

# Susan Beth Horwitz, 1955-2014

Thomas Reps

November 1, 2014

1. (Instructions for viewing if you have two screens, or a screen and a projector.)
2. Thank you all so much for coming today. I know several of you had travel delays and cancellations yesterday, so I'm very glad that you made it.
3. We are going to do a number of things today to celebrate Susan's life, including some music and theater. But before we do that, I will start off by showing some photos that illustrate some of the different aspects of her life, and then her two sisters will say a few words.
4. Susan lived a rich life, and among the highlights are the five years that she spent abroad. The first was with her family as a 10-year old, and then she and I lived abroad four times—first in 82-83, when she was a graduate student, and then during our three sabbaticals from Wisconsin.
5. Before our sabbatical in Pisa in 2000-01, we took Italian lessons at Wisconsin and continued in Pisa with a teacher that Susan found. We used to meet her in this café and sit outdoors under the arcade. After a few weeks, Susan had a brilliant idea: as homework each week we were to translate a joke from English to Italian. After some number of weeks, I ran out of jokes, and switched to some funny family stories I had learned from my father. After a few more weeks, I ran out of my family's funny stories—I guess my family is not that funny—and started to use some of our friend Tim Teitelbaum's funny family stories, several of which were about his two loopy aunts.
  - One story was particularly apt because it occurred during a period when the two aunts were living abroad in Italy.
  - Thanksgiving was approaching, and they wanted to put on an American Thanksgiving for their friends.
  - If any of you have tried to put on Thanksgiving when living abroad, you know that it is difficult to find the right ingredients, but in this case, the problems were compounded because neither of the aunts could remember the word for those red berries that are made into the sauce that is served with turkey.
  - One day, they ran into a friend of theirs who they had not seen in quite a while, the husband in an elderly couple they knew.
  - They asked after his wife, but he shook his head and replied sadly, "She died three weeks ago."
  - "Oh, we are so sorry, we didn't know; and we're so sorry to have missed the funeral. What was it like?"
  - "It was a touching event—so many people came. She had so many friends, the church was crammed . . ."
  - "Cranberries!! That's the name of those red berries we need for Thanksgiving!"

So if you blurt out something inappropriate today, that's quite alright. In a way, that in itself would be a celebration of Susan's life.

6. Susan grew up in a family of six. She has an older brother, David, and two younger sisters, Annie and Amy. Susan's father, Nahmin, was a professor of high-energy physics. Her mother, Leah, was educated as a statistician, worked in the field of elementary math education, and co-founded an independent elementary school in Syracuse, NY.
7. Nahmin was working at Berkeley when Susan was born in 1955. When she was about five, the family moved to Syracuse when Nahmin joined the Physics Department at Syracuse University. After the move to Syracuse, the family spent a few summers on Long Island when her father had summer positions at Brookhaven National Labs.
8. Here are pictures from her first 10 years. I found it interesting how different she looked at different times.
9. During 1965-66, Susan's father had a sabbatical from Syracuse, which he spent at the Rutherford Laboratory near Oxford. The family lived in the small village of East Hagbourne. They sailed over on the SS Rotterdam in the fall of 1965, and returned in 1966 on the SS United States.
10. The Rotterdam is shown here. During a transatlantic voyage, there are many activities for both adults and children. [CLICK](#) Here is Susan winning the hat contest.  
 And here is Susan disembarking at the beginning of her year in England. [CLICK](#)  
 Many years later, Susan and I discovered that we almost met that fall. My father also had a sabbatical during 1965-66, which we spent in the Hague in the Netherlands, and we also went over by ship. Not only that, my family also took a Holland-America Line ship when we went to Europe in August 1965—but that ship was the SS Statendam, not the Rotterdam. If our parents had made just slightly different travel choices, we might have met on a Holland-America Line ship in Fall 1965!
11. East Hagbourne is a village of quaint streets and thatched roofs. The Horwitz family lived in the house shown on the left, Lime Tree Farm. Here are a couple of Susan's drawings from that year, including Lime Tree Farm on the left.
12. Susan on an excursion to London. That's a pigeon on top of a pigeon on top of Susan.
13. In Dec. 1968, the family moved from their first Syracuse house to 124 Lockwood Road, where her parents lived for about the next 40 years. The figures in the photo who you haven't met before are Susan's grandmother Bertha and her parents' dog, Kahlua.
14. A charming feature of 124 Lockwood Road was the murals that Susan had painted as a teenager. As you went down the basement stairs, you passed her snake mural [CLICK](#). In the ping-pong room, there was a gryphon [CLICK](#); and in Susan's bedroom, there was a sleeping dragon [CLICK](#). She also painted this very elaborate mural in the bedroom of her friend Diana Galson, who lived just down the street [CLICK](#).
15. As you'll see shortly, Susan was not one to take a beach vacation. Her preferences came, I believe, from the family vacations that her father organized during her childhood. These photos were taken during a camping trip with pack mules in 1969 in the Sierras.
16. A canoe trip in Algonquin Provincial Park, Ontario in 1968
17. Annie, Susan, David, and cousin Michael climbing the Salève in France, just south of Geneva, Switzerland, in 1976.
18. Susan graduated from high school a year early, and worked to earn money for college, as well as to finance an 11-week trip to Europe in the spring of 1973 with her friend Julie Hammer.
19. The itinerary included Reykjavik, Iceland; London; Paris; biking along the Loire in France; and pony trekking in Wales. Here we see Susan at Versailles, on the roof of Notre Dame Cathedral, at the grave of Karl Marx, with ponies in Wales, and preparing her bike during the trip along the Loire.
20. From 1973-77, Susan attended Wesleyan University in Middletown, CT, where she studied

Ethnomusicology. Classes included Javanese gamelan (shown in the photo) and Ghanaian drumming. In the gamelan, her instrument was the bonang, which she is shown playing here. (The photo is actually of a gamelan concert at Cornell, when Susan was a graduate student.)

At Wesleyan, Susan went with a friend on a lark to an introductory programming class, and then decided to enroll in the class because the teacher had a wonderful smile. She found that she was good at programming, and was hired as one of the student employees in charge of the then-new Wesleyan computing center. That job gave her the experience to obtain employment after graduation at Intermetrics, a software company located in Cambridge, MA.

21. Susan worked for Intermetrics for two years, first in Cambridge, then in Washington, DC.
22. I remember Susan telling me about having programmed this Digital Equipment Corporation graphics terminal to display a hand whose fingers could be controlled by toggles on the front panel. When I cleaned out her office a couple of months ago, I found the notebook in which she had worked out the coordinates so that the terminal could display a picture of a hand. So this ⟨CLICK⟩ shows the kind of effect she was after. (This project may actually have been done when she was at Wesleyan; she told me that whenever she showed it to a friend, the first thing they did was to flip the toggles to leave just the middle finger extended.)
23. Which bring me to the question of how we met.
24. In 1979, I had a job as a programmer in the Computer Science Department at Cornell. When I came into work one day in the spring of 1979, I encountered two then-young, -unmarried, and -untentured assistant professors, who will go by the names “Professor S.” and “Professor T.,” arguing in the hallway . . . ⟨4 CLICKS⟩

I asked, “What are you guys arguing about?” They explained, “Susan Horwitz. She’s been accepted into the graduate program, and came to visit the department yesterday to see if she wants to come to school here.”

At which point I said, “Oh, for gosh sakes,” and walked off as they resumed arguing. ⟨4 CLICKS⟩
25. Part II of the story took place that September. I was sitting in Professor T.’s office when suddenly a woman’s head peered around the door ⟨CLICK⟩ and said, “I’m here!” and then immediately disappeared ⟨CLICK⟩. At which point I turned to Professor T. and said, “Who was that?” ⟨CLICK⟩ And the rest, as they say, is history.
26. In grad school, Susan and I were part of a clique of five, which included Bowen Alpern (who is here today), Jan Prins (who wasn’t able to attend), and Dean Jacobs (who passed away about two years ago from pancreatic cancer).
27. 1981 versus 2004. Dean has less hair, I have shorter hair, Bowen has longer hair, and Jan is unchanged.
28. Susan’s Ph.D. adviser was Tim Teitelbaum (who was also my adviser). In addition to his role as adviser, he became a close friend—a friendship that has only deepened over the years. In the left-hand photo, we are on a sailboat that we chartered after a conference in Seattle; in the right-top photo: Tim and Susan playing duets in my parents’ living room.
29. In 1982-83, Tim had a sabbatical, which he took in Paris. Somewhat unusually he took his research group along with him, which consisted of Susan, myself, and a French/Israeli student, Michael Fingerhut. We were guests of INRIA, the French national institute for computer science research, located just north of Versailles. We lived in Paris and had an hour-and-ten-minute commute by public transportation each way, an experience that later figured in our decision to come to Wisconsin rather than take jobs at Bell Labs.

These photos show INRIA, which was housed in the former enlisted mens’ quarters of NATO; Susan during a bike trip that we took along the Loire; Susan in Egypt (a one week excursion out of a three-week trip to Israel in Spring 1983); me with the Chénétiers, the wonderful

- family that befriended us; and skiing in the Jura mountains.
30. After we returned from Paris, Susan took up quilt-making as, she later explained, a thesis-writing-avoidance mechanism. Here she is at work, and at right is the finished product. Susan said that one's first quilt should be thrown away because you haven't learned a good color sense. (I rescued it from the give-away bin once over Susan's protests.)
  31. Susan also knitted, specializing in Icelandic wool sweaters (such as the one she is wearing in the initial picture of this presentation). One day, early in our relationship, she surprised me by presenting me with a pair of Icelandic wool socks that she had made for me. I surprised her by using skills from my sail-making days to sew on leather soles to make slippers. After that, we collaborated on numerous Christmas gifts of such slippers, such as the ones here that my family received one Christmas.
  32. There is a saying in the Cornell Computer Science Department that "A student is ready to finish their Ph.D. when they begin to resemble their adviser."
  33. So she graduated . . . *<CLICK>* . . . we celebrated . . . *<CLICK>* . . . and took off for Madison with our two windsurfers strapped to the roof of the car.
  34. For the first three years, we lived in the Lincoln School Apartments.
  35. During those years, the department was hiring a lot of new assistant professors, with whom we socialized regularly in a variety of contexts. We also met several couples through my pastime of sailboat racing.
  36. In 1988, we bought this Prairie-style house on Sherman Avenue, where we lived ever since. The house is on Lake Mendota, so we were often treated to sunsets with beautiful colors *<CLICK>* . . . and sometimes spectacular ones *<CLICK>*.
  37. You met Chloé Chénétier in the photos from our year in Paris in 82-83. In 1991-92, when she was 18, she took what would now be called a gap year before starting her studies as a language interpreter, and lived with us for 9 months. So for that period we had a teenage pseudo-daughter—but a very mature one.
  38. Earlier I showed these photos of the Horwitz family's 1969 mule trip, and said that such experiences caused Susan to want to do physical activities, and particularly to take active vacations.
  39. Early on, she signed me up as bowman in this canoe race on upper Fall Creek, near Ithaca. The weather was rather miserable that day, although in these pictures we seem to be enjoying it. I looked, but didn't find the photo of us after we capsized that day . . .
  40. I taught Susan to Windsurf, and we also did some sailing together.
  41. Here we are before and during an all-day hike in a cave in New Zealand.
  42. Susan making new friends in Australia.
  43. During a rafting trip in the Grand Canyon.
  44. That same trip, suited up diaper-style to float down a warm branch river back to the Colorado. On the right, Susan's father in action.
  45. One of our favorite outdoor activities was cross-country skiing . . . *<CLICK>* . . . You'll notice that Susan is wearing a skirt.
  46. She started doing so in 1981, after we went to see the film *Reds*, with Warren Beatty as John Reed, and Diane Keaton as Louise Bryant.
  47. At one point in the story, Louise Bryant skis across Finland to go look for John Reed in Russia.
  48. Susan was inspired by this brief shot, . . . *<CLICK>* . . . which shows Diane Keaton skiing in a skirt. As we walked out of the theater, Susan announced that if Diane Keaton could ski in a skirt, so could she.

Truth in advertising: when I snipped these photos out of the film *Reds*, I discovered that

Diane Keaton is actually wearing a greatcoat, and was wearing trousers underneath.

Regardless, a skirt has a nice effect: <CLICK>

49. Another favorite activity was bicycling, which we did 9 months of the year to and from the University, on weekends in Madison, and on many longer bike trips in North America and Europe.
50. Most of these photos are from a 2008 trip in northeastern France, where we got to see the Saint-Louis-Arzviller inclined plane, which carries canal boats up or down 146 feet.
51. During our sabbatical in Italy, we took advantage of an unusual spring that extended from mid-January to mid-June to do many, many weekend bike excursions.
52. Where did we go? These are some of the places we went to in North America.
53. And these are some of the places in Europe.
54. Whenever we were biking, Susan had an incredible eye for spotting edible fruit, whether it was blackberries, raspberries, mulberries, or . . . <CLICK> . . . huckleberries.  
<CLICK> During Fall 2000 in Italy she was particularly happy because there were fig trees growing wild everywhere.
55. Another aspect of Susan's personality came out in these bike trips, which was that no matter what happened or how lost it appeared we were, she never wanted to turn around.  
<CLICK> Now in Italy, the maps have six classifications of roads. <CLICK>\*6
56. This picture shows me on what was at best a mule track. If I remember correctly, this might have been taken the only time I can remember Susan turning around, and that was only because the mule track had come down a hill, and ended at a cliff. I don't know what the mules did; maybe Italian mules are like lemmings and just continue.
57. One of the most memorable bike trips was a three-day trip along the Thames River Path from London to Oxford. It is a trip during which we saw many odd-looking boats <CLICK> and beautiful scenes <CLICK>\*3. However, the first day had been in a torrential downpour, which had the effect of bringing Thames River flint to the surface, and that had an unfortunate effect on our bicycle tires.
58. Over the three days, we had thirteen flat tires. We were very good at fixing flat tires by the end of that trip.
59. (No commentary)
60. Susan continued with quilt-making. As our friends began to have children, she made many of them baby quilts. <CLICK>\*4
61. She made full-size quilts as well—for us, for her family and relatives, and for several friends.
62. Susan quilted right up until the end, finishing this quilt for Tim Teitelbaum in May of this year, about three weeks before she passed away.
63. Susan also loved to cook, and was very good at it. She loved shopping at Willy Street Coop, and the Madison Farmer's Market. I remember the wife of one of my grad students being astounded that she made everything from scratch. <CLICK>\*4  
Curiously, Susan herself did not have a very good sense of smell or taste, which sometimes led to very hot dishes when she misjudged the number of hot peppers to add.
64. Susan was a very good musician, a talent she inherited from her mother.
65. After college, Susan had made a conscious decision to do computer science and not music, figuring that one could always enjoy playing music as a pastime. And that is what she did. During holidays in Syracuse, she and her mother played piano four-hands duets every day. Here in Madison, her most frequent partner was her flute-playing friend Patricia Rosenmeyer.
66. Susan rode horses during her childhood. Here she is leading her two younger sisters.
67. In Ithaca and Madison, she both leased and owned horses. And she sometimes competed in nearby show-jumping and dressage events.

68. She also took many two- to three-week-long horseback-riding vacations, usually through a company called Equitour. These photos are from her trip to Iceland in 1991.
69. Here she is in the Camargue, the cowboy region of southern France.
70. A memorable trip was to Mongolia. It wasn't exactly what I would have predicted her to like, for two reasons. First, she didn't really enjoy trips with a lot of driving, and this trip started and ended with three days of free-form cross-country travel in large trucks, . . .  $\langle$ CLICK $\rangle$  . . . stopping now and then to pull out the odd jeep that had been stuck in a river. (This one I believe had been stuck for three days.) Second, the staff wasn't really prepared for someone who didn't eat red meat.  $\langle$ CLICK $\rangle$  But the countryside was beautiful, and they visited the reindeer people in Northwest Mongolia.  $\langle$ CLICK $\rangle$  And they were well taken care of by the staff.
71. Amid the lavender in Provence; in Western canyons; in rough hills in Spain.
72. Susan went on such rides on four continents.  $\langle$ CLICK $\rangle$  A bunch in North America;  $\langle$ CLICK $\rangle$  many more in Europe;  $\langle$ CLICK $\rangle$  two in Africa; and  $\langle$ CLICK $\rangle$  two in Asia (to see the Reindeer People, and in the Thar Desert in Rajasthan).
73. And there really were parallels with those Horwitz family vacations of her childhood . . .
74. No, my laptop didn't crash; however, 10 to 15 years ago this situation occurred quite frequently on computers running the Windows operating system.

I'm showing this because Susan's research expertise was in the fields of Programming Languages and Software Engineering. Among other contributions, her work helped to make the Windows operating system much more stable, starting around 2004. At that time, a group at Microsoft headed by her former Ph.D. student, Tom Ball, released the SLAM tool, a static program analyzer that checks for bugs in Windows device drivers (which were causing about 85% of the system crashes in Windows). One of the algorithms that makes SLAM successful is the algorithm for interprocedural dataflow analysis that Susan, Mooly Sagiv, and I developed in 1995.

75. Tom Ball wrote a nice reminiscence about Susan in "The Programming Languages Enthusiast," a blog about programming languages.

$\langle$ CLICK $\rangle$

Here is how he explained the influence of the work on two of the main tools that helped Microsoft get a grip on its software-stability problem.

76. In addition to Tom Ball, Susan supervised the doctorates of three other students, Wu Yang, Suan Yong, and Raghavan Komondoor . . .
77. . . . as well as the work of a number of Master's students.
78. During the last ten years of her career, Susan devoted herself to trying to increase the number of under-represented students in Computer Science. She was a founding member of a national group called the Academic Alliance of the National Center for Women and IT.

At Wisconsin, she started the Wisconsin Emerging Scholars-Computer Science program, or WES-CS, which aimed to attract to Computer Science students at Wisconsin who might otherwise overlook the opportunities that the field offers. The WES-CS program is centered around student-led group meetings, at which students work together on interesting problems designed to help them understand and enjoy the topics taught in our introductory programming class.

The two photos on the left show Susan training team leaders who lead individual sections of 7 or 8 students.

79. Sometimes a little bribery helped . . .  $\langle$ CLICK $\rangle$  . . . in one form or another.  
 $\langle$ CLICK $\rangle$  But this group was enthusiastic about the program,  $\langle$ CLICK $\rangle$  and this blackboard is surely a good sign. (For those who can't make it out, it says, "Comp Sci Rocks!")

80. During the last couple of years of her life, Susan was the faculty director of Women in Science and Engineering, or WISE, which is a residential learning community of about 60 female freshmen interested in science. Susan instituted field trips to various companies around Madison (including Epic and Raven Software, as well as the Google and Microsoft labs) and research groups on campus.

How many of you listen to Radiolab? That is Susan's cousin, Robert Krulwich, on the left in the two pictures. They were taken when Robert came to Madison to do a Radiolab show from the Overture Center, and Susan brought 8 of the WISE students to the show.

Ironically, WISE is housed on one floor of Sallery Hall, which has the reputation of being the biggest party dorm on campus. Susan had at least one student who joined WISE because her father wouldn't let her live in a party dorm, but would let her be part of WISE. I'm not sure that turned out too well . . .

81. I've already talked about two of the five years that Susan lived abroad.

We had three sabbaticals of our own. The first was in Copenhagen, Denmark, where we were visitors at the Department of Informatics of Copenhagen University.

The pictures on the left come from July 4, 1994, when we celebrated American Independence Day by taking a dozen or so Danes for a sailing excursion on a Viking Ship.

82. We had a wonderful time in Copenhagen, but it is so far north that it was terribly gloomy during the winter. We decided that we needed to be further south for our next sabbatical, and chose Pisa, Italy. I've already mentioned the many bike trips we took that Spring. The photo on the right shows Susan mixing her cooking skills with her riding skills during one of the riding vacations she took that year.

83. For our most recent sabbatical in 2007-08, we went back to Paris. We decided to relive the experiences of our childhood sabbaticals and went over on the Queen Mary. Here is Susan at the beginning—at the lifeboat drill—and dressed up for two of the formal dinners.

84. Twenty-five years before, we had lived in a tiny apartment in a working-class neighborhood. This time we splurged on an amazing apartment right in the center of the city. For those of you who know Paris, it was one block off of Rue Montorgueil, shown in the middle, a few blocks away from l'Église de Ste. Eustache. On the right we see Susan shopping at our neighborhood market, one of her favorite Paris activities.

85. Following Tim Teitelbaum's lead from twenty-five years earlier, I took with me three of my Ph.D. students. Unfortunately for them, their UW graduate-student stipends were a bit on the low side for living in Paris, and became 20% lower when the dollar fell from 1.32 to 1.58 within a few months of our arrival. My students benefited a lot from Susan's cooking that year, and that allowed us to get to know them better than we would have otherwise. I count them among my good friends today.

86. Another highlight was our daily commute to work at the University of Paris VII, which took us by this classic spot twice a day.

87. We even did some good research that year!

But all good things come to an end. We said goodbye to our apartment and bicycles, and flew home to Madison.

88. Susan and I had been together since 1980, but had never gotten married.

When we returned in fall 2008, my mother was housebound with the cancer that she eventually died from. As we were packing to go East to see our parents over the Christmas break, Susan asked whether it would mean anything to my mother if we were to get married. We decided to surprise my parents at Christmas with a card inviting them to a wedding at their home at 102 Needham Place.

But first we needed to find someone to marry us. It turns out that in New York State, all

mayors can perform weddings. I called the mayor of Cayuga Heights, and explained that the ceremony had to be at my parents' house. We were able to settle on a time on Dec. 27. [It had to be on Dec. 27 because (i) we still needed to obtain a marriage license on Dec. 26, and (ii) even though we had been together for more than 28 years, we still had to observe New York State's 24-hour waiting period.]

As we concluded the phone conversation, the mayor asked me what the address was. I replied, "102 Needham Place," at which point he balked, "Uh-oh, I think that's in the City of Ithaca. I don't have jurisdiction there. You'll have to talk to the mayor of Ithaca." I replied, "Funny thing about 102 Needham Place—the border between Ithaca and Cayuga Heights goes right through the house! We're planning to hold the ceremony in the northernmost bedroom, where you have jurisdiction." He said, "I think I'll have to check out the tax map and call you back."

89. This map is the one that overcame his qualms . . . <CLICK> . . . <CLICK> . . . You can see that quite a bit of the house lies in Cayuga Heights.
90. Here is the ceremony that took place in the Northernmost bedroom.  
<CLICK>\*3 . . . Susan's father signing the marriage certificate.
91. I think you'll agree that Susan had a rich and happy life.  
These pictures capture her spirit: winter or summer, she tried to enjoy life to the fullest.  
I'll finish up by showing a number of pictures that I liked.
92. (Pictures through the decades)
93. (Two pictures from grad-school days in Ithaca)
94. (Self-explanatory!)
95. (On the patio of my parents' house, early/mid 80s; skiing in the Jura 2008?)
96. (Feathered friends in Egypt (1983) and India (1994))
97. (Cross-country skiing with Debra Anken-Dyer. With Mooly Sagiv in his apartment in Madison, fall 1994.)
98. (Sailing in the Apostle Islands, August 1988; playing piano with her mother, Spring 2014.)
99. (Susan and her niece, Anna Shea, summer 2013.)
100. (Susan and her brother David, c. 1992 and Spring 2014.)
101. (Susan, Annie, Nahmin, and Amy; Susan and Annie.)
102. (Susan and Amy at Susan's 50th birthday party, Royal Gorge, CA in January 2004.)
103. (Right: At the house of Bill Bauer and Sue Lower for their 2013 Academy Awards party. Left: Suited up to walk to the Spot Restaurant for Susan's 59th birthday on Jan. 6, 2014 (during the Polar Vortex of 2014).)
104. (Top: On the Thames River boat; first day of the bike ride during which we had 13 flat tires. Bottom: Paris, spring 2008.)
105. (The final resting place for Susan ashes—beneath the kiwi vine behind our house, looking out on the lake.)
106. (On the patio of my parents' house, early/mid 80s.)

The presentation continues with

- The text of Annie Horwitz's tribute to Susan.
- The text of Amy Horwitz's tribute to Susan.
- The program of musical pieces that were played by Vincent Fuh and Stephanie Jutt.
- The program of the one-act play by David Ives that was read/acted by Sarah Day and Michael Herold.