about 60 degrees, or 1.047 radians.<sup>23</sup> But should we really fret about an error of 0.047 radians coming from a guy as deranged as Zodiac? I accept Penn's radian theory as being what the killer intended. On the other hand, I disagree strongly with much of the other content of Penn's writings, including his claimed identification of the killer. I believe that Penn has created another victim by publicly accusing an innocent man of the crimes.

There are a great many names bandied about online, in books, and in Kindle titles, as to the identity of Zodiac. Although it's possible that he spent time in prison for other crimes, there were never any charges brought for the attacks described here. Thus, a great deal of room remains for speculation. Several people have claimed that their fathers were the Zodiac. Others claim that it was an ex-husband. Without a smoking gun, I'm not comfortable throwing names around in print. It's highly unlikely that more than one of the suspects had anything to do with the crimes, so the rest are all victims. You will not have a hard time finding suspects. Indeed, some of the references provided at the end of this chapter discuss them, but you won't find any names in this book.

Now, what more can we do with the radian clue? The killer's hint includes "# inches." So, I would expect the portion of the cipher that follows what I conjectured to be "CALIFORNIA" to contain some numbers. It might also contain the word "INCH" or "INCHES." A decimal point could be indicated by the word "POINT." These are all cribs that could possibly be exploited, but there are still many possibilities. The tentative cipher letter identifications provided by CALIFORNIA don't help tremendously, as we only see three of those letters reappear later in the cipher. Perhaps the best clue is that one of

these, the triangle presumed to represent A (which it does actually look like), ends the message. Not a lot of English words end with A. According to one study, it's only about 24.7 words per thousand, when looking at meaningful text.<sup>24</sup> That is, 2.47%. Such text, of course, contains many appearances of the one-letter word A. Because we don't expect a message to end with this word, the 2.47% is an inflated measure from our perspective. Anyway, maybe someone can make something of this. Or maybe I'm just pointing in the wrong direction! You be the judge.

## Not Quite the End

There are more Zodiac communications that are deemed to be genuine, but there are no more ciphers, so the rest of the letters are ignored here. It's worth noting, though, that a long gap between letters suggests that the killer may have been incarcerated on lesser charges. Nothing was received from the killer between his letters of March 22, 1971, and January 29, 1974. The body count, according to the killer's letters grows to thirty-seven, but I believe that this is pure fiction.<sup>25</sup> None of the letters provide any evidence of Zodiac killing anyone after Stine. As was detailed, Zodiac came close to being caught following this murder. So, bravado aside, it seems that he was afraid to commit another murder. Some of the victims he claimed were really killed, but he failed to provide any evidence that he had anything to do with the murders. He had no knowledge of these killings that couldn't be found in newspaper accounts. He was eager to provide insider knowledge, and even physical evidence, for other claimed victims, so one would have expected him to do the same for later crimes, if they were indeed his.

For a contrasting view, the reader may see Robert Graysmith's excellent book *Zodiac*, which provides a list of forty-nine "Zodiac Attack Victims and Possible Victims."<sup>26</sup>

## Cheri Jo Bates—The First Victim?

Just as some authors try to link Zodiac to more killings after Stine, there are also attempts to link him to an early murder, before the attack on Betty Lou Jensen and David Arthur Faraday with which this chapter began. The victim was Cheri Jo Bates, a freshman at Riverside City College. She was attacked on October 30, 1966, in the parking lot by the college library and

died from knife wounds, which included a severed jugular. Despite some details in common with other Zodiac activities (the killer followed the attack with a letter to the *Riverside Press-Enterprise*, and others), I believe that attributing Bates's death to Zodiac is incorrect.<sup>27</sup> On March 13, 1971, four months after a newspaper article identified Bates as a possible Zodiac victim, the *Los Angeles Times* received a letter from Zodiac in which he took credit for the murder. The letter, however, provided no evidence to support Zodiac's claim.

Graysmith lists Bates as a "Definite Zodiac victim."<sup>28</sup>

## Pop Culture

Probably in large part because of his having eluded justice, the Zodiac killer, like Jack the Ripper, has attracted a lot of attention in popular culture. The first movie based on his crimes, titled *The Zodiac Killer*, hit theatres in April 1971. In December of the same year, the Clint Eastwood film *Dirty Harry* came out. It was loosely based on Zodiac as well and set in San Francisco, where Stine was killed. It even has the murderer calling himself Scorpio, in place of Zodiac. Typical of Hollywood exaggeration, though, in the film, the killer actually hijacks a school bus filled with children, instead of just *threatening* to attack one, as the real Zodiac had. Another major difference was that the film had the ending that people in the real world wanted to see in the Zodiac case. Ulli Lommel made an extremely low budget film, *Zodiac Killer*,<sup>29</sup> in 2005, a year that also saw the release of *The Zodiac*.<sup>30</sup> A far superior film, *Zodiac*,<sup>31</sup> based on Robert Graysmith's book of the same title, appeared in 2007.

William Peter Blatty, best known for his 1971 novel *The Exorcist* and the hit film based on it, also wrote a sequel, *Legion*, in which the murderer, based on Zodiac, calls himself the Gemini killer. Some other books inspired by the case can really be labeled only as "fan fiction," although they managed to see print. I'm not going to get into these. Nor am I going to survey the volumes in which an author identifies a relative as the killer. A few of the latter appear in the References and Further Reading section, though.

As with the Voynich manuscript, the Zodiac's unsolved ciphers, especially the 340 cipher, have generated many claimed solutions. Graysmith's was worth mentioning because of his great knowledge of the case, but the others are without merit, in my opinion.

But the art and science that is cryptanalysis is constantly improving, and computers are becoming ever more powerful. Although I don't expect the unsolved Zodiac ciphers to reveal the killer's identity directly, perhaps their eventual solutions will provide that one extra clue that helps unravel the case.