

## Thirty-Five Years in Gaming

Allan G. Feldt  
*University of Michigan*

*The article recounts a few events in the evolution of urban simulation/gaming in which the author has been involved over the past 35 years.*

**KEYWORDS:** *city planning; CLUG; ISAGA; METRO; METROPOLIS; NASAGA; National Gaming Conference; POGE; simulation/gaming; SQUARE MILE; WALRUS; WILDLIFE.*

The first simulation game I played was in 1960. It was an early version of WILDLIFE by Richard Meier, then a professor at the University of Michigan who was offering free beer to anyone helping in test runs. I was particularly impressed with how clearly this game illustrated the meaning of "dynamic equilibrium," a concept my fellow graduate students and I had had great difficulty understanding and agreeing on.

In 1963, while teaching City Planning at Cornell, I acquired a copy of SQUARE MILE, developed commercially by Olaf Helmer. This game gave a simplified illustration of city development and planning, although it was too crude for use in the classroom. An earlier planning game used at Cornell was POGE (Planning Operational Game Experiment) by Francis Hendricks, then at the University of Pittsburgh. Based heavily on mathematical game theory, POGE was a zero-sum game limited to two opponents, planners and developers. Although intriguing, POGE was minimally representative of the actual process of city planning and development and proved to be of no direct value in the development of CLUG.

Later that year, in a seminar on land use theory, we attempted to draw together a number of major studies in land use changes to lay out a single comprehensive theory or model of such changes in American cities. Comparisons among studies were hindered, however, by the varying levels of abstraction and scale employed. Some dealt with cities in the abstract, whereas others described a specific city. Some dealt with social and residential issues, whereas others dealt mostly with industrial or commercial land uses. Some operated at the level of the individual land parcel, others at the block or census tract level, and others only with entire cities. To create a single agreed-on level of abstraction and analysis, we tried building a game to represent land uses.

Borrowing freely from SQUARE MILE and WILDLIFE and basing the development process on a succinct description by urban geographer Brian Berry, we developed the first version of CLUG. The acronym initially stood for Cornell Land Use Game, but when it became more widely known a few years later, the Cornell attorney directed me to drop Cornell from its title and it became the Community Land Use Game. The noneuphemistic acronym had some bearing on its choice. A small grant from the Dean of Architecture allowed two graduate students and I to produce the first wooden block version and publish its first description and rules in 1964 as one of the Cornell publications in urban studies. Between 1965 and 1970 other graduate students and I found a number of ways to simplify and clarify the basic rules while constantly experimenting with variations and extensions of the basic game. After several further revisions the game was published in 1971 by the Free Press. Significant contributions to the game were made by a dozen or more bright and creative graduate students with most of them gaining some recognition in the form of coauthorship, financial rewards, and several job placements.

In 1964, Richard Meier suggested that I visit the University of Michigan to observe a round of Guetzkow's INTER-NATION SIMULATION, then running in the Department of Political Science, and to see METROPOLIS, a city-planning game developed by one of his students, Richard Duke. Duke and I got along well and began to cite each other's work to help increase the appearance of the academic legitimacy of gaming in general and our own efforts in particular. In 1967 I spent a month with Duke's group in Lansing, Michigan, working on the next version of his original game. The enhanced version of METROPOLIS was first known as METRO (Michigan Experimental Teaching and Research Operation) and later became the framework for METRO-APEX, which was quite successful during the late 1960s and early 1970s and was still in use in several universities as late as 1994.

It was also in the late 1960s that one of my former students, Peter House, became involved in developing a series of elaborations on the basic CLUG framework, which eventually led to a series of highly sophisticated and complex exercises played primarily in the Washington, DC area for a large number of highly placed government officials and academics. Although an impressive effort, I always felt that House and his people promised too much too soon from simulation/gaming and that their overselling during the early 1970s had a great deal to do with the substantial withdrawal of support for these kinds of efforts during the late 1970s and 1980s.

In 1967 House invited me to participate in the National Gaming Conference meetings in Monterey. Surrounded by high-ranking army and navy

officers giving papers on military gaming and a few people from business management programs, I gave a short description of CLUG and how it sought to represent the urban development process. The paper's reception was kind but not enthusiastic. Over the next few years, House managed to bring more and more social scientists into the National Gaming Conference until it was eventually converted into the North American Simulation and Gaming Association (NASAGA) in 1972.

Throughout the late 1960s, Duke and I each traveled extensively, lecturing and demonstrating our respective games. We collaborated in helping each other obtain grants from the Ford Foundation to assist in development and dissemination. During this period, we also corresponded and visited occasionally with a number of European gamers. When Duke landed a research contract to construct a gamed simulation based on a German city, I agreed to work with him in Bad Godesberg during the summer of 1970. As we considered the people throughout Europe we should visit while there, one of us came up with the idea of inviting them all to Bad Godesberg for a Fourth of July party. That became the meeting at which ISAGA was formed and its first officers elected.

Duke and I made an effort to combine our activities at Cornell during the late 1960s but when that proved impractical, he moved to the University of Michigan and I joined him there in 1971. A major attraction was Duke's possession of an IBM 1130 computer that allowed us to run games on a dedicated machine rather than suffering the many uncertainties of time-shared computers as practiced at that time. That machine cost about \$25,000 and had 8 Kilobytes of ROM and 20 Kilobytes of RAM stored on a huge disk that weighed about 20 pounds. It was booted by throwing a series of 16 toggle switches to the proper on/off configurations.

Arriving at Michigan, I spent most of my time at the Environmental Simulation Laboratory on the development of a simulation of Traverse City, Michigan, for the Sea Grant Program. This consisted of two games, a simple one developed the first year and a much more complex model that took the next five years to develop and that eventually provided a reasonably good simulation of Traverse City. The simple game was based largely on CLUG, with the addition of water pollution and tourism, and was called WALRUS (Water and Land Use Simulation). It was quite successful and was fairly widely played during the 1970s.

The more complex model was eventually called WALRUS III, and after great effort we managed to get it to reproduce quite faithfully ten years of land use changes in Traverse City with the accompanying changes in demo-

graphics, economics, and traffic patterns. Throughout this five-year period we worked closely with the Grand Traverse Regional Planning Commission, and by 1976 they were prepared to begin investing staff and commission time and \$25,000 of their own funds in the annual preparation and operation of the model. We still needed the \$50,000 per year we had been receiving from Sea Grant, but at just that time the program modified its mission and placed its effort and support elsewhere. Support from other agencies was also not available because the feds decided about then that simulation/gaming was not a promising field. The most discouraging turndown came when the National Science Foundation informed us that, because the simulation model was operating reasonably well, it was applied, not basic, research and they did not fund applied research.

After some months of frustration, we reluctantly closed the project down, trying to document what we had accomplished so that it might be salvaged some day by someone else. There have been a few derivative studies based on our earlier efforts but by and large the five-year effort was wasted. Hugely discouraged at this culmination of almost 15 years of effort, I withdrew almost completely from research and turned my efforts largely toward teaching for the next ten years. I was drawn back into gaming around 1985 when asked to run CLUG for an Economic Development Conference at the University of Kentucky. After the two-day session was completed, I sat back in amazement at how well it had gone and what a powerful teaching and motivating instrument the game was. This experience, plus Fred Goodman's version of the *INTERNATION GAME* run through a computer teleconference, led me to begin development of a series of large scale simulation/gaming exercises generically called *METROPOLITAN AREA GROWTH GAMES*. These games were designed to run with 50 to 100 players interacting with each other and the game operator through a computer teleconference. The last of these ran quite well for 8 weeks in 1992 and was based on Fairfax, Virginia, covering its growth and development from 1970 to 2010. In my opinion, this type of exercise has considerable promise.

In addition to CLUG, WALRUS, and MAGG, I have developed nine other games over the past 35 years—most of them suffering from trying to cover too much and requiring too many calculations and operators. With desktop computers and spread sheets, some of them may be salvageable, although that requires more effort than they may be worth. Fred Goodman likes to say that your first game is often your best one and that is probably true in my case.

## References

- CLUG: THE CORNELL LAND USE GAME. Feldt, A. (1965, rev. 1967, 1968). Ithaca, NY: Cornell University (Center for Housing & Environmental Studies, Ithaca, NY, USA).
- CLUG: COMMUNITY LAND USE GAME. Feldt, A., Dotson, A., Monroe, M., & Sawicki, D. (1972). New York: Free Press (MacMillan Co., New York, NY, USA).
- INTER-NATION SIMULATION: SIMULATION IN INTERNATIONAL RELATIONS. Guetzkow, H., Alger, C., Brody, R., Noel, R., & Snyder, R. (1963). Englewood Cliffs, NJ: Prentice-Hall.
- MAGG: OVERVIEW OF METROPOLITAN AREA GROWTH GAMES. Feldt, A. (1991). Paper presented at the American Planning Association meetings in New Orleans (Urban Planning Program, University of Michigan, Ann Arbor, MI, USA).
- METRO: A GAMING SIMULATION. Duke, R. (1966). Lansing, MI: Tri-county Regional Planning Commission.
- METRO-APEX. McGinty, R., & Duke, R. (1969). Los Angeles: University of Southern California, School of Business Administration.
- METROPOLIS: GAMING-SIMULATION IN URBAN RESEARCH. (1964). Duke, R. (1964). Lansing: Michigan State University, Institute for Community Development.
- POGE: PLANNING OPERATIONAL GAME EXPERIMENT. Hendricks, F. (1962). Pittsburgh, PA: University of Pittsburgh, GSPIA. Unpublished.
- SQUARE MILE. Bradley Brother, Inc. (1961).
- WALRUS: WATER AND LAND RESOURCE SIMULATION. Feldt, A., & Moses, D. (1972, rev. 1975). Ann Arbor, MI: Michigan Sea Grant Program, Technical Report 17 (2200 Bonisteel Blvd., Ann Arbor, MI 48109, USA).
- WALRUS III: SUMMARY OF A COMPUTER SIMULATION MODEL. Moses, D. (1976). Ann Arbor, MI: Michigan Sea Grant Program, Technical Report 50 (2200 Bonisteel Blvd., Ann Arbor, MI 48109, USA).
- WILDLIFE: THE SIMULATION OF ECOLOGICAL RELATIONSHIPS. Meier, R. (1964). (*In Behavioral Science*, 9, 67-84).

*After receiving a PhD in sociology and nine years of teaching at Cornell University, I returned to my alma mater, the University of Michigan, in 1971 as a Professor of Urban and Regional Planning, retiring in 1994. At various times I have chaired both the master's and the PhD degree programs at Michigan; have served in several appointed and elected city positions in both Ann Arbor and Ithaca; have been a consultant to many private and governmental agencies in the United States and Europe; have designed a dozen gamed simulations; and have written a modest number of books, articles, chapters, and so on. My special interests include simulation/gaming, human ecology, demography, decentralist theory and practice, and jazz piano.*

ADDRESS: 136 Galalake St., Ann Arbor, MI 48103, USA, telephone 313-769-1031, Fax 313-662-5227, E-mail [alfeldt@umich.edu](mailto:alfeldt@umich.edu).