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A Note on the Ancestral Toronto Home of Social Network Analysis[1]

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Who Originated the Originator?

As structuralists we cannot avoid speculating about the structural antecedents of current ideas about structure. For example, it seems likely that Harrison White's training at Harvard helped Ron Breiger and Chris Winship to become structuralists. The same is true of Katie Faust and Steve Borgatti who came out of the networks program at U.C. Irvine.

But how do we think about Elizabeth Bott, a major innovator in structural thought? At first glance, her structural outlook seems to be primarily her own creation. In 1957 she produced a revolutionary book on family structure and social networks that grew out of her dissertation at the Tavistock Institute and the London School of Economics. Certainly, the L.S.E. has never been a center of structuralist thought. Was the founding mother of social network analysis herself a virgin birth?

There was some Mancusian involvement. While working at the Tavistock, Bott attended some of Max Gluckman's seminars at the University of Manchester and presented her research into class division and the allocation of domestic tasks (Gluckman 1971). John (J.A.) Barnes attended some of those same seminars and presented some of his network research on a Norwegian village (1954). According to Bott (1995), they were both delighted to find themselves on the same track. And Clyde Mitchell (1995) recalls much stimulating discussion between them.[2]

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[1]In digging all of this up, we received a great deal of help and support from Elinor Fillion, a reference librarian at the University of Toronto, Paul Gregory, then the information specialist of the Centre for Urban and Community Studies, University of Toronto, and from Clyde Mitchell (University of Oxford emeritus), one of our founding fathers.

[2]Bott acknowledged both Gluckman and Barnes in her book, *Family and Social Network* (1957). Among the others she cited are Raymond Firth, Meyer Fortes, Edmund Leach, Michael Young, Erving Goffman and Ted Newcomb. Bott noted that A. T. M. Wilson, a medical psychoanalyst, "supervised the project as a whole," and that J. H. Robb, a social psychologist, did the greater number of home visits that formed the data base for the work.

In any case, Bott's work made a major contribution to structural thinking. She introduced the notion that the structural form of the network in which a married couple was embedded could itself affect the marital role performances of the husband and wife. She introduced the idea of measuring a structural property, what we now call network density. In terms of structural thinking, these ideas went beyond what Gluckman and Barnes had done.

We are left, then, with a question about the origins of Bott's innovative thinking. As structuralists ourselves, we do not want to believe that structural analysis sprang up "out of the blue."We here present evidence that the origins of Bott's thought are not to be sought solely in her graduate experience.

Progenitors

Father: Let's go back to Elizabeth Bott's beginnings. Our founding mother was born and raised in a structuralist Toronto home. Her father, Edward A. (Ned) Bott was the founding head of the Department of Psychology at the University of Toronto. Consistent with Toronto's British cum monarchical tradition, Professor Bott *père* headed the department for thirty-four years after its inception in 1926. He was a gifted teacher and the founding president of the Canadian Psychological Association in 1940. In those days, Toronto psychology was quite different from its present-day pure-science fixation on experiments and cognition. Bott's group was noted for "applying psychological knowledge to a wide variety of community problems, ranging all the way from the healthy development of the normal child to the treatment of mental retardation, mental illness and juvenile delinquency."' (Sloan 1969).

In World War I, Edward Bott helped develop new and ingenious methods of muscle re-education for disabled soldiers. In 1947, he was honored with an appointment as an Officer of the Order of the British Empire (O.B.E.) for his development of World War II training procedures for the Royal Air Force. In the words of one observer, Bott "showed an unbelievable genius for getting himself involved in the consideration of all sorts of human problems at all levels within the services and in government. . . . He had an incredible talent for seeing beyond the immediate and obvious precipitating factors, more remote and more important general conditions which also needed study" (Myers 1954). The same words could well be used to describe his daughter Elizabeth's leap from the analysis of the division of labor between husbands and wives to discerning the general importance of structural form.

Mother: Elizabeth Bott's mother, Helen McMurchie Bott, received her B.A. in 1912 and her M.A. in 1923, both at the University of Toronto. Helen McMurchie married Ned Bott in 1917 and they had three daughters: Mary Louise (1918), Barbara Helen (1920) and Elizabeth Jane (1924).

Helen McMurchie Bott was a leader in founding the Institute for Child Study (still the University of Toronto's ``laboratory school''), and she was the head of parent education there until 1938. She wrote and co-authored two books with William Blatz that focused on studies of young children.

Elizabeth Bott was an early student at ICS. In the school's annals, Elizabeth is noted as being the first child (possibly in all of Toronto) to wear a snowsuit. Her mother was keen on Elizabeth getting daily fresh air, even in the cold Toronto winters (Raymond 1991).

Structuralism's Early Steps

In 1928 a report coming out of the University of Toronto described a study of play activities among the preschool children at the St. George School.[3] In this study, each child was designated a ``focal'' individual. Multiple observers recorded every instance in which a focal child (1) talked to another, (2) interfered with another, (3) watched another, (4) imitated another, or (5) cooperated with another. The name of the other child to whom the social behavior was directed was also recorded. Each of these five sets of observations was organized into a child-by-child matrix that displayed the frequency with which a kind of interaction linked pairs of children.

This study embodied several major structuralist innovations. It appears to be the first example of the use of systematic observation to collect data on a specified range of interpersonal behavior. And, so far as we can discover, it is the first use of the matrix format to organize such who-to-whom data. Indeed, it was almost twenty years later that Elaine Forsyth and Leo Katz (1946) introduced matrix notation into what was then called ``sociometry.''

This report demonstrated the advantages of analyzing a matrix to uncover some structural properties of the interaction patterns of the children. It addressed such questions as ``with which individual each child [has] ... made the most numerous contacts'' (p. 63), and it noted that some pairs of children had ``special reciprocal companionships'' (p. 64).

The whole flavor of this work was structural. In a period when other investigators confined their analyses strictly to the study of the traits of individuals, this research was many years ahead of its time. It was not, in fact, until six years later that J. L. Moreno (1934) published his first book on sociometry.

This research had been conducted by a young woman with an M.A. who had been a Lecturer in Child Psychology at the University of Toronto since the early 1920s. In 1925, she was appointed Instructor in charge of the Parent Education Division of the newly-founded experimental St. George School for young children—later the Institute of Child Study at the University of Toronto (Raymond 1991).[4]

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[3]The article reporting on this research is "Observations of Play Activities in a Nursery School," *Genetic Psychology Monographs* 4 (1928): 44-88.

[4]In 1938, she left ICS after its head, William Blatz, objected to her involvement with the Oxford Group, a precursor ``Moral Rearmament Movement'' (Raymond 1991: 144).

Origins Revealed

The author of this pioneering structuralist research, of course, is Helen McMurchie Bott, and her third daughter is our own Elizabeth Bott. Thus the origins of her structuralism lie not only in England, but in her Toronto home. Elizabeth Bott was born into a structuralist intellectual milieu, one that actually studied things and didn't just talk about them. Given this kind of background, we have found the strong structural tie that may well have been the origin of her subsequent structuralist perspective.

In addition, we have uncovered evidence for the later birth of even more structuralist thought at the University of Toronto. Ned Bott, Helen's husband, was strongly tied to his frequent collaborator C. K. Clarke, the medical director of the Canadian National Committee for Mental Hygiene. Decades later (1967), Barry Wellman came from being a Harvard graduate student to Toronto in order to co-direct the first East York social network study. Its quite supportive home was the [C.K.] Clarke Institute of Psychiatry, a newly-founded research institute. So Wellman's structuralism was indirectly nurtured by Helen Bott, via Ned Bott and C. K. Clarke, and not only by Charles Tilly and Harrison White.[5]

And finally, we have to add that in the late 1940's when Elizabeth Bott was a graduate student in the Anthropology Department at the University of Chicago, Lin Freeman, who was still an undergraduate, was a member of her social circle. They were together often and spent a great deal of time discussing a range of topics that covered most of social science. Thus, one cannot easily discount the clear implication that Freeman's later involvement with social networks grew out of that early contact.

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[5]See Richardson and Wellman (1985) for a more extended argument as to why Canada, as a geographically and socially complex but non-imperial nation, is a fertile source of structuralist thought. For Wellman's accounts of his origin myth, see Wellman (1993, 1994). Also wending their way (through chain migration) to the Department of Sociology at the University of Toronto in the late 1960s and early 1970s were S.D. Berkowitz, Bonnie Erickson, Harriet Friedman, Leslie Howard, Nancy Howell, William Michelson, and Lorne Tepperman plus Edward Shorter in History, all Harvard students of either Charles Tilly or Harrison White.

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Social Network Analysis with Content and Graphs. William M. Campbell, Charlie K. Dagli, and Clifford J. Weinstein. Social network analysis has undergone a renaissance with the ubiquity and quantity of content from social media, web pages, and sensors.Â In considering the problem of community detec-tion for social networks, Lincoln Laboratory researchers applied multiple algorithms in the literature to the prob-lem of community detection on the ISVG database. The goal was to partition a set of people into distinct violent groups. Because the ISVG database has labeled truth for people and organizations, the performance of multiple methods can be quantitatively measured.