

Personal reminiscences about Erich L. Lehmann

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Abstract: Several works have been written about Erich L. Lehmann's fundamental and influential work in statistics and about his life. This work recounts the author's personal reminiscences about being a student of Erich L. Lehmann and later a colleague and a friend.

Key words: History of statistics, Berkeley statistics department, Optimality, Symposia

Several works have been written about Erich L. Lehmann's personal and professional life. van Zwet (2011) narrates some of the author's interactions with Erich Lehmann and describes Erich's contributions, mostly in nonparametric statistics. Rojo (2011) provides a biographical sketch, a complete bibliography and a summary of Erich's influential works. A wealth of information about Erich's professional relationships, philosophy and life experiences can be found in a wonderful book by Lehmann (2008), and Erich's various professional and personal facets are also disclosed in DeGroot (1986), Lehmann (1993, 1996) and Reid (1982). Rojo (2012) presents a selection of Erich's works with expert commentary from several authors. Therefore, this work focuses on the author's experiences as a student, colleague and friend of Erich L. Lehmann. These reminiscences cover the years from 1978, the time when the author first met Erich, to 2009 when Erich passed away. I had a difficult time deciding on what to share, not because I do not have things to say. Rather, because there are too many wonderful memories to choose from. Erich's qualities as a person, mentor and friend are too many to share, and space is so limited, that a complete set of memories will have to wait for a future time. I have selected a few events that illustrate Erich's—Professor Lehmann as my wife always called him—superb human qualities. I will restrict my remarks to four aspects of Erich's personality: strong sense of duty, sensitivity to others, utmost modesty and love for his family. However, rather than isolating each of these characteristics and describing situations that illustrate them, I have decided to provide a chronological account. The reader will surely come away with a clear impression of Erich's gentle and fatherly spirit, his strong sense of duty and his sensitivity to others.

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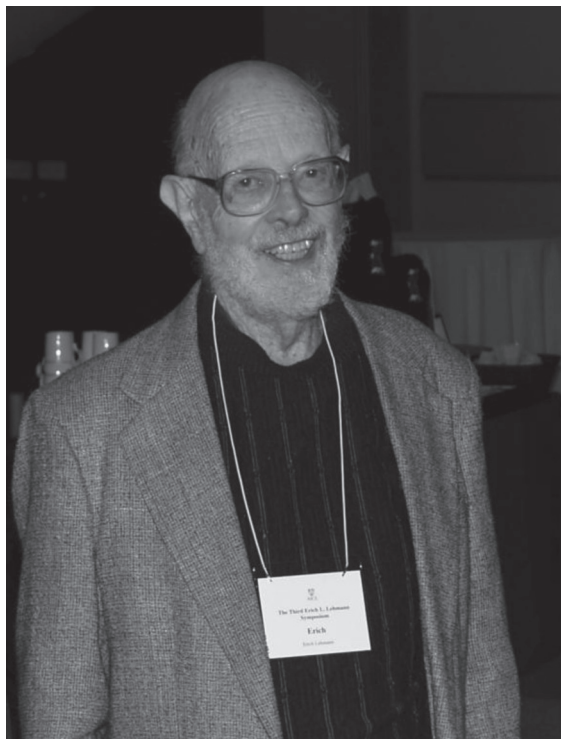


Figure 1 Erich L. Lehmann during The Third Lehmann Symposium Rice University, May 2007

I first attended U. C. Berkeley in the Fall of 1978. That first quarter I took Statistics 210 A and Probability 205 A. The former taught by Erich Lehmann, the latter by Michael Klass. As I was commuting every day from Palo Alto, I usually ended up returning home immediately after Erich's class. As a result, I did not have many opportunities to interact with either Erich or Michael, or other graduate students. That first quarter went well and at the end, Peter Bickel, then chairman of the department, offered me a research assistantship which I immediately accepted. I never asked Peter why I was receiving such a prize, but to this day I suspect my performance in 210 A, and hence Erich, was responsible for the offer. After moving to the Albany Village over the holidays, and then one month later to the Fernwald complex, I was able to stay around the department longer and use an office that I shared with Bernard Davis and Heleno Bolfarine, and later with Victor de la Peña.

I was very impressed with Erich's lecturing style during that first academic year. He would present the material without getting hung up on technicalities, and in such a way that connections with previous material seemed virtually seamless. Also, his lectures were so perfectly organized even when only using a few notes on his characteristic folded-in-the-coat's-pocket-yellow sheets! This was not the only aspect of Erich that impressed me in the first year. On many occasions, while walking in

the hallways of Evans Hall or going downstairs to the library, I would meet Erich. Invariably, he would ask about my wife and family and their well-being. Then, in a firm, yet gentle, manner, he would remind me of the upcoming departmental picnic, and/or of the opportunity to stop by and introduce myself to visitors to the department. He would say: *Javier, how are Maria and the children? Are you coming to the Department picnic?* And I would ask myself, ‘Why is he so nice to me?’ Maybe he has mellowed out after the years, I thought. A few years later, for his 75th birthday, I collected reminiscences from most of his students about their interactions with Erich. To my great surprise, Erich had not mellowed out. That was the way Erich had been all along. All the students’ stories confirmed it. Erich had been and was nice to everyone!

On another occasion, while still a graduate student but already working on my dissertation, I had to have eye surgery. I asked Maria Luisa, my wife, to call Professor Lehmann and explain why I could not meet with him that day. The next time we met he said, *Javier, you know that advisors are also for providing guidance with medical problems. I have some physician friends at UCSF (University of California in San Francisco) that I could have recommended.*

After passing the qualifying exams at the end of the first year and working for SOCAL during the summer, it was time to look for a thesis advisor. I had wanted to work with Erich, but one of the rumors among graduate students at the time was that Erich usually called the best student in his class and asked him/her to work with him. As I was not called at the end of the year, I asked Jack Kiefer to direct my thesis and he accepted. I asked Erich several years later whether the rumor was true and he responded: *Javier, no—of course not. You could have asked me and I would have accepted to be your advisor.* After Jack’s untimely death, and a short stint in probability, I decided to talk to Julie Shaffer about directing my thesis. I had taken and enjoyed Stat 230 A and B taught by Julie. I had done fairly well in those courses and Julie accepted me as her student. On one occasion in which Julie and I were discussing details on the thesis, Erich came into Julie’s office and joined the discussion. At the end of the meeting, he volunteered to join Julie as co-chair of my thesis. During the summer of 1983, a tenure track position opened up in the University of Texas at El Paso and I was invited to apply. Although the thesis had gone rather smoothly, no major landmarks resulted from my work. Nevertheless, Erich, aware of my desire to go back to El Paso and of my family situation, suggested that I should try to finish up soon. At his invitation, I attended a reception in Neyman’s room in which he introduced me to Ruth Suzuki, instructing her that she should expect a manuscript from me soon. As always, Ruth did an excellent job. I noted earlier that my wife always addressed Erich as ‘Professor Lehmann’. I used to do the same, but things changed. During the 1983 departmental Christmas party on 20 December, I presented Erich with the title page of the dissertation for his signature. As he was signing, he told me: *Javier, you know, now comes the most difficult part.* I thought, oh no! What now?! He said: *You are no longer my student. We are now colleagues. You know well Javier, that to make the transition complete you must*

now address me as Erich and not Prof. Lehmann. This was easier said than done. It took me 5 years to finally start addressing him as Erich.

We returned to El Paso on Christmas day of 1983—my oldest son's sixth birthday—and for a few years I did not have much contact with Erich and Julie except for an occasional telephone call. This situation changed during the following years through several summer visits to Berkeley that started in 1987. I got to know Erich and Julie well through innumerable invitations to join them for lunch or dinner at their home. I enjoyed many amenable conversations with Erich and Julie ranging from baseball and the Kansas City Royals, jury duty experiences and how to improve jury selection, and on through the works of Bach and Schubert, two of Erich's favourites, and sometimes we discussed statistics.

It was during one of these summer visits that I mentioned to Erich that my first son was learning to play the viola. The day prior to my return to El Paso, Erich and I went to a music store on Telegraph Avenue in Berkeley, I believe, where he purchased a music cassette. He then gave it to me to take it to my son. The string quartet music was by, whom else, Franz Schubert, Erich's favourite composer.

The following episode demonstrates Erich's strong sense of duty. During the spring of 1992, Julie and Erich visited the Mathematical Sciences Department at the University of Texas at El Paso. As part of the visit, Julie and Erich would meet with the Dean of the College of Science. Back then, it was still possible to go up to the gate and wait for the passengers to deplane. As Julie and Erich deplaned, I noticed, to my astonishment and chagrin, that Erich was walking very slowly and he was obviously in a lot of pain. I asked him what was wrong. He said that he had had pain since that morning. I told him that he could have cancelled and everyone would have understood, to which he responded: *Well, we are already here.* Fortunately for everyone, the next day Erich was already feeling much better and he quipped, *Julie, I feel so good that I may even take off my sweater today.* The rest of the visit went wonderfully. Faculty and students were vibrant and inspired by meeting such personalities from the statistics world. During their visit, we crossed the border to México where we had dinner. A large group of undergraduate and Master's students accompanied us. During dinner, Erich asked me if the department was paying for the students. I responded that the students had been told that they were paying for their dinner. Erich responded—*Oh, but that can be changed,* and he ended up paying for all the students.

At the end of their visit, my wife Maria Luisa and I drove Julie and Erich to the airport. My wife had purchased a Mayan statue as a present for Erich and Julie. The note written by my wife read: *To Professor Lehmann and Professor Shaffer: thank you for everything. You have touched our lives in ways you can never imagine.* After reading the card, Erich turned away from us. He did not want us to see the tears rolling down his face. After Julie and Erich left, the salient features of the conversations were the ease with which Julie and Erich had interacted with students and faculty.

During the summer of 1992, as in the previous several summers, I visited the Statistics Department at Berkeley. It was during one of the innumerable invitations

from Julie and Erich to have lunch or dinner at their home that I learned that Erich's 75th birthday was approaching. Since one of Erich's most notable characteristics is his modesty, I approached Julie with the idea of honouring Erich with a technical meeting that could result in a festschrift. Julie felt that Erich would not receive the idea well since he had, in another occasion, decreed that the festschrift published in 1983 to commemorate his 65th birthday—P. Bickel, K. Doksum and J. Hodges, eds—was enough. Instead, Julie suggested, a volume consisting of reminiscences by Erich's Ph.D. students would be very much appreciated by Erich.

As in any endeavour of this kind, it was impossible to obtain a 100% response rate from Erich's former students to a request for contributions to this volume. Some had passed away; others had moved without leaving new addresses and yet others chose to write to Erich directly or honour him in a different way. Those who responded were uniform in their enthusiasm and eagerness to share their memories and express their congratulations and best wishes to Erich on his birthday. Colin Blyth suggested sending copies of the volume to each of the contributors *to know who our brothers and sisters are, and something about them*. M. Raghavachari expressed great enthusiasm in a possible summer technical meeting to honour Erich. The following is an excerpt of the Preface that I wrote for the volume, Rojo (1992), on the occasion of his 75th birthday:

The reader of this volume of reminiscences will correctly infer that inside Erich's prolific and prodigious scientific mind, there is room for a gentle, kind, responsible, and fatherly human being who has not only directed over forty Ph.D. dissertations but has also provided his students with advice on classical music, has shown a genuine concern for the well-being of his students and their families, and has even given away one of his students as a bride in the absence of her father. I think all of Erich's Ph.D. students would agree that Erich has been, throughout the years, more than just a Ph.D. thesis advisor to each of them.

In 2000–2001 while visiting the Centro de Investigación en Matemáticas (CIMAT), in Guanajuato, México, the then director of CIMAT, Victor Pérez-Abreu and I, inspired by the successful Berkeley Symposia, discussed the possibility of starting a series of symposia that highlighted and showcased theoretical work on Optimality. We decided that Erich was the right person to name after the symposia because of his experience with the Berkeley Symposium and his influential work on optimality. Details of the initial efforts to start the symposia have been reported in Rojo and Pérez-Abreu (2004), and Rojo (2006, 2011). The initial planning went smoothly and swiftly, until I had to let Erich know about the plans. Erich refused to agree to it. He felt uncomfortable with the plans. He did not want to be the centre of attention. After several efforts, he reluctantly agreed to participate. Lehmann (2008) writes about the proposal for the Symposia: *I thought it was a bit too much and demurred but eventually gave in, partly because I did not believe that they would really be able to pull it off. But I underestimated the energy and resourcefulness of these two organizers*. Another good example of Erich's modesty is as follows: The plans for the third Lehmann Symposium were to hold the Symposium in Berkeley

on 20 November 2007 to celebrate Erich's 90th birthday. At least that is how it was being planned until Erich learned of the plan. He said, *Javier, I do not want it to turn into a birthday celebration. The Symposium must remain faithful to its original purpose.* Some remarks about the events that led to changing the venue back to Rice University and the date to May 2007 have appeared in Rojo (2009). I have always had a deep admiration for Erich's modesty—a feature that is very difficult to find in our medium these days.

Erich's strong sense of duty is also demonstrated in connection with the Symposia. He always insisted on presenting a talk in each of the meetings. This was not due to a desire to be a presenter. Instead, he felt that it was his duty to speak if he would be attending. He would call me and say, *Javier, I don't know if I can go because I do not yet have something to talk about.* I would remind him that he was the guest of honour and hence he did not have to present, but he would respond: *Oh, but I cannot do that! If I attend I have to present.* In spite of being the guests of honour, Julie and Erich attended every single invited and plenary session, sitting in the front row.

Besides Erich's great human qualities described above, there is one that I try to emulate as much as I can. This is the one feature in Erich's character that I admired the most: The great love for his family! His face would light up when talking about Julie, his children, grandchildren and great-grandchildren. He would tell me: *Javier, have I told you the story about Julie or one of his children and I would say yes, but you can tell me again.* I think I enjoyed listening to the stories as much as he liked telling them.

In 2008, John Kimmel, still with Springer-Verlag at the time, invited me to edit Erich's selected works—of course Erich had something to do with the invitation. During May 2008, I visited Erich and we devised a plan for the volumes of selected works. I proposed the various sections of the planned two volumes, and together we selected colleagues who could contribute to the volumes by writing about and critiquing the works in each of the sections. Later, Springer-Verlag decided to go with one volume, but without reducing the number of total pages. After the meetings of May 2008, there were telephone conversations and correspondence that further discussed the format of the volume. Erich thought that an index for the volume would make the collection much more useful. On his last letter dated 17 March 2009 he wrote: *If for reasons of space further deletions are necessary, let me know and I will make suggestions. Remember that in addition to the papers themselves there will be introductions and, I hope, an index. An index would make the collection much more useful. If my health permits it, I would be willing to prepare it.* Unfortunately, Springer-Verlag did not support the idea for the index. But more importantly, this passage was the first time that Erich hinted at the possibility of being ill.

At the same time that the Selected Works project was starting, the volume Optimality—The Fourth Erich L. Lehmann Symposium (2009), IMS LNMS Vol. 57, was going through the last revisions. During a telephone conversation, after his letter of 17 March 2009, Erich finally acknowledged that he was ill, although he did not give details. Immediately, efforts to have the IMS volume completed as soon as possible

were redoubled. In spite of several efforts to arrange a visit, scheduling problems with prior commitments prevented me from visiting Erich after March 2009. On 11 September 2009, I received a call from Julie telling me that Erich was very ill. My wife and I flew to Oakland the following morning, hoping to find Erich alive to say our goodbyes. Unfortunately, Erich passed away while I was waiting for my wife's flight to land. Erich continued working until his death. The monograph *Fisher, Neyman, and the Creation of Classical Statistics* (2011) appeared posthumously with Julie's help, and he was also working with Fritz Scholtz on a revision of the book on *Nonparametrics: Statistical Methods Based on Ranks*. Fritz Scholtz continues to work on the book for a possible release in the near future.

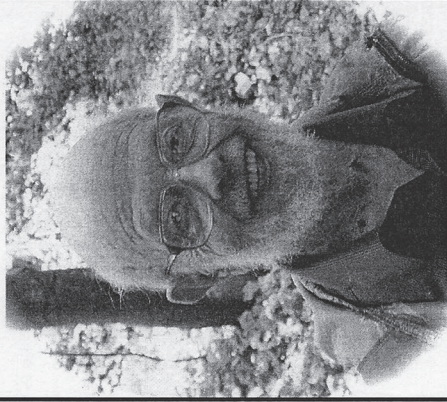
The volume, *Optimality—The Fourth Erich L. Lehmann Symposium* (2009), was never seen by Erich as it arrived on the day of Erich's death. Several obituaries celebrated Erich's life, scientific accomplishments and legacy. Among others, see Brillinger (2010), Bickel (2009), Asimov (2009). The international community honoured Erich in several ways. Peter Bickel organized a memorial session during the Joint Statistical Meetings in Vancouver, CA, in 2010. The speakers in the session were Peter Bickel, Juliet P. Shaffer and Persi Diaconis. Willem van Zwet organized a memorial session for Erich during the 73rd IMS annual meeting in Gothenburg, Sweden, in 2010 and Peter Bickel gave a lecture honouring Erich during the Latin American Congress of Probability and Mathematical Statistics (CLAPEM) in Venezuela, November 2009.

A memorial service for Erich was held at the Women's Faculty Club on the campus of the University of California at Berkeley on 9 November 2009. Many students, colleagues and collaborators were present at the service. The following list is surely incomplete, and I apologize for it: Juliet P. Shaffer, Stephen Lehmann, Barbara Lehmann, Sophia Lehmann, Len Shaffer, Tanya Shaffer. Also, Peter Bickel, Persi Diaconis, David Donoho, Theodore W. Anderson, David Siegmund, Chin Long Chiang, Michael Klass, Ingram Olkin, Charles Stein, Wei-Yin Loh, Javier Rojo, Emanuel Candes, Deborah Nolan, Bin Yu, Richard Olshen, James Pitman, Susan Holmes, Kjell Doksum, Howard D'Abrera, Leo Goodman, Friedrich Scholz, Joseph Romano, Wing Hung Wong, Ching-Shui Cheng, Hans Müller, Jane-Ling Wang, Nouredine El Karoui, Elizabeth Purdom, Ken Wachter, Haiyan Huang, Mark van der Laan, Nicholas Jewell, Sandrine Dudoit, Jiming Jiang, Wilhelmine von Turk, Ani Adhikari, Ian Johnstone, Xizhi Wu, Irma Hernandez, Erick Moreno, Cari Kaufman, John Kimmel, Chiara Sabatti, Sandy Hodges, Yuval Benjamini, Quang Pham, Daisy Huang, Charlotte Wickham, John Rice, Po-Ling Loh Jing Lei, Karl Rohe, Gregory Alexander, Mark Hudes, Elizabeth Allison, Eric Biber, Jennifer Panish, Sophia Rabe-Hesketh, Anders Skrondal, Anna Belle Panish, George Goldman, Warren McKenna, Teddy Hodges, Patricia Hardy, James Long, Eli Patten, Pierre Neuvial, James Blakly, Ying Xu, Jiang Ding, Paula Gillett, Johann Gagnon-Bartsch, Nate Cohelo, Sandy Steinman, Vida Lehmann, Debbie Haaxman, Ani Adhikari, Maria Torralba.

The programme for the memorial service, designed by Juliet and Tanya Shaffer, is included below with permission and for its historical value.

After the selected works were published and the article 'Erich L. Lehmann—a glimpse into his life and work' appeared, I received an email from Eugene Schuster, a colleague of mine at the University of Texas at El Paso. He wrote to say how lucky

Erich Leo Lehmann



November 20, 1917 - September 12, 2009

In Loving Memory
Erich Leo Lehmann

Nov. 20, 1917 - Sept. 12, 2009

Mistress of ceremonies: Bin Yu
Chair, Department of Statistics, U.C. Berkeley

Opening Music by Franz Joseph Haydn:

String Quartet No. 42 in C major, Op. 54, No. 2

Second movement: Adagio

Addresses by:

Stephen Lehmann, son

Peter Bickel, U.C. Berkeley

Persi Diaconis, Stanford University

Javier Rojo, Rice University

Fritz Scholz, University of Washington, Seattle;

and The Boeing Company

Sophia Lehmann, daughter

Open Microphone

Closing Music by Ludwig van Beethoven:

String Quartet No. 13 in B flat major, Op. 130

Fifth movement: Cavatina

Reception

*Musicians: April Paik (violin), Jessica Ling (violin),
Garrett McLean (viola), Leighton Fong (cello)*

*Several years ago, Erich said that the following
poem reflected the way he would like to be
remembered.*

Poem for the Living

When I am dead

Cry for me a little.

I think of me sometimes

But not too much.

It is not good for you

Or your wife or your husband

Or your children

To allow your thoughts to dwell

Too long on the dead.

I think of me now and again

As I was in life

At some moment it is pleasant to recall.

But not for too long.

Leave me in peace

As I shall leave you, too, in peace.

While you live

Let your thoughts be with the Living.

-Theodora Kroeber

I had been in having Erich as my advisor. I fully agree! Thus, to conclude, please allow me to paraphrase Lou Gehrig on his retirement speech—<http://www.lougehrig.com/about/speech.htm>—in Yankee Stadium on 4 July 1939.

I consider myself the luckiest man on the face of this earth for having had the opportunity and honor to be Erich Lehmann's student; for the opportunity to work with him, laugh with him; and for the opportunity to know, through his many wonderful stories, his wonderful family.

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