

Interview with Jay Siegel

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Jacob (Jay) S. Siegel is a former senior statistician for demographic research and analysis at the U.S. Census Bureau and former senior research scholar and professional lecturer in demography at Georgetown University. He is formerly President of the Population Association of America and a Fellow of the American Statistical Association.

Siegel is a recognized leader in statistics and demography. He has published numerous books and articles in applied demography and gerontology. He co-authored the *Methods and Materials of Demography*, a textbook that is still in use throughout the world. He is one of the pioneers of the current population estimates and projections program at the U.S. Census Bureau. The estimates serve as controls for many national surveys.

Siegel understands the challenges of census taking. In the interview, he reflects on the ever present need for providing timely data, while maintaining cost, quality, and confidentiality. In the early years of his career, sampling was introduced in the census for the collection of socioeconomic characteristics. Today, a rolling sample survey collects the data.

The interview portrays the careers of a true scholar and public servant. He has never shied away from a challenge. He welcomes the opportunity to step into uncharted territory and to push himself beyond his comfort zone.

1. Can you tell us about how your career got started? Have you always had an interest in statistics and how did you get interested in population statistics or demography?

I was not interested in statistics at the start. In undergraduate college, my main interest was in Indo-European linguistics. With that in mind, I continued my studies of Latin, Greek, and French that I had be-

gun in high school and took courses in cultural anthropology and linguistics. Although it was not statistics that I got into at first, I began to feel by the third year of undergraduate college that I was not going to find a job easily in the area of linguistics. In my third year I had a class in Latin and I was the only student in the class and that disturbed me. I turned then to sociology and statistics because, while I had taken courses in the various languages and linguistics, I really was rather catholic in my interests and had already taken some courses in sociology and other social sciences.

2. When did you start working at the U.S. Census Bureau?

It was in the early 1940s. I entered college when I was about 15^{1/2}. I had already had a bachelor's degree out of high school. Receiving a degree was then true of graduates of the Boston Latin School and the academic-course graduates of the Philadelphia Central High School, which I attended. Off to college I went with a bachelor's degree at age 15 and then spent four and a half years as an undergraduate getting another bachelor's degree after changing colleges along the way. By the third year, I was enrolled as a major in sociology and that is what I stuck with, but in graduate school, I began to wonder what I would do with *that*. In those days, sociology was rather theoretical, not very quantitative, but as I mentioned I had already taken a one-year-course in statistics. In graduate school, I took the one and only course in population offered as part of the sociology program, and when I learned about jobs at the U.S. Census Bureau, I applied and was invited to come and take a job at the Census Bureau. So, I went off to Washington.

Interviewer: Were you in the brand new buildings in Suitland or was it in downtown Washington?

I was in the new one – well, you do not mean the new, new one. It was the old, new or original two buildings on the campus in Suitland.

Interviewer: FOB3 and FOB4.

FOB3. Right. It was then made into the Census Bureau, as I understand, after being considered as some sort of hospital or some other kind of building. You see the design with wings as you might find in a hospital.

3. What was your first job like? What assignments did you have?

Well, at first I was a statistical clerk in the Business Division. I immediately decided that I had to try for something else in the Bureau. I sought an appointment with the Chief, Personnel Division, and she agreed to talk with me. At first, when I arrived, I was told there were no professional jobs in population work, the only field in statistics I had thought of working in. But then she got on the phone and called Dr. Henry Shryock, Chief, General Population Statistics Branch, Population Division. I was asked to come up to his office, where I was offered a professional job on the spot – this, after spending about a half dozen weeks as a statistical clerk. And so my job as a Junior Professional Assistant Statistician, as the position was then called, began.

I cannot recall my work as a statistical clerk but, once in the Population Division, I received assignments from various members of the branch who had me, for example, check the historical series in earlier censuses on various types of tabulations. [Note: In those days the census reports included many historical series along with the new census data – something no longer done.]

4. We are all influenced by the people that work with us. The Bureau was fortunate to hire people such as yourself. Did anyone make a difference in shaping your career? Who else was around that you think made a difference in the field of statistics during the years you worked at the Census Bureau?

Interviewer: That is how you got started working with Dr. Shryock?

Exactly. I don't recall if I worked directly for him all the time. I must have worked with two other people who came from the same, shall I say, cohort as he. That was Dr. Paul Glick and Dr. Henry Sheldon – both

chiefs of other branches. All three had doctorates from the University of Wisconsin and specifically in population quantitative work. They were great scholars. I worked in Dr. Shryock's branch for a few years, and shortly after arriving in that office, I was assigned to Wilson Grabill.

Interviewer: You are talking about pioneers in the field.

Well, Wilson Grabill was the fertility specialist. He was a top-notch mathematician, and especially to be noted was that he was deaf. Our oral communication was never very effective, but we communicated in writing and in a kind of, call it, "broken" one-way sign language from me. He would write a note to me on whatever piece of paper he happened to have with him wherever it might be (it could be in the lunch line). He was a tremendous scholar, a graduate of Gallaudet College, who taught me and inspired me to learn some higher mathematics. So those were the people who influenced me at first.

Then, along came Dr. Hope Eldridge, who was a new PhD from North Carolina, and I was assigned to her when it was decided to expand the population estimates program. This was not a subject with which either she or I were very familiar and it was typical for her to consult her friend, Dr. Margaret Hagood, who worked in the US Department of Agriculture, on statistical matters. Dr. Hagood had just published a book on Statistics for Sociologists that had a long chapter on population statistics.

Interviewer: We are talking about the 1940s.

Yes. That is all during the 1940's. That is how we learned the business – inventing it as we went along and teaching each other. Then into the picture came other people. There was a new cohort of workers at the Bureau. They were a mixture of mathematically trained and statistically trained people, all virtually out of New York City. I began to work more with these people as time went on. There were Ed Goldfield, Dave Kaplan, Joe Steinberg, Joe Waksberg, and Dan Levine, and others. The person I was assigned to for a time was Norman Lawrence, who also was a good mathematician, though not formally trained in statistics or demography as far as I recall. I was assigned to Lawrence when Shryock was away and to Eldridge when Lawrence was away. Shryock and Lawrence had assignments related to war service, one civilian and the other military. Those were the "early" people. I also worked for Dr. John Durand during this period.

Interviewer: John Durand, from my dissertation committee, how about that.

John Durand replaced Henry Shryock temporarily when Shryock was on civilian war duty in the South Pacific. There were civilian war assignments for technical specialists you see. During the war under the direction of Dr. Irene Taeuber, Hope Eldridge and I had a special assignment making population estimates and projections of the prefectures [states] of Japan. I learned the skills of the demographic statistician from each of these people and how to write technical reports. John Durand had this remarkable skill of writing down his material without having to edit it; once he wrote it, it was ready for publication, or whatever he had to do with it. Did you find that out about him?

Interviewer: Yes. I noted that when he was on my dissertation committee at the University of Pennsylvania and I was doing historical trends and cohort analysis of the labor force. I also remember looking at the 1910 Census and there was E. Dana Durand, his uncle.

That is his uncle, that is right.

Interviewer: And the picture of the directors on the wall in the Census Bureau's Conference Center shows the resemblance.

That is right.

The people in those days represented two different personality types that I had to try to understand. There were the sort of, what shall I say, scholarly, formal, conservative types like Henry Shryock and John Durand, and the Chief of the Population Division, Dr. Leon Truesdell. Then there were the other guys, very informal fellows who dressed differently, talked differently, out of New York. I do not know where I would put Dr. Eldridge.

By the mid-to-late 1940s things began to get back to the way they were before the war of course. Eldridge and Durand went off to the University of Pennsylvania and the United Nations. At that point, John Durand invited me to come to the United Nations but I chose not to go and stayed at the Bureau. Now I had many more contacts with people outside the Bureau who were very important in influencing what I learned and did. They were people at what is today the National Center for Health Statistics (NCHS), people at the Bureau of Labor Statistics (BLS), people at the Office of Personnel Management (OPM), people at the Social Security Administration (SSA) – all demographically oriented at what they were doing.

Interviewer: And the entire time you were working on population estimates?

Yes, population estimates, and in addition, we were getting into population projections. So we had to consult with the people at the SSA because they too had their program of population projections. They put out periodic reports on population projections required for planning the financing of the Social Security program. I received my training in vital statistics and life tables from the staff at NCHS (e.g., Dr. Thomas Greville, Sam Shapiro, Dr. Robert Grove) beginning when that agency was part of the Census Bureau.

Interviewer: Today, sampling is well developed, but at that time the CPS (Current Population Survey) was fairly new. So sampling techniques were still new. Even population estimates.

That is true. Sampling came in the 1940 Census, although it had previously been employed in the predecessor of the CPS during the 1930s and the principles were just being developed. That introduced a big change in the way the census was designed, and I began to have to learn about sampling. Remember I had no training in this area. I cannot remember if in my year-long course in statistics we did much in sampling or statistical inference. I had to learn all this on the job and in evening courses – and that is what I chose to do.

5. The Census Bureau is one of the leading statistical agencies in the world. What do you think have been some of the bigger challenges of the Census Bureau over the years?

Well, the challenges are fundamental to the whole process of taking the census, given the Constitutional requirement that a census be taken every ten years and an actual enumeration be conducted. How do you do this? Derive good quality data at lowest cost that will serve public needs. You have got to keep the content current, so you have the problem of whether you want to design your questions for the maximum current relevance or maximum comparability with the past. There are challenges at different levels of operation. Whether collection, tabulation, or analysis for publication, there is the problem of continually reviewing your technologies to keep costs down and keep time schedules reasonable. Underlying all this is the need to respect the privacy of the public, gain its confidence, and maintain the confidentiality of the data. These problems persist today and will continue to do so, because the problems

of maintaining cost, quality, and confidentiality and developing new technologies to respond to them will always face the Census Bureau.

Interviewer: Such as in 2020 where the Census Bureau will offer internet response.

Yes, exactly. You can see the issues with the introduction of sampling into the 1940 Census, and the recent uncoupling of the basic census count and introduction of a rolling sample survey for the collection of socioeconomic characteristics. The 1940 Census was getting too costly with 100 percent enumeration of the characteristics of the population. Add to that the emerging concerns with the completeness of the count, the differential coverage of segments of the population, response error, and possible need to adjust the data for undercount. After 1940, we confronted the quality issue head on and what to do about it, because you have to know how good the count is, to plan censuses that will be as economical and accurate as you can make them. Today, you are doing research on administrative records and you are confronted with the issue of how, if you try to use these data in the enumeration, will that conflict with the concept of enumeration. Now there is little likelihood that the Constitution will be changed and it is not wise to think that it will be. Somehow you have to live with an "enumeration". Where you can use your administrative data is to back up the quality of the enumeration, to make small inconspicuous adjustments in the census itself, and to develop independent estimates of the population census for possible adjustment if that is approved. You are already doing this with postal lists that will identify each housing unit. We continually have to ask, are we using the latest technology to carry out the most efficient census. And now the issue of privacy has become one of major concern; as we know, many people are concerned about government invasion of their privacy.

Interviewer: Of course, there is also the issue of undercounting. The question of whether or not to adjust the census for undercounting and, in particular, for differential undercounting of Blacks and Whites, has been a challenge to the Bureau for many years and, as you know, the Bureau has been forced in Federal courts several times to defend its position on this vexing question. As the quality of the census improves, this issue may abate.

6. You are considered one of the founding fathers of Demographic Analysis (DA). By essentially compiling administrative data on births, deaths, and immigration, DA shows the size of the population at any given time. Because it is independent of the current census, it has been used to measure coverage errors in the census since 1950. What role do you think DA will play in future censuses?

Let me refer to demographic analysis on two levels. One is its application in the simple population estimating/accounting equation, which says that the population ought to be equal to what it was at some earlier date plus all the people that were born and immigrated less all those who died and emigrated. Then there is a second level of demographic analysis where you use all the demographic techniques you can to evaluate the quality of the census data, for example, the use of sex ratios, or the use of life tables to link the ages of various cohorts. Demographers know a great deal about patterns of survival rates and sex ratios and how they should be compared to patterns, they have seen for different areas. They know about international variations in the quality of data, and referring, for example, to the census data from the Scandinavian countries that do very well in their data collection, they can develop standards of what those patterns should be in our country. From these data, they can develop generalized patterns for countries that have only fair data and even correct the data for censuses that are not so good.

These are the two levels of demographic analysis. Now, I do not see any basis for shelving them now or in the future. Everything I have said refers to fundamental patterns or relations of the way human beings live their lives, adding to or subtracting from the population. Note that I am defining demographic analysis to cover any technique of constructing a count that is other than a complete enumeration or some sampling procedure for deriving an estimate or some kind of case-by-case matching method.

Interviewer: So there you are talking about post-enumeration surveys and those methods.

Yes, as outside demographic analysis (DA). The big difficulty with DA – and the difficulties with the sampling methods and case-by-case matching are equally great – is the problem of getting accurate estimates of emigration and immigration. And it is likely to remain that way partly for conceptual reasons. They are surely the hardest elements to measure.

You did not ask me if the non-DA methods will persist. Do they have some kind of eternal merit? Well, they are strong methods, but as I understand it, case-by-case matching has a fundamental assumption that you need to deal with – and any variation from that is just another assumption – and that is, that there is no correlation between the two collection systems being matched, that the census and the survey are independent, whether it is the CPS being matched to the census or the Post-Enumeration Survey or other sample being matched to the census, or even two samples being matched. There is always some assumption when you make the final estimate of what is the “fourth” cell, the cell containing cases that do not appear in either the census or the post-enumeration survey.

Interviewer: In fact, in the evaluations of the 2000 Census and in the 2010 Post-Enumeration Survey, sex ratios derived from DA estimates for the Black population were used to adjust for correlation bias, where Black men are left out of both the census and the survey.

As I see it, some combination of the estimated “count” from DA and the results of dual systems analysis might give you an improved count. In general, if you have two methods with independent assumptions used jointly in some fashion (e.g., local population estimates) simply averaging them with different or equal weights will give a more accurate estimate by the standards you have at hand (usually a census) than simply going with one method. Methods have their assumptions and biases. If the methods have opposing (i.e., in different directions) biases, then averaging them, or using the tools of one to adjust the other, surely should improve the results. That is a principle that you can use in other areas as well.

7. You, along with Henry Shryock, edited *The Methods and Materials of Demography*. This publication is used to this date all over the world as the primer in demographic methods. How did this work come about?

As you may know, even back in the 1940s the Census Bureau had a program of training foreign students in census and demographic methods called something like International Participants in Census-Taking and Census Administration. The countries of the world were divided pretty sharply into more and less developed countries (LDC). There was another division of

the LDC, of course. There were the pro-Soviet and the pro-Western countries. In cooperation with the countries that were both less developed and pro-Western, we sponsored a training program at the Bureau’s offices. We also had Census Bureau specialists working in these countries to support their census-taking work. Our training office and the countries were interested in securing appropriate training materials. The Bureau ran classes in classrooms for students from many different countries, but mainly from Latin America at the start. As a training tool, one of the demographers on our staff, Dr. Abram Jaffe, prepared a manual in which he reproduced many well-known articles in demography, ultimately published as a handbook by the Bureau.

Apparently, that was not considered adequate by the staff of the International Training Office and somehow – I do not recall the details – it became known to us in the Population Division that they would like us to prepare some kind of text. There was no particular money in it at the time, so Henry Shryock went to his friend Margaret Hagood, the demographer I mentioned before at the U.S. Department of Agriculture and asked her if she would like to join him and me in preparing a book on demographic methods. But that private endeavor did not get very far. We either had, or nearly had, a contract with John Wiley Publishers, and each of us set out on different chapters. Dr. Hagood wrote in a very different style from the way Henry and I did. We also had to do all this on our own time. I was not producing my chapters very rapidly while Dr. Hagood was “knocking off” chapters left and right that I did not think were going to work. I do not know finally what brought this project to a halt, but with a big folder of rough drafts, it just fizzled out.

Then, some Bureau employees were going from our International Training Office to work in the Office of Population, AID [U.S. Agency for International Development], the very office that wanted the training materials. Somehow, during Dr. Ray Ravenholt’s direction as head of AID’s Office of Population, they were willing to put up some money for the preparation of the training materials at the Census Bureau. Shryock and I were named to do the job and that meant we could do it on Bureau time if we got approval at the Bureau – which we did. Shryock and I took over the whole thing and now we began to make real progress.

We had an editor for the volumes, Elizabeth Larmon, who was very good at it. She would handle the management, any non-technical editing, and any copyright issues. We lined up appropriate people, most of them in the federal government who we thought were ex-

perts in their field, could devote time to it, and whose office would allow them to do this. We got contributors from the NCHS and the SSA. Not all the contributors were in the government, however. And so the work proceeded. Over the course of three years, I think, 1967 to 1970, it got put together.

At the Census Bureau, Conrad Taeuber, the Associate Director for Demographic Fields, read the whole manuscript by my understanding, and provided useful suggestions. Henry and I wrote several chapters each. We read and edited the entire thing, and where we saw some problems with the text, as joint editors we simply changed what we felt had to be changed.

Each chapter has its own history of, course. For one – Marriage and Divorce – we had real difficulty finding a suitable author and several of us in the Population Division finally cobbled it together. Usually chapters that are done in that way are not very good, even with the best scholars on them. Other chapters required little work beyond what the specialists submitted. I designed the front cover, which conveys a basic idea in demography – the cohort-age-period relation. Henry and I wrote the Preface and prepared the Index jointly. So, we produced the book, and as you see, we did not worry about making it a short or easy-to-carry textbook.

Interviewer: Were you chief of the Population Analysis staff? Or were you in another area of the Population Division?

Yes. I was no longer assigned to what was my original office – the Population Estimates and Projections Branch. I had been reassigned, first as Special Assistant to the Chief, Population Division, and subsequently as Senior Demographic Statistician for Research and Analysis. That reassignment gave me freedom to work on whatever projects I deemed important, particularly the census coverage issue, and to be given any demographic assignments that my superiors thought I might do. I was asked to undertake many miscellaneous assignments, including some overseas work [see below].

Interviewer: Did you ever imagine it was going to be *the* textbook?

No. I did not think of it that way. We just had a job to do. There were financial and logistical problems along the way. It could not have been done without a lot of work at home by Henry Shryock and me, and

yet Ravenholt was complaining sharply about the fact that we had overrun the budget. AID had given the Bureau what was a lot of money in those days (\$200,000), but we had overshot that and were asking for a supplement. Whether we got it, I do not recall. We also had a legal issue on our hands – a claim of infringement of copyright.

Interviewer: For new folks, that was before word processing and spreadsheets.

Everything was written out by hand for typing by our secretaries. After the manuscript was ready, the question was, who would publish it. The Government Printing Office (GPO) had its rules. We had to put up some money before they would do the job. It was not a large amount. It could have been as little as \$1,000, but the Bureau had to give it to them each time a new printing was ordered (four times).

Later we learned that there were countries that wanted to reprint it in their own language. I do not know how many countries did the translation, but there were at least Polish and Indonesian versions. I considered doing it myself in Spanish, but I never got around to it, and though I personally petitioned CELADE, the UN demographic training center in Santiago, Chile, where I had worked, they did not agree to do it. After 1975, the supply of copies ran out. Only 2,000 copies were printed in the first edition. They are rare items now. The GPO reprinted the two-volume book four times between 1971 and 1975, but then after I had left the Census Bureau, it decided not to put up the “down payment” for another printing. Later in condensed form, two new editions were published by a private publisher.

Interviewer: Do you remember what your last year was at the Census Bureau?

Sure, 1982, but I was on contract for the next three years and had an office at the Census Bureau until 1985. I sat in an office with a group of migration people while writing stuff on aging on contract with the National Institute on Aging (NIA). You see, in the early 1970s, I added aging as a field of specialization to my work program, writing a series of reports and papers for the National Institute on Aging on the subject at the Bureau.

8. You are a former President of the Population Association of America, a recipient of a Gold Medal from the Department of Commerce, and a fellow of the American Statistical Association – all high recognitions of your achievements. Did you ever imagine that your contribution to your field would be so enormous?

Well, not really. I was just happy enough if I just did my job well. When you are at it, the only way you know how to do it is to try to do it right and to hope you have succeeded at this. You see that in other people around you, people who are doing things that impress and inspire you. You really have a kind of ambivalent view of that whole issue. You do the things that could make you sort of feel like a leader, but you do not set that out as a goal. When I became a fellow of the American Statistical Association, I did not even know who nominated me or what I did to deserve it. I was simply an innocent, but pleased bystander.

When I became a fellow of the American Gerontological Society, I did not nominate myself although this was allowed. I just happened to learn one day that the then president of the society, who happened to be a sociologist I knew, had nominated me. Similarly with the presidency of the Population Association of America. It all depends on whether there are other people around who think well of you and who are in positions where it makes a difference. I imagine that Henry Shryock or probably someone like that put my name up for the Board of the Association; once on the board you are getting the experience for higher office in the association. I was on the board for a decade at least. For me, being nominated for the presidency had two sides. It is an honor, but I also knew that it would be very stressful to try to handle my regular job and the association job. I wondered if I could do well at both jobs. It is a kind of stress that many people experience who are honored because they feel they have to live up to high expectations in everything they do.

Interviewer: Do you still attend the Population Association meetings?

Yes, I am going to Boston [in 2014]. I will be there.

Interviewer: There is a tradition that the year after the census the meeting is always in Washington.

Oh, really. There is an interesting statistical observation.

9. What advice do you have for young people just starting out in their careers? How do they get encouraged to take that next step to go beyond what is required for the job?

Times have changed a great deal. In my day, you could get a job at the Census Bureau and not have appropriate training. You could get training on the job because people were needed and not many people had the special skill set required. In my day you were a really outstanding applicant if you had a PhD and still very unusual if you had a master's degree. I only had a master's degree when I first went to work at the Bureau and with that I could manage doing my job among my peers. I would say to the young people now, *take the appropriate courses*. Nowadays, as I see from the announcements from the Bureau, they want people with doctoral degrees doing most of their professional work. We are moving into the era where many people now, the front runners in their academic accomplishments, have two professional degrees. In the areas I have worked in, people have PhD's and MD's, or PhD's and MPH's in the health and aging area, but they are not too common yet. *Get the right training*.

It is also important to decide that *you are not there only for the job, but as a professional in your field*. *Keep your horizons broad*. Do not simply believe that what you should be doing is what your boss gives as a specific assignment but consider the ramifications of the subject, even if your assignment does not call for it. If you are doing work at the Bureau, are you thinking about the causes and consequences, or the policy implications, of the numbers you have produced or published? If someone asks you on the outside, after you have reported some fertility figures for the United States – and they do not restrict themselves to your job boundaries – “Why do you think the people in the United States have such low fertility or low replacement while the people in Ghana have such high fertility?” you should have a reasonable response to offer.

At the Bureau, I have had many assignments that were completely beyond what I had worked at, studied, or even knew. I am going to tell about a few just to illustrate the point. I was once asked, on short notice, to give a lecture or two at the Marine Corps base in Fayetteville, NC, where there is a kind of college for keeping military officers up to date in various fields that might affect military policy. It was never made clear to me what I was to lecture on or consult with them about, but I did know that the general subject of the program on this occasion was the implications of population

growth, perhaps overpopulation, for military conflict. That made sense to me, but I had to think of what I might say on the subject – not my usual area of work at the Bureau. After I arrived, however, I learned that they would like me to give a luncheon address that day, on male contraceptives. I do not mind admitting now that this virtually unnerved me. I was in no position to say “no” and admit that I was not their guy for this. They thought that demographers should know all about that subject. Since then, I have learned to say “no” because there has to be some situations where you can say, I am not the guy for that and you can fly someone else in to give that talk, unless you can change the subject.

I had just a few hours to plan something. Then, I realized that I *really* did know something about the subject because of my wide reading in the literature of demography – even though it had little to do with how you make population estimates, my regular area at the Bureau. The sub-plot to this story was that I still needed private time until lunch to think about the subject and I had to ask for that private time. You see, when a civilian guest like me visits the military, he gets a couple of military escorts that attend to your every need, tagging along wherever he goes, like you are a visiting military dignitary. So I asked to be relieved of all this attention so I could think about my forthcoming lecture. It was granted but I was so nervous that I could not concentrate on the subject to prepare anything. Well, I survived the ordeal. The moral is that *there are very stressful times on the job, but there are limits to what you should choose to do to avoid undue stress*, even while reaching out to broaden your horizons. I admit I never quite followed that moral much myself.

Another such assignment was when Howard Brunsmann, the then chief of the Population Division and a member of the UN Population Commission, asked me to prepare a document on the population situation in the United States and the US position on the world’s population situation. It was customary for the members of the Commission to present such reports to the group. That would not have been so bad except that Brunsmann was leaving for New York the next morning. So with one afternoon to write the report, I had to move quickly even though I was “nervous as hell” the whole time. I guess what I produced was OK.

Some of these off-beat assignments were much more, shall I say, comfortable for me than those I have mentioned, as when I was asked to become the U.S. technical member of an international committee to prepare a multilingual demographic dictionary that the In-

ternational Population Union or UN would publish. I was rather an expert in demographic terminology and knew, at least minimally, three of the four languages involved – English, French, and Spanish (not Russian). As a result, I had some very nice trips to various European cities, where a small group of people representing Great Britain, Spain, France, United States, Switzerland, and the United Nations (Russia always absent) met and debated about the structure and contents of the dictionary in their native languages. The dictionary was finally put together in French and then translated into English and Spanish, and in Arabic as a trilingual glossary.

Back to your question! *Be prepared for the unexpected*. You cannot be prepared for all of them, but if you want to move ahead, you have got to do a lot of reading in your field and unhappily you may have to use some of your own personal time. You will never be able to keep up with all the developments in your field and there are no clear boundaries. Office time will be insufficient because at the office people are having to attend meetings, discuss business with colleagues and produce products.

Another piece of advice is to *choose the people you work with carefully, both your bosses and the people who work under you*. I was lucky to have some very able associates. In the later days, there were Gregory Robinson and Jeffrey Passel. In the earlier days, there were Donald Akers, Meyer Zitter, and Melvin Zelnik. There were many other people in other offices who I had the good fortune to work with in all those years – Don Starsinic, Richard Irwin, and Robert Warren. I got to know nearly every Bureau Director in some way while I was working at the Bureau and my superiors in between. How did I achieve that? Well, I either met them at the professional meetings or in meetings at the Bureau.

Interviewer: Was J.C. Capt still here when you came in?

Yes, he was here. I never found out what those initials stood for. [James Clyde Capt, 1941–1949].

One day I was asked to accompany Director Vincent Barabba to Chicago, where he was going to give a lecture on cause-of-death patterns to some commission of the American Medical Association. I was to be available to answer any questions following his prepared address. So I got to know him on that trip. And even better when I accompanied him and Dan Levine to Mexico City to serve as interpreter in meeting with the Census Director of Mexico. I knew Director Ross

Eckler because he “grew up” in the Bureau. I was also lucky in working with a corps of people in the statistical research area who were deeply dedicated to their work and very creative. Most of these folk came from New York. None of them had doctorates. There were Joe Waksberg, Joe Steinberg, Bob Hanson, Hal Niselson, and Bill Hurwitz. Add the irascible, scholarly Eli Marks and many others in the statistical research area. Add also the statistical administrators, Ed Goldfield and Dan Levine, and scholars in the subject matter area I mentioned earlier – Conrad Taeuber, Henry Shryock, Paul Glick, and Henry Sheldon. All of these people were very important for my development and such successes as I may have achieved.

So what is the moral? *You are lucky to find good people to work under you, around you, and above you, good people who are creative* – and a lot was created in the 40 or so years that I worked at the Bureau. The redesign of the various censuses, including the introduction of sampling in 1940, the mail out/mail-back census, self-enumeration, computer processing, editing, and coding, and various analytic techniques, such as dual systems analysis, surname analysis, advances in making population and migration estimates, and evaluation and adjustment of census and survey data.

Now there are some other lucky choices that you may make, that you may not think of. *Your carpool. Where you live makes a difference because that determines who will be in your carpool*, if you have one. I happened to have in my carpool four or five men over many years and we had many lively professional discussions. You were hearing some important things that were quite useful to know. These guys didn’t talk much trivial talk on the way to and from work. Not much about their breakfasts or even their kids. You were sharpening your minds by participating in these carpool discussions. There were, for example, George Heller, mathematical programmer, Eli Hellerman, who developed the method of machine coding of occupation and industry, John Aird, renowned expert in Chinese demography, and Julius Shiskin, who developed an electronic program for seasonally adjusting economic data (later Commissioner, Bureau of Labor Statistics). They and others like them were in my car pool at various times. You are in that carpool at least 1½ hour each workday, and most of the time somebody else is driving and focusing on the road. The members of your carpool can be immensely important.

The next important group is *who you eat lunch with*. I would go down to the cafeteria, often alone, and usually join a group of people who typically met infor-

mally and by chance. And again, among them a mathematician, a math statistician, a personnel psychologist (involved in recruitment for the census) and an anthropologist (concerned with enumeration of hard-to-reach respondents). So listening to them, I was exposed to stuff on many aspects of census and survey taking.

We are talking about how you grow in this business. *Go to the professional meetings*. There is no class structure at these meetings. There is no professional hierarchy that is used to exclude you. Everybody is available and you can talk to anybody. I have met and got to work with many distinguished people in this way. For example, I met Morimer Spiegelman, Alfred Lotka, the founding father of formal demography, and Louis Dublin, Chief Statistician of Metropolitan Life, and Robert Myers, Chief Actuary of the Social Security Administration, and then others like Pascal K. Whelpton, the developer of the cohort technique of population projections, with whom I later worked.

Interviewer: We still use some of his work.

Finally, there was one other little thing I had to do. I did have to *complement my experience with some additional education*. I took several courses at night. One was a course in mathematical statistics at American University with Ed Deming and Ben Tepping, both of whom were working at the Bureau at the time. Ed Deming became a great luminary among the business and industry statisticians. Then there was my course with Frank Lorimer in population statistics at American University. Today, you do not hear much about him but he was a giant in social demography during the 1930s and 1940s. He was responsible for my teaching debut. During the term, he had to be away for a couple of weeks and he asked me to lecture to the class for these weeks on the subject of population estimates and projections. I was just beginning to learn that stuff myself at the Bureau, but I took on the lecturing job. So, in short, sometime you have to go to class and learn something, and teaching is a great complement to experience and education for organizing and cementing what you know in your mind.

Interviewer: Was that a start to your lecturing and teaching at Georgetown?

Yes and no. My regular teaching began long before I went to Georgetown. It really began when Conrad Taeuber, then Chairman of the Committee of Social Sciences and Statistics for the Graduate School, the school that the Department of Agriculture ran for the U.S. Government, asked me in the late 1940s if I

would like to teach a course in population statistics at the school. I agreed and so I began teaching there about 1948. I thought it would give me something interesting to do one evening a week, but it really crowded my time. I would leave the Bureau at 5:30 p.m. and be in front of the class at 6 p.m. I brought something to eat at my desk immediately at 5 p.m. when my regular workday ended; then I would drive right to the class. The class would last a couple of hours. I could not remember all the names and faces of the members of my classes that continued over many years, but later I learned that there were some members in the class who became distinguished statisticians, among them Tom Jabine and Charlie Jones.

After some 20 years at the Graduate School, I decided to quit and free my time for other teaching opportunities. In 1970, I was invited by Conrad Taeuber and Henry Shryock, both of whom had left the Census Bureau for positions at Georgetown University, to join the recently formed Department of Demography. I agreed to join as an adjunct, teaching a course in population methods on Saturday mornings. I continued at Georgetown until about 1995, going there full-time when I retired from the Census Bureau in 1982.

During those same years and after, I have done many visiting teaching stints on invitation. I got an invitation to go to the University of Connecticut at Storrs in the mid-1970s on a two-month intensive teaching and lecture program, calling for lectures in six fields. This was another assignment beyond my knowledge and I had to devise a strategy to do it. I could do sociology, rural sociology, gerontology, and one other field, I cannot remember but for the other two – geography and computer science – I sublet the job to a friend at the Bureau. Later there were semesters at UC Berkeley, Cornell, Howard, UC Irvine, and George Mason scattered over some 30 years.

Then I decided to quit teaching gigs and return to writing. When I went to Georgetown full-time in the 1980's, I carried with me a contract with the Russell Sage Foundation to prepare a book on America's older population. That book was published in the early 1990's. I followed this work with a series of other books, including a book in applied demography, a new condensed edition of the methods book, a book on the demography of human health, and now (in preparation) a book on linguistic and ethnic demography.

Interviewers: Thank you so much for all your contributions and for sharing your story with us.

Jacob Siegel's story provides a role model for aspiring demographers and statisticians. As Siegel experienced much change during his long career, so will we. By dedication, hard work, continuous learning, and collaboration with our colleagues, we can rise to the challenges and influence the change that occurs around us. Jacob Siegel has set high standards for us to follow.

The interview was conducted by J. Gregory Robinson and Kirsten West. Both are demographers working in the Population Division of the U.S. Census Bureau.

