

# CHARTING THE UNKNOWN: HOW COMPUTER MAPPING AT HARVARD BECAME GIS

—by *Nicholas R. Chrisman, 2006, ESRI Press, Redlands, California.*

218 pp., CD, diagrams, images, maps, photos, index. ISBN 1-58948-118-6. Softcover. \$34.95



*“Why read a book about the history of GIS?,” one might ask on seeing Nick Chrisman’s latest book, Charting the Unknown. Dennis C. Dixon, Geo-Information specialists at the Massachusetts-based WKFS-PCi, and Francis Harvey, professor at the University of Minnesota, attempt to answer this question in their reviews*

## —Reviewed by Dennis Dixon

Twelve chapters take the reader from Howard Fisher’s founding of the Laboratory for Computer Graphics at Harvard in 1966, through to its rise (a high of 45 employees in 1980) and fall (5 employees in 1984), and eventual closing in 1991. In writing *Charting the Unknown*, Nick Chrisman has drawn both from his own experience (he worked at the Laboratory from 1972 to 1982) and from Howard Fisher’s extensive archives. Copies of letters sent, miscellaneous notes to colleagues, snippets of computer code, and illustrations of marketing materials are all woven into the story. The book has extensive footnotes which are very helpful in both fleshing out the story, as well as providing appropriate references for the text.

*Charting the Unknown* can be read as a Business School case: acquiring and refining a vision, implementation [acquisition of funding, establishing a location, recruiting personnel], and, once succession has been established, exiting gracefully. The statement—“As soon as he [Howard Fisher] saw [Edgar] Horwood’s maps, Fisher realized he could make better ones”—contains the kernel of truth that inspires all entrepreneurial activity. On the other hand, dealing with massive budget fluctuations (reaching a high of over \$3 million in fiscal year 1981) is the stuff of business nightmares.

*Charting the Unknown* can also be read as ancient history, when “a computer” needed its own room (with its own heating and air-conditioning environment, plus its own attendants), and stacks of punch cards had to be fed into readers to get everything (data, program) into the machine. Chrisman’s wistful comment that the “software distributed by the Laboratory became obsolete long ago” is true of so much of today’s software development efforts that we overlook the driving force—the people who created the software and their interactions as software packages appear,

and fade into oblivion. The narrative can be a bit overwhelming; I recommend adopting a scorecard, if you want to keep track of the various software packages and individuals as they weave their way through the book.

But many of the observations are insightful. In an interview recorded on the accompanying CD, R. Denis White draws attention to the fact that the Howard Laboratory uniquely combined the four disciplines of Computer Science, Design, Planning, and Geography. This “something new” seems to have allowed the individuals at the Laboratory the flexibility to pursue their own visions regarding the future (within, of course, the constraints of current projects)—not unlike Apple computer’s development environment for the Macintosh in the early 1980s. But this “something new” could also take “the high road” to professional snobbery: “Neither discipline (Architects and Planners at the Graduate School of Design) was particularly attuned to the spatial analysis and mapping tools of the Laboratory.”

With regard to the details of computer programming involved, Otto von Bismark’s view—“Laws are like sausages. It’s better not to see them being made.”—is another observation right on the mark. As a user and distributor of Census Tract-level Thematic Cartography, I have a sense of the code underlying everything I map, but I am not sure that I want to know about the code wrestling that was necessary in those times to “bring forth” GIS.

The institutions involved—the Ford Foundation, Harvard University—get a fair share of attention too. They get kudos for enlightened and adventurous support (in the beginning) and knocks of criticism for miscellaneous actions (and inactions) at the denouement of the Laboratory.

But this book is primarily about people; people bent on wrestling geographic

information out of the behemoth of the big unknown.

Attending college in the early 1970s, I am familiar with the “deck of cards” that Chrisman describes at the beginning of his book, even though as a Math major, I never had to contend with the “inner aspects” of programming that consumed (frustrated?) many of my friends in Computer Science.

There are a few sections in this book that I don’t understand, but that’s O.K.—just as the narrative flows into these sections, it also flows back out, and one is left with the understanding that if you want to expand your own knowledge base, you know where to begin.

In terms of presentation and writing style, this book is a good read. As can be expected, there are numerous maps, diagrams, illustrations and photographs, but they are all integrated appropriately into the text; they enhance the story, and allow the reader a change-of-focus as needed.

I recommend this book for anyone interested in a historical perspective on the GIS industry, a perspective that stresses individuals and their actions (and reactions), coupled with their visions, knowledge, and constraints, that contributed to a groundbreaking method of visualizing the world.

## —Reviewed by Francis Harvey

Judging this book by its cover and title would be misleading, to say the least. Written by an academic, who is now a professor of geomatic science at the University of Laval in Quebec, the book reminds, even the non-sarcastic among us, of an esoteric footnote studded with references for the learned. Chrisman’s roots as a practitioner and member of the group which led the way in much of the development of GIS before he pursued an academic career do show however in the hands-on approach he adopts in telling a very complicated history of much more than GIS.



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#### *Charting the Unknown* review, from p. 35

The history is complicated because of the many paths the work at the Harvard Laboratory for Computer Graphics and Spatial Analysis took. And, to add to this complexity, Chrisman goes beyond this work. He covers a vast and impressive range of activities and then comes back to GIS, but the coverage varies, and "this book about a place" is really first and foremost a book about people and their creative work. The way that their work intersects in various ways at a certain place is secondary.

As the narrative wheels from one project to another, directors come and go, internal politics become a factor, and life at the lab is, simply put, complicated. Chrisman manages to hold on to his readers through all this, but barely.

This reader realized that, in spite of its title, the book reveals no single path from computer mapping to GIS; there is no GIS godfather, and there certainly is no single GIS concept that signaled the way forward. Chrisman makes clear, seemingly in total contradiction to the title of his book, that what people call "GIS" took form in many places, not just Harvard. And in this I agree with Christman. GIS is not the end outcome of activities at Harvard; it's the totality of people, hardware, software, and institutions that changes over time.

However, telling the history of that part of GIS research that centered on Harvard Laboratory in the 1960s and 1970s is worth doing. In that respect, the light Chrisman's book sheds on the important role of many dedicated individuals who, in hindsight, had a truly revolutionary vision, is invaluable. Christman's down-to-earth prose is unequivocal; these people were the hardworking, innovative, and thorough individuals we hope to find wherever we are at work.

Despite the criticisms, this is an important book. The history of GIS that is encapsulated in *Charting the Unknown* gives the work we now do a more tangible connection to that past. Its value also lies in that it reminds us of the continuity of GIS that is a continuing stream of people working with original data about the Earth's surface, analyzing those data, and presenting them in maps. Thus, regardless of whether you are a professional or an academic, and you have an interest in GIS and its origins, this book comes highly recommended.