John Clinton Sherman
Academic Cartographer on the Brink of a New Age

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Analyzing the importance of a mentor's career from the elevated perspective of hindsight may be hopelessly presumptuous. Some of the small professional turnings indicative of a philosophical or practical approach become blurred with time and distance while others may take on a greater importance than warranted when trying to bring a long and fruitful professional life into focus.

The field of academic cartography is neither old nor mature enough to have spawned a philosopher and it may never achieve this degree of sophistication. Accelerating transitions in Remote Sensing, Geographic Information Systems (GIS), and Global Positioning Systems (GPS) in the last 20 years have transformed the field in a way that may not survive the expansion. Some of us still argue that cartography is an area apart from GIS and, although the argument may have merit, it is at best an academic argument. GIS is a technology that spreads far beyond geography and threatens to subsume cartography completely.

In the late 1950's, an academic cartography lab might have a small process camera, cast off by a local printer, in the corner of an unventilated darkroom. A few light tables, maybe a programmable calculator, and sometimes an abandoned plane table rounded out the lab. In contrast, the technological base of a current cartography program may require hundreds of thousands of dollars invested in workstation labs and software.

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Current GIS programs sometimes appear to be a teetering juggernaut as they force geography programs out of their traditional tracks. John Sherman's career spanned the period from academic cartography's beginnings to the accelerating changes of the last decade. His educational legacy transcends changes in the field.

The Beginnings

John Sherman did not start out as a cartographer. His Master's thesis at Clark was on the Dutch West Indies, and his Ph.D. at Washington was on the precipitation of Eastern Washington, a companion piece to Arch [Archibald] Gerlach's work on precipitation of Western Washington. Both Gerlach and Sherman continued to develop an interest in cartography.

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The idea of a National Atlas of the United States brewed for a long time under the aegis of the American Geographical Society and other interested parties. In the early 1950's, the Association of American Geographers petitioned the National Academy of Science to form a Committee on a National Atlas. In 1961 the Committee concluded that because of the scope of the task, it should be placed in a federal agency. The United States Geological Survey (USGS) was chosen and Gerlach was loaned to the USGS by the Library of Congress to serve as editor of the project.

As a member of the Advisory Committee for the National Atlas, John played an active role in this large project from beginning to end. Under his direction, students compiled a number of maps, using these real world

subjects for map design experiments, and his students still point to those pages with a sense of participation.

It's impossible in the space allotted here to summarize all of John's projects and achievements but a few were particularly important to the fulfillment of his main academic goals of cartographic education and experimental cartography. Throughout his career, John maintained a vital interest in tactual mapping and developing resources for the blind. His work with the blind began in the early 1950s and was described in the article "Maps the Blind Can See" in the 1954 *Journal of Geography*. He enlisted many students to help in this area of endeavor, and development of special maps was often a part of his courses' subject matter. He participated in many conferences on the subject and spoke at length about it to anyone who would listen.

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John was also interested in terrain representation, especially, shaded relief and physical models. His list of professional works includes several models for parks and one very interesting model of a part of the moon made under contract to the Boeing Company for development use in early space exploration. During this project, John and his students explored many methods of molding and casting to fit the modeled surface to the moon's shape.

His interest in outdoor activities and terrain led him to begin producing perspective hiking maps in conjunction with his wife, Helen, in the late 1950s. The Sherman name is associated with the Mountaineers and other groups for their many publications. John also illustrated many texts and research articles throughout his career.

John Sherman was very comfortable with the small experimental research and production lab. It was small enough to keep people working together and talking about each other's work. Yet, it sometimes produced innovative products. John was uncomfortable, however, with some of the philosophical trends that began in the early sixties. He was always open minded about student exploration of the range of concepts and theories that were common currency of the 1960s and '70s, but he wanted his students to first learn the graphic language that they were to research.

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A cheery "What's cookin?" started most mornings as John sailed into the lab and moved from desk to desk chatting about problems and commenting on progress. This was the way the University of Washington Cartography Lab worked in the late 1960s and early '70s. While map design and cartographic production will always be associated with John's name, both in practice and in the classroom, John also derived great satisfaction from stimulating students to bring new technologies to bear on cartographic problems.

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"New" Technologies

From the beginnings of the cumbersome mainframe computers, John was very curious about the possible applications of this new technology. Led by the experiments of Waldo Tobler and others of the time, John took Fortran programming and data base development classes along with his students from Edgar Horwood, in the Planning Division of Washington's Civil Engineering Department.

Given the extremely crude output from line printers of the time, John was very interested in the rare line plotters. He was especially interested in the photographic film plotter, built by the Experimental Cartography Unit (ECU) of London's Royal College of Art. In every class after his visit to ECU, John discussed the future of the computer in cartography using

the samples he obtained from ECU and from the Central Intelligence Agency's pioneering efforts in automated cartography in the early 1960s.

When John organized his 1966 National Science Foundation (NSF) Summer Institute in Advanced Cartography, Howard Fisher was among the lecturers. Fisher had developed the widely publicized SYMAP program, which was produced by the Harvard Laboratory for Computer Graphics. Fisher's acid comments about academic cartography provided the stimulus for many debates that lasted well beyond the classroom that summer.

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In the mid-1960s, John also became involved with some of the new technologies in Remote Sensing. He participated in the National Aeronautics and Space Administration (NASA) workshops that were held to help define the characteristics of the future ERTS and later LANDSAT programs. He was particularly interested in thermal imaging. At that time John, working with colleague Bill Heath, became interested in animal census possibilities using thermal sensing. The projected subject was the seal populations of the Pribolof Islands. We counted the seals from low-altitude aerial photographs but since many of the seals were at sea during the daylight hours, John thought that thermal methods might work better at night when there might be more thermal contrast between the seals and the land, so he set out to acquire the equipment for a test.

At that time the Department of Geography was co-sponsoring a Remote Sensing Conference. John managed to convince the Bendix Corporation to display one of their thermal sensing units and permit the Department to fly it before the conference to produce local data for the meetings. While a local pilot flew the sensor over Seattle, John and some of his students were at the Woodland Park Zoo, with a handheld thermal sensor, recording the temperature of the seals jumping in and out of the water of their enclosure, every time a small aircraft passed overhead.

While John did not often incorporate the new technologies into his own work, he made sure that all of the students were exposed to everything new that came along and that we had the opportunity to explore the accelerating changes in the field. In the rare times that we could pull him away from his work for coffee, John almost always had some new technique he had heard about and wanted to discuss. The main area where John applied new technology to his own work was in tactual cartography. From DyLux relief printing plates to Braille computer printers, John and his students used these technologies in preparing materials for the wide range of contacts that John maintained with blind University students and local schools for the blind.

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Teaching

Even with John's interest in all manner of cartographic technology, he had other agendas. He devoted many hours each week to his students of all levels. John also hungered for the intellectual interaction of professionals whenever possible. To this end John organized and helped teach three very successful NSF Summer Institutes in Advanced Cartography that attracted students from U.S. and foreign academic ranks and from as far away as Japan and Thailand.

Knowing that the NSF Institutes were limited to occasional short summer sessions, John sought something more permanent for the education of research cartographers. For several years, he worked very hard with others in the field to establish a National Institute of Cartography. John was convinced that there was a need for this type of unit in North America with both permanent and rotating faculty and staff, but that no

John Sherman, George Jenks, and Howard Fisher with some of the participants in the 1966 NSF Institute on Advanced Cartography.

single university could afford to fund and maintain such a facility. John was not concerned about the location of the Institute, but felt certain that it should not be located in a federal agency or in Washington D.C., where its planned research focus would be diverted into training government technicians. John worked tirelessly for the Institute, often flying to Washington to lobby for its formation. In the end it was not funded. In his later years, John often spoke wistfully of his goals for such a facility and I think its loss was John's largest professional disappointment.

Teaching anyone who was interested was John's main avocation. His definition of teaching was widely defined. His door was open to all-colleagues, community members, students. He was happy to talk about cartography for hours with anyone, even when it often meant giving up class preparation time. He accumulated many stories about teaching colleagues. One of his favorite stories to tell involved a chance discussion with a noted limnologist about the research he was conducting on Western Washington lakes. While discussing the patterns of data, John suggested that the limnologist plot the data to aid in its interpretation and analysis. Grinning from ear to ear, John always ended the story by repeating the limnololgist's startled response "You mean I could make a map from my data!"

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One term we experimented with texture and symbols in prototype maps for the blind, using fabric, sandpaper, split peas, and noodles for symbols despite some amusement from people in the department who joked that we could always eat our maps if we got lost. When we completed our maps of the Seattle Center, the project was not considered finished until we met a bus load of students from a local School for the Blind at the Center. Each class member was assigned to talk with a blind student about maps and to spend an hour testing our designs in the field. We walked with the students and teachers through the Center, watched how they used our maps, and answered questions. After that session, where many of the blind students used and 'saw' their first map - indeed

several maps were spirited away in lunch bags -we never quite thought of maps in the same way again. I still have the map that I made in that class and whenever I see it in the files, I spend a few quiet moments reflecting about John's teaching.

A Changing Cartography

Later in his career, Dr. Sherman devoted much time to discussing conceptual and technical progress made in the 1970s and '80s. He felt that the thousands of hours spent on psychophysical research did not improve the field of cartography enough. He felt that subjects of this type of research were often so narrowly focused that they did not make a major impact. However, we all conducted the symbol and design experiments that were popular at the time. John was particularly distressed by the deconstruction work of the '80s and '90s. He felt that any cartographer or person who understands maps knows that maps are products of the people who made them and that there is no inherent reality in a map itself. He understood that maps are made for many political agendas and he expected such understanding to be common knowledge, not a subject needing analysis by a technique borrowed from literary research.

As John was ending his career, the ground swell of technology that transformed cartography into Computer Cartography then Computer Assisted Cartography and finally GIS had already affected how and what he taught. He was disgusted to hear students refer to traditional cartography as "old-fashioned cartography" and computer cartography "modern cartography" or the "new cartography." Many colleagues and students mistook these feelings for a resistance to change, but this was as far as possible from the truth. John simply felt that many, in their rush to embrace the technological culture of the day, forgot why we were mapping. He was especially troubled by the rapid digitization of any available map and the files used for maps and analysis without concern for the inherent errors in the original maps. He would shake his head when he saw data of limited accuracy digitized and enlarged to scales and applications far beyond their originally intended use. He worried that, although we were making rapid strides forward, we were simultaneously taking many steps backward.

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John often joked about what he saw as one of the major impacts of the computer on cartography. We could now make badly designed and error-filled maps faster than we ever could with traditional techniques. When making thematic maps manually, staining our hands with peelcoat developer and addressing registration problems by analyzing their sources, we thought about the data and analyzed the patterns. Patterns of data on maps were very important to John.

Atlases played a large part of John's career. He often came into the classroom with a pile of atlases from his collection and we would spend many hours analyzing their content. He often spoke about a dream to make "an atlas without words." Every time he returned from a cloudless flight across the country, he again broached the subject. He was convinced that if a set of maps were properly compiled and designed, the interplay of physical and cultural patterns on the landscape could be formed into a composite data set that would tell us much more about our environment than most conventionally prepared atlases did. He was a graphics thinker.

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He viewed the early "computer atlases," so common in the '70s and early '80s, as exercises in bad design. Although he was fascinated by some of the interactive digital atlases that were coming out at the end of

his career, he felt that the age of thematic atlases was at an end. He was probably premature in this judgment, but he concluded that many of the well designed atlases of the past could simply not afford to be made with modern technology. John's career ended just a little too soon to see GIS technology begin to mature and to see the many forms of artistic software come on the market that give the cartographers a new set of powerful tools.

John would have been excited about the many forms of mapping tools that are being put in the hands of students, cartographers, and the general public by a new family of visualization software. At the same time, he would have been frustrated by the design defaults built into mapping software by non-cartographers. A current philosophy that often accompanies digital production would have dismayed John. He would simply not understand the oft noted idea that if you cannot make a map by computer, it's not worth doing.

The education that we had in the '60s at Washington never tied the reasons why we map to technology. Quite simply, you used the best and most efficient technology available for mapping. Terms like "computer cartography," "manual cartography," and "traditional cartography" frustrated John. A map was independent of the technology used to produce it, and the joy and excitement of mapmaking was in compilation and design. The ultimate measure of a map's success was in how it communicated ideas and information. Just making a map was not enough, a map had to show the cartographer's attention to information and detail, and every map needed to be crafted carefully to best possible product terms of clarity and graphic design.

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Final Reflections

If John had a mission philosophy, it was to involve students in the exploration of cartography as a mode of communication and visualization. He felt that education was never meant to be a passive process. He encouraged students to participate actively in their education, teaching themselves and their peers. He always constantly pushed us to produce the highest quality work we could and to bring every bit of imagination we could muster into making maps that would inform and educate readers. He was always very concerned about the quality of data and the accuracy of representation. And although John was an avid experimentalist, he invariably wanted us to bring things back to real world applications.

John always wanted his graduate students to know their heritage and he took every opportunity at meetings and when visitors were in Seattle to introduce us to his colleagues and to invite us to join their discussions. One of the most valuable experiences that I had as a beginning graduate student was when John invited me to join a lunch that included Erwin Raisz, Ricky Harrison, George Jenks and others at the AAG meetings in Washington, D.C. To see how these men interacted professionally and personally gave a new meaning to the term colleague.

While John Sherman was a teacher of high stature and a cartographer whose ideas have stood the test of time, his real impact was in how he gave us all an excitement about learning and made us understand the importance and value of people's ideas. He always made sure that we separated why we were making maps from how we made them. John's philosophy of constant experimentation and learning is his greatest legacy to all of us who had the privilege of working with him.

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