BARBARA BARTZ PETCHENIK: HER WORKS, CITATIONS TO HER WORKS, WORKS ABOUT HER

Alberta Auringer Wood
Map Library
Memorial University of Newfoundland
St. John's, Newfoundland CANADA A1B 3Y1

Abstract

Barbara Bartz Petchenik was one of the "modern" women pioneers in cartography and in the International Cartographic Association. She participated in ICA activities over the years and was the first woman to serve as an ICA Vice President. This paper addresses her contributions to the literature of cartography, in particular. The bulk of the paper is a bibliography of her work, including books, articles, papers in proceedings, and reviews. There is a description of the subject areas about which she wrote and spoke. Her impact upon the discipline and on others will be noted by recognizing where she was cited by other authors.

1 Works

From 1962 to 1992, Barbara contributed about 60 articles, papers, reviews, and other materials to seventeen journals or conference proceedings. A list of these is given below:

The American Cartographer
Association of Canadian Map Libraries Bulletin
The Canadian Cartographer
The Cartographic Journal
Cartographica
Cartography and Geographic Information Systems
College and Research Libraries
First IEEE Vehicle Navigation and Information Systems Conference Proceedings
International Cartographic Association Proceedings
International Yearbook of Cartography
Journal of American History
Journal of Typographic Research
Journal of Geography
La Revue de Geographie de Montreal
Queen's Quarterly
Scholarly Publishing
Special Libraries Association Wisconsin Chapter Bulletin
Symposium on the Marketing of Cartographic Information Proceedings
The William and Mary Quarterly

As a map librarian, I was delighted to find that Barbara's earliest article appeared in the Special Libraries Association Wisconsin Chapter Bulletin in early 1962. This was a one page item entitled "New Map and Air Photo Library Established" and was signed "Barbara Bartz, Map Librarian". It described this new institution founded in September 1961 when she was working at the University of Wisconsin-Milwaukee in the Department of Geography as an Instructor in Geography. Her last article appeared in the 1990 International Yearbook of Cartography that was published in 1992. This one was entitled "The Nature of Navigation: an Epistemological Perspective on Recent Developments in Vehicle Navigation Assistance Technology". In between these two very different topics, she covered a wide range of subjects, as well, with something appearing every year except for 1968. The journal that published the majority of her work was The American Cartographer (and its successor title, Cartography and Geographical Information Systems) with eight
articles, seven reviews, and three other items. She also edited a special issue of it on "Reflections on the Revolution" for which she did the beginning and ending parts. Close behind was Cartographica with eight articles. The earliest lengthy article in a scholarly journal appeared in the Journal of Typographic Research in 1969. This was "Type Variation and the Problem of Cartographic Type Legibility. Part One: Cartographic Typography As a Medium for Communication; the Cartographic View of Legibility" followed in a later number by part two under the title of "Search: an Approach to Cartographic Type Legibility". Both of these were based upon her doctoral dissertation entitled Type Variation and the Problem of Cartographic Type Legibility. The Cartographic Journal was the first cartography journal to publish her work when it published "An Analysis of the Typographic Legibility Literature: Assessment of its Applicability to Cartography" in early 1970. It also published two other articles (one done with Arthur Robinson) and one book review. The topics she covered in her writings were type legibility, maps and atlases for children, communication aspects, historical cartography, cognition or other psychological aspects of map design, transition from analog to digital representations, economic aspects and vehicle navigation systems.

Some of her earliest writings were unpublished items, several of which were done for the Field Enterprises Corporation for which she worked from 1968 to 1970. These were dealing with maps for children which was a topic that continued to be of considerable interest to her throughout her life. She wrote eleven pieces about the topic from 1970 to 1987. Another early topic of interest involved type legibility. In addition to writing her Ph.D. dissertation on the subject, she wrote five items about it from 1966 to 1970. These two topics occupied much of her writing for the first ten years. Communications aspects were covered by two works, one done jointly with her mentor and colleague, Arthur H. Robinson. From 1976 on she devoted a lot of her written work to historical subjects with six items. Cognition and several different psychological aspects of cartography figured in five articles. There were two articles that she wrote which dealt with economic aspects of cartography. The emphasis of the last few years was on vehicle navigation and transition from analog to digital representation in cartography with three and seven items, respectively. She was the cartographic editor of a major atlas (Atlas of Early American History), author of three chapters in books or yet forthcoming books, and co-author of three books. The books and chapters covered broad aspects of the field, such as The Nature of Maps: Essays Toward Understanding Maps and Mapping which was done with Arthur H. Robinson and "A Map Maker's Perspective on Map Design Research, 1950-1980" that appeared in Graphic Communication and Design in Contemporary Cartography. Her thirteen reviews were in the areas of psychology (one), history (one), historical atlases (two), atlases (five), statistics (one) and cartography (two). One of her works was translated into Japanese, "The Map As a Communication System" co-authored as noted above by Professor Robinson. Eight of her articles or papers were reprinted in other journals or as chapters in books (or will be).

2 Citations

I am sure that we all wonder what impact our writing might have on others. Sometimes we know, because people will comment directly, but another way of determining this is by looking at who cited the writings. In order to find where Barbara's works were cited, searches were made of Social Sciences Citation Abstracts using the online database and issues on CD-ROM. This was followed-up with manual searches of The Canadian Cartographer (its monographs and its successor title, Cartographica), The Cartographic Journal, and the International Yearbook of Cartography. While there are no doubt other citations in other non-indexed periodicals, this gives an idea of the use. Book literature was not searched.

In the case of Barbara Bartz Petchenik, thirty-two of her works were cited by one hundred and four authors or joint authors in twenty-six different journals from 1971 to 1994. A listing of these people follows. Among these were all the major cartographic journals, nine geography journals, three related to human engineering, several in the planning area and a variety in other disciplines. The greatest number of articles citing her work appeared in The Cartographic Journal with thirty-five, followed by The Canadian Cartographer or Cartographica with thirty, followed by The American Cartographer or Cartography and Geographic
Information Systems with nineteen and the International Yearbook of Cartography with seventeen. The topics covered were those similar to areas about which she had written, much of it focusing on map design in general and for children in particular.

Unfortunately, the citation index did not seem to find all the references to the two items co-authored by Barbara. Many of those citations were found while looking at a journal in connection with something else or in the manual searches. Two of the citations were references to an award presented to the article "The Map As a Communication System" co-authored with Arthur H. Robinson. In this age of the Internet and such, she was even cited in March on a "listserv" called MAPHIST during a discussion on definitions of map and cartography. Two dissertations on cartography in our library had several references to Barbara's works. No doubt there are many others who have used her work that I did not find.

<table>
<thead>
<tr>
<th>Names of People Citing or Referencing Barbara's Work</th>
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<tr>
<td>Andrews, John H.</td>
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<td>Yarnal, Careen M. Mackay</td>
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Number after name indicates number of items in which cited or referenced.
The most cited item by far was *The Nature of Maps* with forty-three. I suspect that even more would have been found by searching for it under Arthur Robinson's name, also. Next was the "Experimental Use of the Search Task in an Analysis of Type Legibility in Cartography" with twenty mentions, and of these eight being to the reprint in *The Cartographic Journal* and twelve to the original in *Journal of Typographic Research*. Close behind with eighteen each were "The Map As a Communication System" that was also co-authored with Arthur Robinson, with seventeen of these being to the original in *The Cartographic Journal* and one to the reprint in *Cartographica*, and "Cognition in Cartography", the references for the latter were evenly divided with nine being to the first appearance in the 1975 *Auto-Carto II Proceedings* and nine to the 1977 reprint in *Cartographica*. This was followed by fifteen articles that referenced "The Map Maker's Perspective on Map Design Research, 1950-1980". "From Place to Space - the Psychological Achievement of Thematic Mapping" had eleven references to it. Her 1974 article "A Verbal Approach to Characterizing the Look of Maps" garnered nine mentions. The unpublished report for Field Enterprises, *Map Design for Children* had eight references. Coming in with seven citations was "Search: an Approach to Cartographic Type Legibility". Three of her articles had six citations ("Maps in the Classroom", "The Natural History of the Atlas: Evolution and Extinction" and "Facts or Values: Methodological Issues in Research for Educational Mapping"). There were five citations to one of her seminar papers *Some Aspects of Dot Map Perception* and three references to another seminar paper *The Figure-Ground Relationship: its Role in Cartographic Design* and her atlas *Atlas of Early American History*. Two of her articles ("Type Variation and the Problem of Cartographic Type Legibility" and "Designing Maps for Children") had four mentions. Two of her other articles had three citations to them ("Cartography and the Making of an Historical Atlas" and "Maps, Markets and Money: a Look at the Economic Underpinnings of Cartography"). Her doctoral dissertation had two citations, as did her 1966 Field Enterprises report *Map Type: Form and Function* and her 1970 article "An Analysis of the Typographic Legibility Literature: an Assessment of its Applicability to Cartography". Her earliest publication and ten other items had one citation each. I found one author (Herbert A. Sandford) who credited Barbara with coining the phrase "map-like object", but did not list her in his references to indicate that it was in a printed source. There were two authors (Fraser Taylor and Christopher Board) who listed a "personal communication" from Barbara among his notes or noted her correspondence regarding a topic.

Most of the articles in which her work was cited had a reference to just one of her materials. The largest number of her works that were noted by a single author was five by Christopher Board in his "Cartographic Communication" in 1981. There were five who noted use of four of her titles, followed by eleven with three uses noted. Thirty instances of notation of two of her items were recorded, with the remainder being just one of her works each. In some instances there were several references to the same item in one work, but this was not tracked.

There have been numerous reviews of the books that she co-authored. In my search of *Book Review Digest*, cartographic journals, and other reference tools, I found seventeen reviews of *Atlas of Early American History*, four of *Mapping the American Revolution*, and ten of *The Nature of Maps*.

3 Works About

Before and after her death several articles about Barbara appeared. The earliest was in 1990, two years before her death, and was written by Valerie Wulf Krejcie to appear in *Progress & Perspectives: Affirmative Action in Surveying and Mapping*. The last one appeared in the 1994 issue of *Imago Mundi* and was authored by her friend and long-time mentor, Arthur H. Robinson. One of her closest cartographic colleagues and friends, Joel L. Morrison, wrote a remembrance for *Cartographica* and shared in writing one for the *ACSM Bulletin*. Others writing or sharing the writing about her were Leona Sorenson, Richard E. Dahlberg, Robert A. Rundstrom, and last but certainly not least, ICA President D. R. Fraser Taylor.

No attempt was made to compare Barbara's output to that of other cartographers of her time. Maybe this will be a project for a future thesis or dissertation. A great number of those people producing the literature are
or were academic cartographers who were expected to publish. However, Barbara worked for a commercial firm whose main purpose was cartographic rather than textual production. She was given some time and support for these writing efforts, as she noted in one or more instances. Nonetheless, her contributions to the literature seem much beyond what would normally be expected from someone in the type of job that she held.

4 BIBLIOGRAPHY

4.1 Works by Barbara

1962

1963
Some aspects of dot map perception. Unpub. seminar paper, Dept. of Geography, University of Wisconsin, Madison.

1964
The figure-ground relationship: its role in cartographic design. Unpub. seminar paper, Dept. of Geography, University of Wisconsin, Madison. 79 p.

1965

1966

1967


1969


Type variation and the problem of cartographic type legibility. Part one: Cartographic typography as a medium for communication; the cartographic view of legibility. Journal of Typographic Research, vol. 3, no. 2, pp. 127-144.

1970


1971

1972

1973

1974

1975

1976

1977

1978

1979
Correction. *The American Cartographer*, vol. 6, no. 1, p. 83.
From place to space - the psychological achievement of thematic mapping. *The American Cartographer*, vol. 6, no. 1, pp. 5-12.

1980

1981


1982

The futures of cartography in 'Cartographic Commentary'. *Cartographica*, vol. 19, no. 3 & 4, pp. 109-114.

1983


1984


1985


1986


1987


1988


1989


1990


1991

4.2 Works that cite Barbara's work

1971

1972

1973
Meyer, Judith M. W. Map skills instruction and the child's developing cognitive abilities. *Journal of Geography*, vol. 72, no. 6, pp. 27-35.

1974
Sorrell, Patrick E. Map design - with the young in mind. *The Cartographic Journal*, vol. 11, no. 2, pp. 82-90.

1975
Olson, Judy M. Experience and the improvement of cartographic communication. *The Cartographic Journal*, vol. 12, no. 2, pp. 94-108.

1976
Schneider, Donald O. Performance of elementary teachers and students on a test of map and globe skills. *Journal of Geography*, vol. 75, no. 6, pp. 326-332.

242


1977


Olson, Judy M. Rescaling dot maps as a pattern enhancement. *International Yearbook of Cartography*, vol. 17, pp. 125-137.


1978

Board, Christopher. How can theories of cartographic communication be used to make maps more effective? *International Yearbook of Cartography*, vol. 17, pp. 41-49.


Ratajski, Lech. The main characteristics of cartographic communication as a part of theoretical cartography. *International Yearbook of Cartography*, vol. 18, pp. 21-32.


243
1979


----- Viewing time and experience as factors in map design research. The Canadian Cartographer, vol. 16, no. 2, pp. 145-158.


Dobson, Michael W. The influence of map information on fixation localization. The American Cartographer, vol. 6, no. 1, pp. 51-65.


1980


1981


Morrison, Joel L. Systematizing the role of 'feedback' from the map percipient to the cartographer in cartographic communication models. International Yearbook of Cartography, vol. 21, pp. 121, 126-132.


Sorrell, Patrick E. Cartography: a manufacturing industry concerned with the processing, transformation, packaging and transportation of spatial data. *The Cartographic Journal*, vol. 18, no. 2, pp. 84-90.

1982


1983


Henning, Mervin D. Toward an understanding of scale and its relevance to cartographic communication. *The Cartographic Journal*, vol. 20, no. 2, pp. 119-120.

1984


1985


1986


1987

Blades, Mark, and Christopher Spencer. How do people use maps to navigate through the world? *Cartographica*, vol. 24, no. 3, pp. 64-75.


Harley, J. Brian. Innovation, social context and the history of cartography / review article. *Cartographica*, vol. 24, no. 4, pp. 59-68.


Peterson, Michael P. The mental image in cartographic communication. *The Cartographic Journal*, vol. 24, no. 1, pp. 35-41


1989


Peterson, Michael P. The mental image in cartographic communication. *The Cartographic Journal*, vol. 24, no. 1, pp. 35-41


1990


1991

1992
Blades, Mark, and L. Medlicott. Developmental differences in the ability to give route directions from a map. *Journal of Environmental Psychology*, vol. 12, no. 2, pp. 175-185.

1993

1994
4.3 Works about Barbara.

1990

1992

1994

4.4 Reviews of Barbara's works

Atlas of Early American History
1976
Choice, vol. 13, Nov., p. 1115, 100 w.
Cunliffe, Marcus. Times Literary Supplement, Sept. 24, p. 1200, 1050 w.
The William and Mary Quarterly, vol. 34, no. 2, pp. 310-312.
1977
Alden, J. R. American History Review, vol. 82, April, p. 432, 350 w.

Mapping the American Revolutionary War
1978
Choice, vol. 15, Sept., p. 941, 220 w.
1979
Gruber, L. D. American Historical Review, vol. 84, June, p. 846, 400 w.
1980
The Nature of Maps (with A. H. Robinson)
1976
1977
Crawford, Paul V. Special Libraries Association Geography and Map Division Bulletin, no. 110, pp. 77-79.
Hayes, Brian. American Scholar, vol. 46, Spring, p. 262, 1100 w.
Scientific American, vol. 236, Mar., p. 144, 700 w.