

THE EVOLUTION OF AN APPLIED GEOGRAPHER: A PERSONAL ODYSSEY

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I have now spent 34 of the last 39 years outside the disciplinary field of geography applying my geographic skills and training to the professional fields of public management, public administration, and public policy. My research focus has been on problem-solving in the context of regional economic development and water resource management, with teaching concentrated on providing young men and women with skills that will be effective for their post-graduate career development at the interface of the public and private sectors. I believe this qualifies me as an “applied geographer” which is a label I am proud to wear.

I did not design my career to become an applied geographer but since graduating from The Johns Hopkins University’s Department of Geography and Environmental Engineering in the Whiting School of Engineering I spent eight years at the Lyndon Baines Johnson (LBJ) School of Public Affairs at the University of Texas, Austin; three years directing the Middle East Office of Resources and Environment for the Ford Foundation in Cairo (while on leave from the LBJ School); nine years at Indiana University’s School of Public and Environmental Affairs; and 16 years as Graduate Dean, then founding Dean of the School of Public Policy at George Mason University. In between I served for short stints in geography as a teaching assistant, then as an instructor and faculty member at Rutgers University in New Brunswick, New Jersey; at Memorial University in St. Johns, Newfoundland; at the University of Maryland in Baltimore County; and at McGill University in Montreal. I was an Assistant Professor in Geography at the University of Texas, Austin for two years, and a Professor and Chair of Geography for three years at Boston University.

I began with two years of geography in high school in Canada where I became committed to the field. When my parents moved to a small town outside of Kalamazoo, Michigan, I jumped at the opportunity to do geography at nearby Western Michigan University. It was there that I began to understand the opportunity and advantage of using a geography perspective in other disciplines especially in my other majors in history and political science. My MA graduate work at Rutgers introduced me to (1) theory and methods economic geography such as central place theory, economic base analysis, and the economics of regional development, (2) analytic procedures including spatial statistics (Professor Arthur Getis) and engineering methods in urban planning, and (3) field work, particularly direct observation, data collection, and the graphic representation of results in maps and figures (Professor John Brush). It was at this time that I had my first opportunity in consultancy work where I assessed the consequence of drainage modification for mosquito control in the Hackensack Meadows. The results had important policy implications for state and federal regulations, and the source and level of taxation of land and businesses located in these tidal lowlands.

My academic interests at the time focused on migration behavior and formal models to represent, predict, and evaluate such interaction phenomena. I had identified three leading geography scholars whose work in migration excited me. Professor Richard Morrill was at the Department of Geography at the University of Washington, Seattle but was on leave to Sweden with no clear return date. Professor Julian Wolpert at the Department of Regional Science, University of Pennsylvania, had a visiting position at Michigan State, and his return to Penn was also unclear. So I decided to go to what was then the Isaiah Bowman Department of Geography at Johns Hopkins University because Professor David Bramhall, the author of the chapter on migration and gravity models in Walter Isard's *Methods of Regional Science* was on the faculty and I could study with him.

Hopkins was exciting and challenging but a little unusual. Physical geography, in general, and fluvial geomorphology and water resources in particular were the focus of most of the faculty and students. Even those outside of this area were focused on complementary areas such as the economics of water and waste water infrastructure investment, and their consequence for capital budgeting in the development of urban spatial structure. Beside core courses in geography and regional science, I was sent to graduate courses in economics, demography and sociology, operations research, and was asked to take courses from visiting "firemen" from Anatol Rappaport (University of Michigan) on game theory and neural networks to M. King Hubbert on forecasting the limits of U.S. energy supplies, and eventually even Julian Wolpert

on modeling behavioral theory in urban networks. One of these visitors was a senior scholar and Vice President of CONSAD Research Corp., T. R. Lakshmanan, whose scholarly and consulting work at the time focused on large scale transportation modeling for Boston, Philadelphia, and Pittsburgh. When Bramhall moved on to the University of Pittsburgh, "Laksh" as he was known to his friends and colleagues, took me under his wing for academic and financial support.

With an undergraduate background of multiple majors and with the exposure as a graduate student to multiple disciplinary opportunities, the basis of an interdisciplinary orientation on a geography base was laid. Regional and spatial analysis was applied to work in urban economics primarily with the leader of the new urban economics Professor Edwin Mills. The finance and politics of urban infrastructure investment, particularly transportation, became a focus. My engineering-economics perspective in geography was strengthened with a focus on optimization methods and their application to location decisions by Professors Jon Liebman and Charles ReVelle.

Although my first academic post was in a large but traditional geography department at McGill University, I worked half-time as a consultant to the Canadian National Capital Commission in Ottawa and for the regional planning firm of van Ginkel Associates in Montreal. In the latter we designed and built simulation models for airport design for the Canadian Department of Transport, economic assessment models for university location decisions in Quebec, and models for minimizing transportation in school district consolidation on Prince Edward Island (1968-1970). At the same time I was able to participate in a World Bank assessment of airport development in Brazil, and regional development strategies for the Prime Minister's Office in Malaysia. Academically, even after receiving my degree, I took courses. At McGill it was with a group of faculty interested in extreme-event distributions and how to model and statistically represent them (1968), and at the University of Texas, Austin I took courses with a few faculty and graduate students led by Abraham Charnes attempting to solve Operations Research (OR) problems that had never been solved. I also sat in on courses in advanced demographic methods at the University's Population Research Center.

In 1972 after returning from three years in Malaysia and while on the faculty at Texas, I joined a university research team as a Principal Investigator (PI) for economics and land use in a large National Science Foundation (NSF) grant with matching funds from the Governor's Office. This was one of NSF's first attempts to move into applied research with their focus on Research Applied to National Needs (RANN). Here we forecasted urban development patterns and their consequence for the Texas Gulf Coast. Besides models of

heat transfer and pollution dispersion in coastal waters we built Input-Output models forecasting the state economy and did urban growth simulation for population, housing, and industrial location, and built a primitive GIS for Corpus Christi (1974). One of the many issues was the consequence for human settlement in areas of high natural hazard probabilities.

I was recruited by the Ford Foundation so on leave from Texas I went to New York and then to the Middle East to direct their Office of Resources and Environment. I spent three years with Ford with my primary focus on the management of the Nile River. My first job was to develop new operating rules for the Aswan High Dam. This was followed by a project focused on capacity building in water quality monitoring and management, and then an assessment of the consequences of the Jongeli Canal project in the southern Sudan. Other activities in the Middle East included launching (ICASIT)—the last of the world agriculture research programs underpinned by the Rockefeller Foundation. This was in support of the Mediterranean Climate Agriculture Regime with its wet winters and dry, hot summers. I was lucky to be active with the Hydrobiological Unit at the University of Khartoum, and the Coastal Agricultural and Carbon Cycling Studies (SAMDENE) of the western coastal desert in Egypt centered out of the University of Alexandria.

I had outstanding advisors on these Egyptian and Sudan Nile projects including Abel Wolman (father of environmental engineering), Gilbert White (master of environmental hazards research), Ian Burton (an environmental geographer), and Gordon Conway (later to become President of the Rockefeller Foundation).

When I returned to the U.S. in 1978, I joined the faculty of the School of Public and Environmental Affairs at Indiana University and was invited by the transport geographer Bill Black to take over his Center for Urban and Regional Analysis. As both chair of that faculty and director of the Center. We worked closely with the Department of Geography at Indiana and built a joint Ph.D. program focused in the area of policy and management issues in regional economic development.

The interplay of real world problem solving and geographic analysis continued to move me back and forth between public affairs/public policy/public management on the one hand and the discipline of geography on the other. NSF projects on energy and pollution management in the Ohio River Basin, and energy expansion and water resource management in the Yellowstone Basin continued to link my interests in environmental analysis, decision support, and public policy.

In 1987, I moved back into geography as Chair of the Department of Geography at Boston University, where I had been invited by my old Dean

(now President of BU) John Silber as well as my old mentor T. R. Lakshmanan to join them. This was orchestrated by the geographer Geoffrey Bannister who was Dean of Arts and Science and Dean of the Graduate College. I spent three tumultuous years in Boston working across the university and attempting to build up a public policy program while reorganizing a rapidly changing department. We scaled up in GIS, environmental management, and energy and transportation systems but we lost a lot of very outstanding scholars.

After twice turning down the job, I was recruited by the President and Provost of George Mason University to join them in a new high risk venture of growing a new university in Northern Virginia just outside of Washington, D.C. I was hired as Graduate Dean and Director of a new Institute of Public Policy six months before the state went into a major recession (1990-93). Luckily the endowed chairs had already been filled by a world class sociologist (Seymour Martin Lipset), a science and technology policy science expert (Don Kash), and another maverick geographer (Roger R. Stough).

I have spent the last 16 years building a program in public policy from scratch. We are now 1,000 graduate students—850 MA students in five degree programs and 150 Ph.D. students. With a \$20 million operating budget of which \$5-6 million comes from the university, the rest is raised by grant and contract activity, executive education programs and premier pricing of tuition. It is a multi-disciplinary program with a faculty of engineers, political scientists, biological scientists, mathematicians, economists, regional scientists, sociologists, geographers, medical doctors, chemists, and others all with their primary appointment in public policy. It is one of the largest and most active programs on the east coast, and although I still see myself as a geographer, I am clearly an administrative research leader and personnel manager. Further, my work in public management and public administration is well recognized outside geography to the level that a few years ago I was elected to the National Academy of Public Administration, and I am the only geographer in that Academy.

In complement to my economic geography background I have continued to work in the sister field of regional science where we have grown and expanded its reach into fifty nations organized in three mega regions—North America, Europe, and the Pacific Rim. Here I served as President and was recently elected a Fellow of the organization filled with geographers, economists, engineers, and OR people interested in an interdisciplinary approach to regional analysis.

I must say increasingly my research work is targeted on particular subject areas such as transportation and infrastructure, investment and financing,

but I believe I still bring a geographer's sensitivity to the natural environment and a focus on spatial analysis and spatial systems. The most recent work in which I participated for the National Academy of Sciences/National Research Council—*Assessing and Managing the Ecological Impacts of Paved Roads*—concentrated on the importance of spatial scale in economic and environmental assessment of transportation impacts. Further, my book that was the ninth lecture for the Netherlands' Megacities Foundation—*Infrastructure: The Glue of Megacities* (2006)—focused on the role of capital investment in urbanization processes and the challenges to finance and managing these large scale systems.

The geography discipline has been kind enough to recognize these extracurricular activities with the Anderson Medal for Applied Research, and the Ullman Award for my work in transportation. For this I am very grateful.

The interaction of theory and practice, and the development of parallel disciplinary activity while still relying on geographic fundamentals is what has allowed me to evolve into an “applied geographer.”

Recent Book References

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