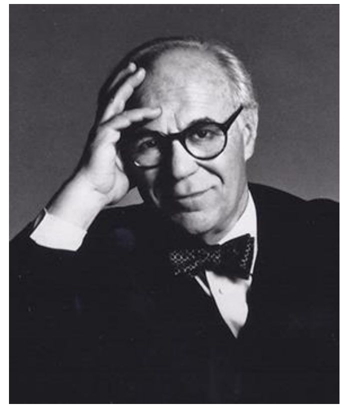
These are the welcome and testimonial remarks at the
Klein Legacy Dinner,
October 24, 2014,
Lower Egyptian Gallery,
University of Pennsylvania
Museum of Archaeology and Anthropology.



Brief Welcome by Dirk Krueger - *Professor of Economics and Interim Chair of the Department of Economics, University of Pennsylvania*

Dear Klein family, dear colleagues and dear friends of the Economics department,

On behalf of my colleagues I welcome you to Philadelphia. Thank you so much for joining us for this dinner and colloquium in honor of Lawrie Klein. In the next two days we will honor the humongous contributions of Lawrie Klein to UPenn's economics department, to the university, and to economic science at large.

Sadly, I am too young for having had the opportunity to interact with Lawrie. However, when you become chair of the economics department at UPenn you learn very quickly that everything we do here is, in a fundamental way, affected by his tremendous legacy. We make all important departmental decision in the *Klein* conference room. The most prestigious annual seminar in our department is called the *Klein* lecture. It is published in our house journal, the International Economic Review (which Lawrie founded with colleagues from the University of Osaka). The Penn Institute for Economic Research (PIER), established by Lawrie, supports all research activities in the department and its director has historically held the Lawrence *Klein* professorship in economics. In short, Lawrie might not be among us any longer physically, but his presence is, and will forever be felt in every aspect of the life of the department. As its chair I feel honored and humbled to stand on the shoulders of such a true giant.

Tonight we will hear a great many testimonials from you about the scientist and the human being Lawrie Klein was, much more eloquently than my attempts could ever be. Therefore, let me thank you all once more for joining me tonight, and let me turn now to Enrique Mendoza to give a few remarks about Lawrie Klein's legacy through the Penn Institute for Economic Research; then to Bobby Mariano, who will lead us, as Master of Ceremonies, through the rest of the evening.

Remarks by Enrique G. Mendoza - *Professor of Economics and Director of PIER, University of Pennsylvania, NBER*

Larry Klein's Legacy: The Penn Institute for Economic Research

I should start by acknowledging that having joined the Penn economics department just in January of last year, I was a bit nervous when Frank Diebold asked me to stand here today to speak about Larry Klein's legacy as embodied in the Penn Institute for Economic Research, or PIER as we like to call it. In fact, although as a macroeconomist with a quantitative focus and interested in policy, I have always been an admirer of Klein's work, and I even got to interact with economists at WEFA and the LINK project in my college years as an intern at the finance ministry of Mexico, I never had the chance to meet Larry Klein in person. I am therefore very glad and honored for this opportunity. I also recognize the fact that I have to be the one to speak on behalf of PIER because I am the new director of the Institute, after Antonio Merlo stepped down last July. No, this did not happen because of his departure to Rice and me missing the meeting where a new director was voted. We planned it since 2012 when we were in conversations about having me leave the University of Maryland to join Penn. But that's a different story. I want to use these minutes to tell you about Larry Klein and PIER.

To prepare for this short talk, I benefitted from talking with some of my colleagues that had been at Penn since the Klein days and the days in which the Institute started. I also spent time digging through some old documents that describe the origins of PIER going as far back as 1992, preserved thanks to the care and attention of the PIER program director, Dolly Guarini.

The first and most important fact to highlight is that PIER exists <u>literally</u> because Klein created it. In early documents from 1992 and 1993 one can read his motivation and vision for what he originally just called the Institute for Economic Research. Then I read various memoranda describing the process going from the formation of that vision, his proposal to create the Institute, to the actual final approval. This process started with a September 8th 1993 meeting including Larry Klein, by then emeritus professor, Andy Postlewaite as Econ department chair and the chair of the Wharton finance department. After the usual back and forth of University decision-making for this sort of thing, the Academic Planning and Budget Committee approved the creation of the Institute on November 23, 1994, after receiving the final proposal on October 11th. Interestingly, hence, we are gathered here today to celebrate Larry Klein's life and contributions at about the same time as this Institute, his Institute, turns 20 years old.

Reading these documents, one gets a clear view of Larry Klein's interest in Economic Research, his appreciation for his colleagues, and his love for the University of Pennsylvania and the Econ Department in particular. He envisioned the Institute as the primary research unit in the science of Economics at Penn. An umbrella organization that would integrate the efforts of what up to then had been 8 separate centers with limited resources and scope, and that would go far beyond to bring together activities related to research and graduate education in Economics throughout the University. Moreover, his strong focus on policy was also highlighted in the Institute's creation, as one of its mandates was to promote the contributions of economic research at Penn to the understanding and solution of real-world economic problems.

The Institute started in very sound financial footing also thanks to Larry Klein's own work and his fundraising efforts. In fact, $1.2 million dollars generated by the sale of WEFA were used for the creation of the Institute, together with critical initial contributions from donors that have also continued to be very generous with the Institute over the years, particularly the late William P. Carey, and also Jonathan Cohen.

Larry Klein was director of the Institute from its creation until 1996, when Ken Wolpin took over as director at the same time as he became the first Lawrence Klein Professor in our Department. By the way, I also learned in my digging through old papers that at some point in 1996 the Institute was renamed the Center for Economic Research, but that apparently did not stick. Ken served for five years as director, and in 2001 Antonio Merlo became the new director. Antonio then changed the Institute's name to the Penn Institute for Economic Research. I wonder why this was, and here the documents in our archives did not help. My best conjecture is that under the old name, using the acronym IER was impossible because it was already taken by our journal, the International Economic Review. So then adding Penn at the beginning of the Institute's name was not just a very nice touch, but at the same time it solved this other problem giving us the user-friendly acronym PIER.

In the two decades since its foundation, and under the exceptional leadership of its founding director and his two successors, PIER has kept in line with its original mandates and has also expanded gradually but successfully into other areas important for both the research and the graduate education functions of Economics at Penn. You should have received in your materials for this gathering a brochure we created recently that gives you a short summary of PIER's activities, programs and history. But let me tell you the main programs we run in line with Larry Klein's original vision for the Institute.

PIER administers seven research programs in econometrics, empirical micro, financial economics, international econ, macro, theory, and political economy. Since 2001, we manage an electronic working paper series that disseminates the research output of these seven programs. This working paper series is listed in the Social Sciences Research Network and Research Papers in Economics. To date, we have published nearly 600 working papers with over 120,000 downloads.

PIER also provides the Martha and Jonathan Cohen Distinguished Visitors Program, which brings to Penn outstanding scholars in Economics. Since 2003, twenty-seven of the world's most prominent economists have visited PIER under this program, including Nobel laureates Lars Peter Hansen, Dale Mortensen and Tom Sargent.

PIER has important programs that recognize and support the work of both graduate and undergraduate students. These include a number of awards given every spring at our formal Economics Day Luncheon, supported by the W.P. Carey foundation. In particular, for undergraduate students, PIER awards the Klein Prize to the best senior undergraduate research paper, and the Kuznets Fellowship Award to two students in their junior year. For graduate students, we award the Carey Prize for Outstanding Economics Dissertation and the Maloof Family Dissertation Fellowship, which supports a top-ranked graduate student at the dissertation stage. Past recipients of these awards have been placed at distinguished institutions such as Stanford, Northwestern, Wisconsin, and Carnegie Mellon. PIER also provides funding for graduate students to travel to present their research at top conferences in the United States and abroad. Since 2008 we have funded over 70 of these conference trips.

PIER also has a long history of organizing and co-sponsoring a number of high-quality conferences inside and outside the United States. From 2002 to 2012, we held the PIER Conference on Political Economy, which rose to become the main international academic gathering in political economy. Since 2002, PIER also co-hosts, together with the Philadelphia Fed and the IER, the annual Philadelphia Workshop on Monetary and Macroeconomics. Just this past summer, PIER started the ITAM-PIER Conference on Macroeconomics, an annual conference series in partnership with ITAM, the top-ranked university in social sciences in Mexico.

Looking into the future, we aim to engage in new activities that will embody even more Larry Klein's vision for PIER to serve as a vehicle to promote the contributions of work done at Penn to the understanding and solution of real-world economic problems. In particular, we are very interested in strengthening the presence of Penn economic research as policy-relevant work with a global perspective. To this end, we are engaging in a new venture to create the PIER Workshop on Quantitative Tools for Policy Analysis. This annual workshop will start running in May of next year, with the goal of bringing 30 to 40 economists from central banks, international organizations and graduate programs worldwide to learn state-of-the-art tools for the analysis of economic policy that have been created by Penn Economics faculty. I will join my colleagues Frank Diebold and Frank Schorfeide in discussing tools on topics ranging from financial and macro monitoring and forecasting, to recent advances in DSGE model estimation, to nonlinear models of financial booms and crises, and macroprudential financial regulation.

I'd like to think that if Larry Klein were here looking at what has become of his Institute, with this new venture and all of its other programs, he would conclude that we are living up to his expectations and fulfilling the mission he assigned to the Institute almost exactly 20 years ago.

Introduction and Reminiscences by Roberto S. Mariano - *Professor Emeritus of Economics, Department of Economics, University of Pennsylvania*

Thank you, Dirk and Enrique. Now we come to the testimonial portion of tonight's dinner. First, let me thank Dirk Krueger, Jere Behrman, Frank Diebold, and Kristin Nestor for organizing this dinner and for giving me the opportunity to be the Master of Ceremonies for this portion of the dinner.

Lawrie Klein's ability to be a supportive colleague, patient mentor, and kind friend was unique. He took on all these roles with generosity and accessibility. Through his pioneering vision and his willingness to give generously of himself, Lawrie provided a training ground in applied econometrics for an impressive and long list of academicians, government officials and corporate executives from all over the world. For developing countries, he generously provided financial assistance to foster local capability in macroeconometric modeling for government policymaking through study visits at Penn.

Tonight you will hear stories that in different ways highlight Lawrie's legendary generosity and accessibility. It's a common theme, and that is why many from many places have come here this weekend to honor the legacy of Lawrence Robert Klein. It is indeed heartwarming to see so many of Lawrie's long-time friends who have come from afar to celebrate this occasion with Sonia, their children – Hannah, Rebecca, Rachel and Jonathan - and spouses and grandchildren who are here tonight.

We have a few pre-arranged testimonials after which the floor will be open for others who wish to speak. We plan to complete this portion of the program by 9:45pm.

On a personal note, Lawrie and Sonia Klein extended warm and wonderful friendship to Julie and me with our arrival at Penn in 1971. The warm hospitality extended to us then by the Kleins and other senior economics faculty families like Bob and Anita Summers, Herb and Helene Levine, and Albert and Faith Ando provided a lasting memory and a benchmark for welcoming and nurturing new faculty.

Now I would like to invite Anita Summers to say a few words; after that, I will then read the message from Peter Pauly who is unable to attend, then continue with my own remembrances and other testimonials.

Testimonial by Anita Summers (see below)

Testimonial by Peter Pauly (in absentia, see below)

Now, back to my own recollections. My professional career would not have turned out as it did without Lawrence Klein. Together with Phoebus Dhrymes, Lawrie recommended and financially supported my initial appointment as visiting lecturer at Penn. That included one-day-a-week at WEFA, which initially involved constructing world commodity market models – a wonderful balancing activity for a theoretical econometrician like me!

This actually started my collaborative work not only with Lawrie but also with Sonia Klein (with whom I shared an office at WEFA), and also with Tom Cooley (then teaching at Tufts and consulting for Charles River Associates, WEFA's partner in the commodity markets modelling project). This was the beginning of a long and lasting relationship with Lawrie as mentor, colleague, co-author and friend, in a research collaboration and friendship for over forty years, spanning a wide range of topics in econometric methodology and applications, involving LINK meetings in exotic places, numerous NBER forecasting conferences, and econometric training workshops and presentations all over the world.

Lawrie told me much later that he didn't know me at all when Phoebus mentioned my availability so Lawrie called his long-time friend, T. W. Anderson, who was my dissertation adviser at Stanford.

The long friendship between the Kleins and the Andersons started in the 1940s. Ted Anderson, who is unable to be here, sends his greetings with the following remarks:

> "In my ten months at the Cowles Commission, Larry and Trygve (Haavelmo) were my closest friends besides Dorothy Fisher (now Ted's wife). We worked and played together. Larry's major project at the Cowles Commission was 'Economic Fluctuations…' That study consisted of an economics aspect and a statistics or econometrics aspect. Herman Rubin and I were mainly responsible for the statistical aspect. Herman and I had more cooperation with Larry in my year at the Cowles Commission than anyone else except for Haavelmo (and perhaps Marschak). In the seven following decades Larry and I remained close friends as well as valued professional colleagues."

Dorothy Anderson provides some amusing insights about these budding academicians,

> "I met Ted in Chicago at the time he was at the Cowles Commission. If I am correct, Lawrie met Sonia about the same time. We would go out together. Lawrie, Ted, and Trygve bought a sail boat together and we women eagerly awaited a sail, which never materialized. And I remember a night of us and several others packed into a car, with broken windows, on New Year's Eve—going to a party, keeping warm by hugging each other!!!"
>
> *Subsequent info from Rachel, Jonah, Nora, and Olav Bjerkholt and Ted Anderson's account: the owners named the sailboat Ergodic. Lawrie would have fun talking to his grandchildren about the boat, especially the sailing adventure involving a dinghy made by a person by the name of Karl Marx and how a storm badly damaged the boat, depriving the women of any sailing adventure.*

Ted Anderson (see below) goes on to mention that in 1980 Lawrie and he introduced 100 Chinese economists and statisticians to modern economic science. The China workshop reflected Lawrie Klein's willingness to give generously of himself as he interacted with students and colleagues to provide training in applied econometrics in all regions of the world.

Vignettes of my personal experiences with Lawrie and Sonia – here's a select few:

* House sat for the Kleins in 1973, relying on expert advice from Bob Summers on DIY home repairs, while the Kleins spent their sabbatical in Europe,

* Caused Lawrie to lose an expensive Burberry overcoat in Beijing, China; bought him a replacement in New York!

* Weathered with Lawrie the same typhoon twice – in Manila and Taipei,

* Accompanied Lawrie in audiences with heads of state, like Corazon Aquino (Philippines) and Zhu Rongji (China),

* Served with Lawrie as expert witness on econometrics in an arbitration case in Hong Kong – with a big reparations claim at stake! Opposing lawyers wouldn't dare tangle with a Nobel prize winner, hardly questioned Lawrie; decided to pounce on me instead, for a day and a half. Our side won the case.

* Hosted Lawrie and Sonia in Singapore while I was at Singapore Management University in 2002-2010. When I temporarily left Penn in 2002 to start the School of Economics at Singapore Management University, Lawrie and Sonia were one of our first official visitors. While Lawrie delivered the SMU distinguished lecture that year, Sonia graciously accompanied Julie in our search for an apartment. My young economics faculty and students were energized by Lawrie's interaction with them, and Julie and I found a wonderful apartment when Sonia told Julie, "This is the one!"

Cherished memories for us. Lawrie and Sonia became our neighbors when they moved to Waverly Heights in Gladwyne a few years ago, where Julie and I would visit them, especially when dear friends and colleagues are around – like Suleyman Ozmucur, Ignazio Visco, Tayyeb Shabbir, Yuzo Kumasaka, Kamemi Ban, Juan Rafael Vargas, Adolfo Castilla, and Pedro Palma. In fact, the last time Julie and I saw Lawrie was in one of these visits, accompanying Lawrence Lau. Lawrie was quite jovial, as always whenever friends come by, and quite engaging especially when he talked about reaching out to Africa, and constructing manageable accurate models to forecast the global economy, using recent advances in high-frequency data and methodology. That was just a few months before he passed away last year.

Testimonials by Frank Diebold / Ignazio Visco / David Crawford / Massimo Tivegna / Suleyman Ozmucur / Tayyeb Shabbir/ Choongsoo Kim / Pingfan Hong ***(see below)***

Concluding Remarks

To emulate Lawrie Klein's type of self-effacing yet tenacious professionalism, generosity, and accessibility is a challenge, but it is important to try, especially in our profession. Tonight you have heard amazing stories of how Lawrie's persona touched so many lives all over the world – with a legacy that is exemplary and exceptional, that endures with us and through us.

T. W. Anderson – *Professor Emeritus of Statistics and Economics, Stanford University*

On the 1980 China Workshop

In January 1980 Klein proposed to me that we set up a workshop in China to introduce some 100 Chinese economists and statisticians to modern economic science. Under the auspices of the Chinese Academy of Social Sciences in Bejing, I gave a few lectures on probability and statistics. Chinese and Chinese-American economists also lectured on economics with special reference to China. The presenters included Lawrence Lau, Cheng Hsiao, Albert Ando, and Gregory Chow. The lecture series was held at the Summer Palace just outside of Beijing. The participants were housed in the Friendship Hotel.

The lectures included topics covering the role of econometrics in a free economy, in a developing economy, and in a centrally planned economy. The workshop lasted eight weeks. The 100 initial students, recruited from all over China, included 12 women. Several other lecturers from the United States participated. Larry, Gregory, and I handled the first two weeks. After the lectures the wives of the lecturers joined them to tour many many interesting sites including Xian and Guilin.

In 2000 Larry Klein and I returned for a reunion of the original workshop. We lectured at Xiamen University and other hosts and with our wives Sonia and Dorothy toured other sites.

Testimonial of Anita Summers – *Professor Emerita of Business Economics and Public Policy, Wharton School, University of Pennsylvania*

One of the enjoyable aspects of getting old, as Virginia Wolf's Mrs.Dalloway pointed out, is that you have the perspective that allows you to review past experiences, turn them around slowly, and look at them in the light. When Bobby Mariano asked me to speak tonight about the personal connections with Lawrie that Bob and I had, I enjoyed that luxury.

I first met Lawrie in 1946 when I was a pipsqueak 20 year old graduate student at the University of Chicago, and he was an awesome figure in the Cowles Foundation. Sonia was a second year student when I came, and we met in a class or two. She and Lawrie were not a thing then.

Some ten years later, in 1957, Sonia and Lawrie and family spent a semester at Yale (they were at Oxford at that time). Bob and I had two sons by then, and we got together en famille with them a number of times -- and that's when the family relationship began. In 1960, Bob came to Penn -- I believe that invitation was probably instigated by Lawrie.

When we got here, they were very hospitable, helping with lots of information about schools, doctors, car repair, and so on. Then, over the years we shared life's joys and life's difficulties. Several of us -- the Solomons, the Levines, the Kleins, the Kravises, and we shared many activities that became rituals:

- the Philadelphia Orchestra Saturday night series from 1961 until deaths doth did us apart
- New Year's Eve dinners with tuxedos and all
- a monthly book club
- in early years, some Thanksgivings
- every Presidential election year we had a party, with required forecast of the electoral votes -- in the 1980 Carter (2nd term) v. Reagan election we had our usual party, but invited a couple we knew less well. The husband turned out to be someone to the right of the right of the right. As the evening went on, he pontificated on how awful Carter's economic policies were (he was a physician, and knew nothing of economics), and he and Lawrie argued with ever increasing intensity. At the end of the evening, when the physician was leaving, Lawrie refused to shake hands with him. It was the only time I ever saw Lawrie angry!!

The Kleins and we had a special annual event -- a dinner at some special restaurant around the 14th of February, the coinciding time of their anniversary, and the date my husband proposed to me -- Valentine's day. On all these occasions, of course, we solved the problems of the world.

Lawrie was ever the helping hand to his friends. When my son, Rick, was around 6 years old, he was desolate that his car collection didn't have a school bus. We couldn't find one, but Lawrie did -- and brought it over to Rick, who still remembers that.

A more professional example: I had written a paper in the late 1970s (with Barbara Wolf) involving education production functions. It had been refereed and accepted by the AER. An educational journal wanted to publish a more layman version, which I wrote. They asked James Coleman, at Chicago, who was the father of education production functions, to write a review accompanying it -- and sent me a copy of his comments before going forward. He wrote that I had incorrectly interpreted the regression results. I knew that wasn't so, but was dismayed. Lawrie said he would write him, pointing out how to correctly interpret the coefficients and t-statistics on the interaction terms in the regression results. Coleman wrote me then, apologizing, saying that on all the points he had raised he was wrong, and I was right, and wrote a different review. I'm sure the Klein name sharpened his knowledge!

I suspect that almost everyone in this room has some story or stories that illustrate Lawrie's interest and ability to facilitate some personal event in life.

What these small examples sum up to -- and what, I'm sure, many in this room are experiencing -- is the recognition that what we do for ourselves dies with us, but what we do for others -- and for the world -- remains. Lawrie's life with friends documents that adage.

<u>Testimonial of Peter Pauly</u> – Vice-Dean, Rotman School of Management, University of Toronto

This is a poignant occasion. I vividly recall the event we had in this space on the occasion of Lawrie's retirement many years ago. And now we're here to celebrate his legacy. I come to this with two perspectives. One of having worked with him for more than 30 years, and having been his colleague here at the University of Pennsylvania, where I had the wonderful opportunity to appreciate him as a scholar. But more importantly, I am one of the many from all over the world – some of them in the room tonight – who were drawn into his orbit by his example as an academic with an inspiring vision as well as a humble personality. His impact on several generations of young applied macroeconomists was second to none.

And what attracted so many of them was not just his academic stature, but his fundamental humanity, his concern and respect for everybody he dealt with. He and Sonia made young folks all over the world feel appreciated and valued. That – more than anything else - is what all of us are most grateful for, to both of them.

And, over the years I have learned two valuable lessons from them. First, never complain. We have traveled the world together, through some fairly miserable places. And I have not once heard them complain about anything. That is what fundamental decency and respect demand. And I learned never to fall asleep while driving. I can recall trips on the I-95 where Lawrie would periodically fall asleep at the wheel, which you would notice by the car slowly accelerating. But he never hit anything.

So the gods endowed him with lots of wisdom and a little luck. We all miss him.

<u>Testimonial of Francis X. Diebold</u> - *Paul F. and Warren S. Miller Professor of Economics, Professor of Finance and Statistics, University of Pennsylvania*

I owe an immense debt of gratitude to Larry Klein, who helped guide, support and inspire my career for more than three decades. Let me offer just a few vignettes.

Circa 1979 I was an undergraduate studying finance and economics at Penn's Wharton School, where I had my first economics job. I was as a research assistant at Larry's firm, Wharton Econometric Forecasting Associates (WEFA). I didn't know Larry at the time; I got the job via a professor whose course I had taken, who was a friend of a friend of Larry's. I worked for a year or so, perhaps ten or fifteen hours per week, on regional electricity demand modeling and forecasting. Down the hall were the U.S. quarterly and annual modeling groups, where I eventually moved and spent another year. Lots of fascinating people roamed the maze of cubicles, from eccentric genius-at-large Mike McCarthy, to Larry and Sonia Klein themselves, widely revered within WEFA as god and goddess. During fall of 1980 I took Larry's Wharton graduate macro-econometrics course and got to know him. He won the Nobel Prize that semester, on a class day, resulting in a classroom filled with television cameras. What a heady mix!

I stayed at Penn for graduate studies, moving in 1981 from Wharton to Arts and Sciences, home of the Department of Economics and Larry Klein. I have no doubt that my decision to stay at Penn, and to move to the Economics Department, was heavily dependent on Larry's presence there. During the summer following my first year of the Ph.D. program, I worked on a variety of country models for Project LINK, under the supervision Larry and another leading modeler in the Klein tradition, Peter Pauly. It turned out that the LINK summer job pushed me over the annual salary cap for a graduate student -- $6000 or so 1982 dollars, if I remember correctly -- so Larry and Peter paid me the balance in kind, taking me to the Project LINK annual meeting in Wiesbaden, Germany. More excitement, and also my first trip abroad.

Both Larry and Peter helped supervise my 1986 Penn Ph.D. dissertation, on ARCH modeling of asset return volatility. I couldn't imagine a better trio of advisors: Marc Nerlove as main advisor, with committee members Larry and Peter (who introduced me to ARCH). I took a job at the Federal Reserve Board, with the Special Studies Section led by Peter Tinsley, a pioneer in optimal control of macro-econometric models. Circa 1986 Larry had more Ph.D. students at the Board than anyone else, by a wide margin. Surely that helped me land the Special Studies job. Another Klein student, Glenn Rudebusch, also went from Penn to the Board that year, and we wound up co-authoring a dozen articles and two books over nearly thirty years. My work and lasting friendship with Glenn trace in significant part to our joint formation in the crucible of Klein's laboratory.

I returned to Penn in 1989 as an assistant professor. Although I have no behind-the-scenes knowledge, it's hard to imagine that Larry's input didn't contribute to my invitation to return. Those early years were memorable for many things, including econometric socializing. During the 1990's my wife Susan and I had lots of parties at our home for faculty and students. The Kleins were often part of the group, as were Bob and Anita Summers, Herb and Helene Levine, Bobby and Julie Mariano, Jere Behrman and Barbara Ventresco, Jerry Adams, and many more. I recall a big party on one of Penn's annual Economics Days, which that year celebrated *The Keynesian Revolution*, Larry's landmark 1947 monograph.

The story continues, but I'll mention just one more thing. I was honored and humbled to deliver the Lawrence R. Klein Lecture at the 2005 Project LINK annual meeting in Mexico City, some 25 years after Larry invited a green 22-year-old to observe the 1982 meeting in Wiesbaden.

I have stressed guidance and support, but in closing let me not forget inspiration, which Larry also provided for three decades, in spades. He was the penultimate scholar, focused and steady, and the penultimate gentleman, remarkably gracious under pressure.

A key point, of course, is that it's not about what Larry provided *me*, whether guidance, support or inspiration-- I'm just one member of this large group. Larry generously provided for all of us, and for thousands of others who couldn't be here tonight, enriching *all* our lives. Thanks Larry. We look forward to working daily to honor and advance your legacy.

Testimonial of Ignazio Visco - *Governor, Bank of Italy*

Dear friends, it is so nice to be here to honor and remember a person who gave us so much, with his work, his teaching and his generous advice. His contributions go well beyond his scientific achievements. The fact that we are here today from all over the world clearly shows how intense and far-reaching his career, his life and his dedication to knowledge, progress and peace have been. In this perspective, Lawrence (Lawrie or Larry for most of us) Klein was a visionary leader, a true citizen of the world.

Each one of us has many memories and anecdotes that we could share. I will try briefly to go through a few of mine that belong to my days at graduate school. But I must say right away that meeting and exchanging views and research with Larry Klein over more than forty years has really been a great privilege for me. My wife Bianca and I will always be grateful for having been so fortunate as to share so many moments and exchange so many thoughts with Larry and Sonia in so many different places in the world, our homes, universities, research centres, restaurants, museums and so on, always as if we had just met the previous day and always with true interest in our projects, achievements and the normal labours of life.

Among many personal memories, I well remember Larry’s interest in my career, as I moved from junior economist to Head of the Research Department in the Bank of Italy in 1990, his help and advice when I was offered the position of OECD chief economist in 1997, his generosity in organizing and editing the book of essays in memory of Albert Ando in 2003-2004, and our correspondence in 2004-2005, when the publishing house il Mulino decided to include a collection of Italian translations of his most relevant papers in a series of books of contributions by the greatest world economists – which I was asked to edit and write a comprehensive introduction to his professional life and scientific contributions. I am glad that I have been able to use this introduction, revised and updated, to write an article on Lawrence R. Klein and macroeconomics, econometrics and economic policy that has just been published in the Journal of Policy Modeling. I also remember his kind words when he was interviewed by an Italian newspaper on the occasion of my appointment as Governor of the Bank of Italy in 2011.

So, back to my student years. I came to Penn in 1972, with a well-known (at least in my country) Bank of Italy scholarship. I had worked the previous year on a thesis on interest rates and inflation expectations, going through the then hot debate between monetarists and Keynesians, and I was as familiar with Lawrence Klein's name as I was with Franco Modigliani, Albert Ando and Milton Friedman, at the time very much engaged in that debate. I completed my application to graduate schools a bit late and in the US I ended up being accepted by the University of Pennsylvania and the University of Chicago. I came to Penn partly because I had heard of the harsh Chicago winters (only to discover that winters in Philadelphia can be really bad too…), but above all because I wanted to make real progress in econometrics and Larry Klein was the dominant figure at the time.

I remember with fondness those two years of graduate school, Herb Levine's and Bob Summers' house parties for incoming students, the classes, the prelims and field exams, the term-papers I wrote, with Jerry Adams, Richard Easterlin, Albert Ando and of course Larry Klein (actually two papers for the two courses I took with him). And I remember how dedicated he was in reading his students' essays, his interest in our research projects and proposals, his suggestions, handwritten on the papers as well as in conversations (as if he had not much else to do!). In the Spring of 1974 I continued to work on one of these papers and presented a much refined version to the econometric workshop. It was on the asymptotic properties of a new iterative instrumental variables estimation method for a linear system with serially correlated errors, and Klein offered many comments, among which that of working on the convergence properties along the lines of a paper by Denis Sargan, already a legendary scholar at the London School of Economics, in a Colston papers collection published a decade earlier. There, Sargan had used a fixed-point theorem to prove convergence of the famous Cochrane-Orcutt estimation technique.

This was, then, a good start for a dissertation, but after two years, all exams and other duties completed except for my dissertation, I decided not to lose my Bank of Italy job and go back to Rome. Larry and Sonia tried to convince Bianca and myself to stay in the US, suggesting that I would have certainly found a job at a good university and proposing some that were certainly very appealing. But the lifestyle and conditions of those times were very different than they are today, it was not a global world, and we felt we had to go back to have and raise children where we came from. So we left, and I did not even follow his last advice and apply to the University of Louvain, which Giorgio Basevi – who is here with us today – was then leaving to go to Bologna, where he was fundamental in having the Prometeia model built and becoming part of the LINK project.

Back in Rome, I quickly understood that there was absolutely no interest at the Bank in my research in econometrics, realised that new substantial contributions on the subject had been put forward by Hatanaka and Hendry, and therefore decided to change my dissertation topic. Ando and Klein accepted to be joint supervisors of this new effort – on the measurement and formation of inflation expectations – and in July 1975 I took leave from the Bank and, also thanks to an Economic Research Unit fellowship offered to me by Jerry Adams, I came back to Penn for a seven month period with Bianca and our first newborn daughter. But I was able to make progress on only half of my dissertation, and the reason, if not the fault, was Larry's.

This is the story as I remember it, today. A working paper had just been circulated by the MIT young econometrician Jerry Hausman, proving that the so-called full information iterative instrumental variables estimator (FIVE), iterated until convergence, produced the same numerical estimates as the maximum likelihood estimator (FIML). In a previous well-known paper, Klein had claimed that FIML estimates needed at least as many observations as endogenous and exogenous variables present in the whole system. But FIVE needed only as many observations as the variables present in a single equation of the system, so it appeared that Klein's claim was at odds with Hausman's result. As a matter of fact, Larry had proved sufficiency not necessity. But was Hausman right that Klein's degrees of freedom condition was not necessary? When I returned to Penn in July 1975, Larry had just asked another graduate student of the time, Bill Brown, to work on this problem as part of his dissertation. As I had previously done work on iterated instrumental variables estimators, he asked me to look at it as well. This I did with Bill, and it took us a couple of months to show that Klein had been fundamentally right and to make some progress of our own: with standard homogeneity conditions, the number of available observations had to exceed that of all variables in the system. This, by the way, appeared also to have been proved in a rather obscure (at least to us) appendix to a 1975 IER paper by Denis Sargan himself. Hausman's paper was eventually published in Econometrica, without addressing Klein's claim. Obviously Klein knew he was right, having used FIML to obtain actual estimates of linear systems of simultaneous equations. Ex post, it seems obvious to me that, had Klein's condition not been respected, it would not have been possible to reach convergence, i.e. there would not have been a fixed point in the iteration process, something that probably could have been proved if only I had remembered his previous suggestion to go back to Sargan's work on Cochrane-Orcutt… Anyway, so far so good, and our joint effort was worth the first (co-authored) chapter of Bill Brown's dissertation. But I ended up spending less time than planned in Philadelphia, and left to go back to Rome with my dissertation still unfinished.

In the second half of the Seventies I became heavily involved in the Bank's research and policy analysis on wages and inflation, as Italy struggled with stagflation, wage indexation and labor unrest. As Head of the conjunctural office in 1979-1980, I was also very busy in providing the Bank's policy makers with reports, forecasts and assessments. There was no time, then, to make any real progress on my dissertation. In the fall of 1980, however, immediately after Klein was awarded the Nobel price, the Bank of Italy hosted a LINK meeting in Perugia. Larry was much honored then by all of us. And in his ever calm way, but with a somewhat polemical undertone, he asked me the obvious question: why did I not finish my Ph.D. dissertation? He would accept no excuse, and that gave me the determination to come back to Penn in the Summer of 1981, this time with a leave of absence generously given to me by the Bank. My main advisor was then Albert Ando, following the explicit suggestion by Jerry Adams that it was all very well to have Larry on my dissertation committee but I would have then run the risk once again that it would take longer than expected… Albert was keen for me to write my dissertation under him, and Larry was glad to talk about it anytime, something that he did with his usual generosity, without having to go over all of it himself. The third committee member was another friend, Bobby Mariano, and in three months the dissertation was completed and successfully defended, only for me to be told afterwards by Larry himself that more work was needed… This time it had nothing to do with my economics or econometrics, but with my English… So I stayed one more month in Philly, with Bianca and our then two daughters back in Rome, and recurred to the professional editorship of a person – I still remember his name, Elmer Luke – from whom I benefited a lot, also for my English writings in the following years. And so also for this, as for so much else, I must give thanks to Larry Klein's interest, advice and friendship.

Testimonial of Massimo Tivegna – Professor of Political Economy and Econometrics, University of Teramo, Italy

Klein and the Perugia poster

Larry was in Italy the day after the Nobel award to him was announced by the Royal Academy in the fall of 1980. He was at the School of the Bank of Italy, in Perugia, for the biannual meeting of LINK. The event spread around immediately and the following day the *Corriere dell'Umbria* titled on its front page "*Il Nobel Klein a Perugia*". The copy of the newspaper poster remained always with him since then. Even at his retirement home, where he lived, till October 20, 2013.

I was quick and lucky enough to grab a copy of the poster. I folded judiciously, preserved with "tender loving care" (Larry's words for handling models, as quoted by Visco, Journal of Policy Modelling, 2014), brought it to the US, had it framed there and presented to him at WEFA (Wharton Econometric Forecasting Associates). It remained there in the lobby till when WEFA was located there. Then it was moved to his study room at home in Wynnewood, firstly, then to the smaller one, in Haverford. The framed announcement eventually found a place in his tiny study at Waverly Heights, in Gladwyne, where it is still in pleasant company of his wife Sonia.

As Larry told me once, a big part of his affection for the poster was seeing the solemn Nobel announcement, so important to him and to many others, blended with a few local events so noticeable for common people in a tiny part of the world – such as the explosion in a laundry in Perugia, the economic situation in Val Nerina, after a flood, and other similar ones.

This story explains a lot of Klein's personality: being able to move very smoothly - and with the same attention - from giving the Nobel Lecture in Stockholm, or from giving the Ely Lecture as

President of the American Economic Association (AEA), or from being always available to his students and with the door open in his office, through to cleaning the home dishes, a domestic task reserved to him and executed with great talent, in the words of Sonia. All that in an unbelievable and unbreakable continuum.

Klein and Italy

At the same 1980 LINK meeting in Perugia, I presented a paper on a macroeconometric model of the Italian economy (DyAnnMod, Dynamic Annual Model, the model of Diana, my daughter, who saw its construction from the cradle). The model was built in eight months (October 1979 – May 1980), under Larry's supervision and advising, at WEFA, where I was on secondment from the Confederation of Italian Industry (Confindustria).

The model – in my specification and under my coordination - was used by Confindustria in the following ten years in public seminars where its forecast and policy prescriptions were presented and discussed, with a big echo on the economic and financial press. Larry came a few times to give the world outlook, exogenous and crucially important for DyAnnMod.

The model, in later years, underwent a necessary check-up and upgrade by Confindustria staff and it is still used today, with the same annual data frequency and roughly in the same seminar format, under the technical supervision by WEFA-veteran Pasquale Capretta.

Confindustria was not the only Italian Institution to have had deep and long-lasting contacts with Larry Klein.

The University of Bologna, the Bank of Italy and the IBM Scientific Centre in Pisa were important "ports of call" for him. The first – and its offspring Prometeia – have been one of the most important LINK centres in Europe, since the mid-seventies. The Bank of Italy - besides the continuous inspiration in its extensive modelling activity – had an important liaison with him through Ignazio Visco. A Penn PhD and student of Klein, formerly Head of the Research Department, builder – in team - of the econometric model of the Bank. And now Governor.

Klein and the Human Opportunities

Years later, in 1991, Larry demonstrated another key aspect of his personality: always being able to match a public and professionally acceptable outcome with personal situations.

In that period, after having moved permanently into academic life, I was looking for an occasion for my daughter Diana, twelve years old, to spend sometimes in an American middle-school. At the same time, Larry told me that the Economics Department had a frequent need for undergraduate teachers.

And what about the housing and living expenses, if I wanted to apply for one? No problem! Larry and Sonia had an invitation for and extended period at one University in Japan and needed a “house-sitter” (his words). So it happened for my family (me, Cristina, my wife, and Diana) to take the job and acting in this responsible, but comfortable, capacity. Other people had the same task.

Larry took care and made it possible for Diana to be a pupil in Bala Cynwyd Middle School. I taught a Macroeconomic course at the Wharton School and had the opportunity to sit in an “Advanced Time Series” class at Penn, where Frank Diebold gave an important brush-up to my econometric skills. That allowed me to survive, years later, in the world of high-frequency exchange rate econometrics.

Klein the Scientist and the Professional

I learned most of my initial Econometrics at the University of Minnesota and later in the Research Department of the Bank of Italy. At Minnesota I had two very young teachers Christopher Sims and Craig Swan (respectively MIT and Yale PhD), studying on very “classical” textbooks: by J.Johnston and L.R.Klein. Plus Sims’ AER paper on Causality and something else.

No unit root concept and its statistical consequences were ever mentioned in my early education and practice (at the Bank of Italy, in the “Econometric Research” office). Neither Klein was ever too much worried about it. Simply because he was culturally and professionally aware of the damages of trending variables and how to cope with them.

In estimation, he was typically aiming at capturing long-term relationships, cointegrating regressions therefore. When estimating short term adjustments or short-term dynamics, he was generally using delta-log. Typically in the price-wage-productivity block. He also knew of the error correction specification, even though he preferred to estimate the return to equilibrium by imposing restrictions on distributed lag coefficients. In some cases, lack of data, the nature of economic phenomena and the importance of having one particular equation in the model, for overall dynamics or multipliers correctness, persuaded him to estimate spurious regressions.

But in forecasting he remembered of them and was thoroughly equipped to deal with trend problems. In my period at WEFA (1979-80) and in the very frequent discussions on his models and on how to adapt them to the Italian environment, he never used the term “spurious regression” (even though the Granger-Newbold paper had already been published and certainly known by him).

But he was fully aware of the forecasting damage caused by trending variables. He suggested to treat this kind of regressions with various varieties of constant adjustments, whenever external new information and common sense would suggest that the trend had taken a different shape. He was an enthusiast of stochastic simulation in order to address the same problems and also those of coefficients distortion. So he became an excellent “client” of IBM Scientific Centre - and its free computer time - below the Leaning Tower of Pisa.

“Tender loving care” was necessary to manage his models, especially for forecasting. Plus the honest, rigorous and deep scientific mentality he showed consistently throughout his life.

(*) Some parts are from M.Tivegna, “Lawrence R.Klein: the Scientist and its Ties with Italy”, Rivista Italiana degli Economisti, XIX,2, August 2014.

<u>Testimonial of David L. Crawford</u> - *Senior Fellow in Wharton Management Department and President of Econsult Corporation*

Bobby Mariano asked me to tell a story tonight that I have told in public only once – at Dr. Klein’s Retirement Dinner in 1992. For those few of you who were at that event, please excuse the repetition, but I do have a post-script for you.

My friend Djavad Salehi-Isfahani was an Assistant Professor of Economics here at Penn in the late 70s and early 80s. He was an Iranian national working under an H1 visa. In the fall of 1979, he took a leave of absence from Penn to complete a mandatory year of public service in Iran at the Central Bank of Iran (and to satisfy his personal curiosity regarding life in Iran after the Shah).

As you know, soon thereafter all hell broke loose in Iran. In November 1979 the U.S. hostages were taken, and it became virtually impossible for Iranian nationals to travel from Iran to the U.S.

Djavad was stuck in Iran with no way to return to the U.S., but he did manage to get to France to present a paper at the September 1980 World Congress of the Econometric Society in Aix-en-Provence. When he got to France, he went to the U.S. embassy in Paris where his existing H1 visa was annulled, and he was told to go back to Iran. Djavad pleaded with the embassy officer that his wife and job were in the U.S. and that none of the mess was his fault. The officer asked Djavad if he had ever watched *Dr. Zhivago*, presumably referring to the story of a man caught up in world-changing events beyond his control.

At the Econometric Society meetings Djavad sought out two of his junior Penn colleagues, Jacques Crémer and Douglas Blair, to tell them about his situation and his eagerness to return to the U.S. and to Penn.

Upon returning to Philadelphia, Crémer and Blair immediately tried to get Penn involved somehow, but that proved to be very difficult. Crémer and Blair came to my office to vent their frustration. I suggested they talk to someone with real national clout and walked with them down the hall to Lawrie’s office. As usual, the door was open and Klein was welcoming. Crémer and Blair told the story, and Klein was clearly touched by the unfortunate plight of one of his colleagues. He said he would see what he could do.

I'll probably never know exactly what Lawrie did, but it is well known that he was extremely well connected with the Carter administration at the time.

One morning in October, it was announced that Klein had won the 1980 Nobel Prize. When I got to the office, it was a madhouse with press and well-wishers everywhere. Those who knew Lawrie will not be surprised to hear that he was insisting that he had to excuse himself to teach his scheduled class. He was eventually convinced that it would be better to let Albert Ando cover the class.

When I worked my way through the crowd to convey my congratulations, Klein told me that he had already received congratulations that morning from the U.S. Embassy in Paris along with the news that Djavad was on his way to the United States. He told me to keep it to myself, and I did for many years.

There is a post-script to the story that I learned only a few days after Dr. Klein's death.

When Djavad returned to Penn he was eager to thank Klein for what he had done. He walked into Klein's office and was about to utter the brief remarks he had carefully prepared. As he started to speak, Klein smiled, shook his head and subtly pointed him toward the door. Djavad aborted his remarks and the story was never told publicly until I told it at Klein's retirement dinner many years later.

Tonight and tomorrow we will remember Lawrence Klein in many different ways - as a brilliant scholar and influential teacher. I will always remember him first as a humble, gentle colleague with an extremely good heart.

Testimonial of Suleyman Ozmucur – *Visitor, Department of Economics, University of Pennsylvania*

Thank you very much, Bobby.

Dr. Klein is a true mentor and an inspiration for all of us. He has opened so many doors and provided incredible opportunities for me and for my family. We are all grateful forever for everything that he has done for us.

I consider myself to be very lucky for having learned so many things from Dr. Klein, first from his publications and then in person.

I sent a copy of my "An Econometric Model for Turkey" to Dr. Klein in early 1985 that he responded (not many people do that). In our meeting in 1986 in Istanbul for Applied Econometrics Society, he graciously invited me to attend Project LINK meetings. I have been a member of the extended LINK family since then. Project LINK gave me a chance to establish relationships with the best economists all over the world.

Dr. Klein, Bobby Mariano, and Jerry Adams were instrumental for a visiting position at the University of Pennsylvania in 1997. The visit lasted longer than a year, and I had a chance to work on the Current Quarter Model and other papers and projects with him. The Department has been very generous to me because of him.

Dr. Klein has helped all of us to put everything in perspective. In the last LINK meetings that he attended (October of 2008, in the mist of the worst financial crisis of the post world war II era) all of the speakers before he started their talk almost with the same sentence “We have not seen anything as bad as this crisis.” When it was his turn, he started with a different sentence “I have seen worse” and got a big supporting laughter from the audience, and then compared an economy in a “great depression” with the one in a “great recession”.

I am deeply saddened by the news of Dr. Klein’s passing. I have lost a great mentor, an esteemed colleague, and a very good friend. The world has lost a visionary, a great econometrician, a well-respected academician, and a wonderful person with virtues unmatched. I consider myself very fortunate and honored to have known him and had the opportunity to work with him for almost three decades. I have learned something new every time we have met, almost daily during the first decade of this century.

It is really very hard for me to find words to express genuine emotions and true level of gratitude. I cannot think of a better way to honor him, but try to follow his path and continue providing forecasts with updated data on a regular basis.

We miss him very much. Knowing that he had a wonderful wife and family, an outstanding career with incomparable accomplishments, and many friends, colleagues and students all over the world to continue his legacy eases our pain.

<u>Testimonial of Tayyeb Shabbir</u> - *Professor of Finance, Department of Accounting and Finance, California State University – Dominguez Hills*

Thank you, Bobby.

I was very fortunate to benefit from Lawrie Klein by being one of his students as well as honored to be his colleague at Penn.

My singular experience that I have chosen to highlight tonight to mark the memory of Lawrie Klein is to recall the fantastic opportunity that I got to co-author and co edit with Lawrie Klein a volume on financial crises published by Edward Elgar in 2007. His interest in this subject showed the breadth of Lawrie’s intellectual palette which undoubtedly went beyond pure econometrics and macroeconomic forecasting -- areas, of course, that he is best known for.

Rather than describe the contents of the volume, I want to share with you how Lawrie treated his colleagues in the profession with tremendous generosity and ample praise. I would often draft an email or a letter to a prospective contributor and I would be quite polite and complimentary. However, Lawrie would always find a stronger language to compliment the addressees. For example, if I would say "As an expert in the field, we would like you to contribute" he would change it to "As a renowned expert in the field with remarkable accomplishments, we would like you to consider contributing etc." I hope that I have been able to convey the idea that I found Lawrie to be very generous with his praise of the colleagues he would deal with.

Given his tremendous professional accomplishments, Lawrie's generosity and humility are two really memorable things about him. To my mind, in the world, there are many people who are humble and many who are accomplished but very few who are both. Lawrie was both and, for me, that was one of the most endearing characteristics of Lawrie.

Thank you.

Tayyeb Shabbir

Testimonial of Choongsoo Kim **-** *Former Governor, Bank of Korea; currently, James Joo-Jin Kim Visiting Professor of Korean Studies (2014 -2015), University of Pennsylvania*

Thank you very much, Bobby, for giving me an opportunity to speak on this important occasion. I'd like to begin by saying that Professor Klein loved Korea at least as much as he loved Pakistan, Turkey, and Italy (*referring to the countries of previous designated speakers*). I volunteered to speak as I know that I would regret much had I not spoken a few words about the close relationship between Korea and Professor Klein. I have two episodes to share with you.

The first one was the hosting of the Annual Link Meeting in Seoul in 1988. I was attending a conference in Washington D.C. in late January and heard a rumor that Professor Klein was in difficulty in finding a city that would host the annual Link Meeting. The rumor was that a city that was originally scheduled to host the meeting withdrew its proposal recently for some reasons. I came to Philadelphia and met Professor Klein at his office and was able to confirm that the rumor was true. I suggested then that Seoul would host the Meeting instead. I discussed the details with Professor Gerry Adams. This is how the annual Link Meeting in 1988 took place at the Korea Development Institute, at which I served then as a research coordinator. Such a meeting provided an important opportunity for Korean econometricians to meet with the renowned econometricians of the world as well as getting acquainted with the Link Model. I still vividly remember a speech that I delivered at the farewell dinner that I and my fellow Koreans who studied at the University of Pennsylvania should not forget that we are all heavily indebted to the University for providing us with excellent education and we all keep making continuous efforts to pay back our debts. One thing that I did not reveal at that time was that I had a real hard time in dealing with the visa issues for the participants who came from the formerly Socialist countries with whom Korea did not have diplomatic relations. We normalized our diplomatic relations with China only in 1992 thus special consideration was needed from the Authority of Foreign Affairs for all them to enter Korea. Anyhow without exception all of those received special permissions to join the Link Meeting.

The second episode is related to the invitation of Professor Klein to a special symposium. Korea has a 5-year single term President. In the middle of 2003, the then Government decided to organize a big international symposium to commemorate the first anniversary of the Government on the 25th of February, 2004. The Deputy Prime Minister and I (as President of the Korea Development Institute) were co-hosts of the symposium. We decided to invite one Nobel Laureate as a keynote speaker. After long discussions and deliberations, we decided to invite Professor Klein as a keynote speaker. And in addition to a keynote speech, Professor Klein also gladly accepted to chair the first plenary session at my request. On the evening, all participants were invited to the Blue House for dinner. Professor Klein and I were invited to the head table and Professor Klein sat beside the President. A question arose at the table, just for curiosity, how a decision is made to invite Professor Klein among many Nobel Laureates. It was a quite unexpected question. I heard a low voice saying that Dr. Kim was a student of Professor Klein. I answered loudly that Professor Klein was the only Nobel Laureate who knew Korean economy and understood East Asian economies including Chinese and Japanese economy, thus there was no other alternative. Everyone at the table nodded approvingly. I may still offer an apology for the Nobel Laureates, if there are any, who know East Asian economies.

The last time that I met Professor Klein was three years ago. I was invited to deliver a speech at the Annenberg Center and on that night I invited Professor Klein and a few other professors to dinner. We had a nearly three and half hour dinner discussing financial crisis and other economic issues. Upon leaving, I said to Professor Klein that I learned from him not only economics but also the way to live a life sincerely.

Thank you for listening.

Testimonial of Pingfan Hong - *Director of Development Policy and Analysis, Department of Economic and Social Affairs, United Nations*

I would like thank Bobby for this chance to pay my tribute to Professor Klein.

If I was not the last PhD student of Professor Klein, I must be one of the last. I am a junior compared the seniors who have just spoken.

I was fortunate to have not only studied under his supervision for four years at Penn, but also worked closely with him for more than 20 years in Project LINK, after I transferred the LINK modelling system from Penn to the United Nations in 1989. I am currently the Director of Development Policy in the UN Secretariat.

The previous speaker, former Governor Kim of the Central Bank of Korea, said that Professor loved Korea more than any countries. I would like to attest that Professor Klein loved China more than other countries. In fact, he loved all countries, he loved the United Nations, and he loved the whole humankind.

I just want to share with you a few anecdotes to show his connection with China and his contribution to the United Nations.

Two Italian friends tried in their earlier speeches to link Professor Klein's Nobel Laureate to his visit to Italy, as he paid his visit to Italy right after he received the Nobel Prize. But I remember Professor Klein once told me that his first visit to China in 1979 brought him the luck so that he received his Nobel Prize in 1980.

He led a group of American economists to China in 1979, when China was just embarking on the reform and open-up policy. By then, China's economy was a mystery to the rest of the world. He told me that he went to the largest department store in Beijing along with a few American economists and their Chinese counterparts to do an "econometric analysis": measuring the size and the weight of some textile products, calculating the unit price of those products, and then comparing it with the average wage of Chinese workers. By the end, he managed to estimate China's GDP. That was probably the first GDP estimate for China.

Afterward, he went back to China many times, more than I did after I left China. The annual lecture on Econometrics in the Summer Palace of Beijing he initiated continued for a few years. Many of those who attended the lecture became academic leaders or policymakers in China. It is not an exaggeration to say that he introduced modern economics to China.

In the 1980s and early 1990s, whenever he accepted China's invitation to pay a visit, he would always try to stop over in Japan, so that he could ask the Japanese hosts to cover his international travel while saving money for his Chinese hosts, as he knew China was still a poor country in shortage of foreign exchange reserves. I know there are a number of Japanese friends at the dinner today, and I am sorry if you feel that Professor Klein had "exploited" Japan to pay his trip to China.

In many times, his insights of China's economy turned out to be deeper and more accurate than many Chinese economists, as he carried out rigorous studies of many issues in the Chinese economy in details. For example, in early 2000, when a few American economists claimed that China's GDP had been overestimated, based on only a couple of indicators, such as electricity output, you and your assistants spent several months digging into huge amount of data and testing a number of econometric estimates, and eventually published a study to show that China's GDP had actually been underestimated. One year later, when the Chinese National Bureau of Statistics released a revision of the statistics for the past ten years based on the census, China's GDP for the decade between 1994 and 2003 was indeed revised upward by about one percentage point for each year on average, very close to your independent estimate

Professor Klein contribution to the United Nations went back to early 1970s. A few a years ago, when we moved our office in the UN Headquarters, we found the documents of the LINK meetings at the UN dated 1973. He continued his support to the economic research and forecasting activity at the UN until 2008 or 2009 (when he felt difficult to travel). Even in the last few UN LINK meetings he attended, he would not only chair the opening, but also present seriously his forecasts for the US economy by using slides. Over time, he had come to the UN numerous times, giving speeches to the delegates.

The LINK model he started has undergone many changes, and the computer today is much faster than earlier day when I was working with him at Penn: I still remember the late nights we spent in the McNeil Building to produce the forecast, but today a laptop need a few second to run the simulation to produce the forecast for the world economy.

However, we still stick to the two principles he set for Project LINK: First, he believed economists living their own countries know better their economies than those in the international organizations, such as the UN and the IMF; and second, we have to study the world economy through linking all countries together, as they are interconnected. We still invite economies from their countries to the UN LINK meeting. In fact, I just came from the LINK meeting which we held at the UN for the last three days, and I see a dozen colleagues at the dinner today also come directly from the LINK meeting.

In this sense, Larry is still alive. He is living with the LINK model, and with the all of us.

Let me conclude. Professor Klein is not only an intellectual giant, but also a paragon of virtue and a saint of kindness.