

20. APPOINTMENT TO THE FACULTY OF THE UNIVERSITY OF CHICAGO, CHICAGO, 1963-8

Phil Hauser had over a period of time been urging me to come to the University of Chicago, and I had said I was satisfied with Toronto. But from the perspective of Montreal, Toronto seemed less wonderful than when I was there, and I agreed. It gave me something of a twinge to think how little gratitude that showed to Dean Bladen who had gone to the trouble of arranging a senior appointment for me, and rescued me from the monotonous life of Ottawa. Yet that seemed no reason to repeat my senseless faithfulness to the DBS over 23 years. So I started at the University of Chicago in the fall of 1963.

Emigration to the United States

The only thing that need be said about the emigration to the United States is that it was simple. The medical part for example: Each of us was asked "How are you feeling?" and we both said "Great". No further evidence of health was required.

We were given various papers, and as I recall we validated them by a trip to New York for a weekend on April 25 1963. We received a green card to testify to all this.

In the mid-1970s George Homans said that if I took American citizenship he would put me up for election as a regular member of the NAS. I did and he did and I was elected.

Demography favored me, Chicago 1963

Partly because the birth fluctuations, of which the baby boom from the mid-1940s to the mid-1960s was one, had such a striking effect on individual careers in a number of occupations, there was a general interest in population growth and fluctuation at the time I began teaching. That is, aside from the baby boom giving me an opportunity to teach, it also gave me the subject matter for my teaching. Entry into the labor force would burgeon in the 1960s and 1970s, then there would be an increase in births as an echo of the original boom, and looming in the 21st century, say about 2010-2015 a grim problem of financing health and retirement, all superimposed on underlying long term declines in birth rates and in death rates. This meant that an increased number of retirements, each of them lasting longer, would have to be supported by a decreased number of people of working age.

(Now, in 2003, as the crisis of social security and medicare approaches, are we worrying about it, are we saving up to meet it? Not at all. Our horizon has shortened down to the next election. No present day politician is going to ask the public to give up something in order to make life a little less difficult ten years from now.)

Foundations responded to the problems in the only way they could--by offering research grants. Funding to study these matters was plentiful. Applying for research moneys did not require so much effort that it kept scholars from doing research. In fact applying was mostly a matter of reminding the donor of the problem and asking for the money. I accordingly got my share.

Moreover there was a sense that the future of social science lay in the application of mathematics to its problems. The Social Science Research Council, a private group aiming to improve the quality of scholarly work, set up a committee to stimulate the use of mathematics in its fields, to whose work I was invited to contribute.

But aside from easy funding, there were two other elements that happily coincided with my entrance into the academy. One was the existence of a phenomenal mass of results of the application of mathematics to population. Alfred Lotka was the best known of the writers, but there were scores of others as well, and their writing was scattered through places like the *Journal of Cell Biology*, the *Journal of Hygiene*, *Mathematical Biosciences*, *Biometrika*, the *Journal of the American Statistical Association* and other publications that social scientists do not regularly read. And if they do fall on them they are put off by the strange applications (for instance to populations of bacteria, or the population of trucks in a large fleet) and mystified by the variety of notations.

Yet it was plain to me that there were formal elements in common among all these applications, and I began to set them down. I put them into a uniform notation, showed the relation of one result to others, and generally systematized the field. If that was creativity on my part it was of a low order, though it was certainly hard work.

But this was not enough. Nothing in what I derived constituted new mathematics, and it was not really new demography either. There were plenty of formulas in my assembly, but abstract formulas is what they could well have remained. Those extracts from the literature, even when suitably arranged, would have been mere curiosities.

What saved my hard work from this fate was the advent of the computer. The year I got to Chicago on the invitation of Phil Hauser was 1963, and the University of Chicago had just set up a computer center to house its brand new IBM 7090. It occupied an entire building on Ellis Avenue, and was mostly used by physicists. Very few social scientists ever passed through its doors.

For me it did something almost magical: it brought to life the formulas on which I was working. To demographers only formulas to which numbers can be applied are for real. A formula is not redeemed by being carefully and flawlessly derived. If I did not enter numbers in my results no

one else would. A desk calculator would not have been able to do the work in any finite time, so resort to a computer was the answer. In those days that meant learning to program in FORTRAN, and I taught myself the early primitive version, applied it in a number of instances, with Beatrice punching in the programs and data on the then standard 80-column IBM cards. Its incisive logic appealed to graduate students, Fr. Wilhelm Flieger, Jay Palmore, Mike Murphy, Lee Jay Cho, and they went to work programming further formulas, and so we produced the examples that gave some meaning and interest to the manuscript I was putting together.

After some years of this activity statistician Fred Mosteller noticed my work, went over it carefully, and gave me some 70 pages of closely typed corrections, demands for clarification and suggestions, so adding a further year of work for me. Ultimately Fred approved the manuscript for publication on behalf of publisher Addison-Wesley. That plus his help on later work, plus help from Robert Dorfman, Aage Sorensen (both now deceased, alas) and others give meaning to the idea of a scholarly community. The resulting book, *Introduction to the Mathematics of Population*, whose first edition was published in 1968, surprised me by its success, at least in reviews if not in sales: it was taken as defining population mathematics as a new field. Every academic discipline likes to expand its domain by the addition of a new sub-discipline, and demographers are no different. Books and articles have since been written by myself and others extending it further, Courses are now given in many universities, and a *Journal of Mathematical Population Studies* now exists, and finds worthwhile contributions issue after issue. On the strength of little more than that one book I rocketed all the way up to membership in the National Academy of Science, for which I had been nominated by Professor George Homans.

Beyond all that I have mentioned was the widespread recognition that population increase retarded development. At first for the reason that Malthus gave, that additions to the population were driven to marginal lands, but when this argument fell into disrepute--because of enormous increases in agricultural technology that virtually eliminated land as the limiting element in sustaining population--then there was recourse to something different--raising and equipping the newcomers in a rapidly increasing population drew capital away from investment that would raise the productivity of the existing population.

Whatever the reasons, goodwill towards the new nations that were formed in the era of decolonization generated large budgets for foreign aid, especially in the form of technical assistance. Every country needed a demographer to enable it to understand the population problem. So I landed in Burma, Indonesia, Ceylon, Argentina, and indeed much of the travel described in this memoir has had the purpose of raising consciousness of population and population research. Demographers, after all, think of ourselves as scholars, not as presenting a case for more people or for fewer people. So my task was to make students aware of the issues that demography treats, and let them draw their own conclusions on population policy.

Since then there has been disillusion with foreign aid, and budgets have been drastically cut. Had I been born two or three decades later or two or three decades earlier I could never have had those assignments in foreign countries that often proved uncomfortable, but were always instructive. And perhaps even a little useful to the people I had been assigned to help.