Chapter 13
University of Wisconsin-Parkside
Later Years

As I relate the last two thirds of my professional career I have two goals. First is briefly to summarize my first sabbatical year in Oak Ridge. Second is to explain my gradual shift in research interest from physics to computer science. My teaching career can be fairly neatly divided into three periods: my early years at UW-P (1969-1979), my intermediate years at UW-P (1980-1992), and my later years at UW-P (1993-2001). I try to give some of the highlights of the last two periods in this chapter.

At this point I would ask the reader to allow me to indulge in a bit of academic philosophy. I notice in my own career a pattern similar to many other physicists and scientists in general. That is, early in our career we work on conventional research related to our thesis research and attempt to publish as many papers and give as many talks as possible. As our career advances we tend to look at the broader picture and publish conference proceedings and books which attempt to illuminate and summarize whole fields. After we retire we tend to concern ourselves with even more philosophical questions such as the nature of mankind, the role of religion, and the issue of free will. At least this is the path I seem to have stumbled along.

My first sabbatical came during the 1979-1980 academic year. This was the second sabbatical awarded at UW-Parkside. The first was to Professor Frank Egerton of the history department. Dr. Alvin Weinberg had received a copy of our energy book and was impressed enough to invite me to join his staff at the Institute for Energy Analysis in downtown Oak Ridge, TN. I arranged a sabbatical leave in which UW-Parkside paid half my salary and the Institute paid the other half for the academic

Dr. Alvin Weinberg at a Conference, Front Row,R

year.

In graduate school I had studied reactor physics from Weinberg and Wigner's *The Physical Theory of Neutron Chain Reactors*. So I was thrilled by the chance to work with him as a Visiting Scientist at the Institute. Alvin had worked on the Manhattan Project from the beginning and had served as Director of Oak Ridge National Laboratory (ORNL) for 18 years. He was fired by the Nixon administration because of his emphasis on nuclear safety and molten salt reactors, based primarily on thorium. Thorium based reactors produce no weapons grade uranium as opposed to the Liquid Metal Fast Breeder Reactor proposed by the administration.

Alvin Chairing a Meeting

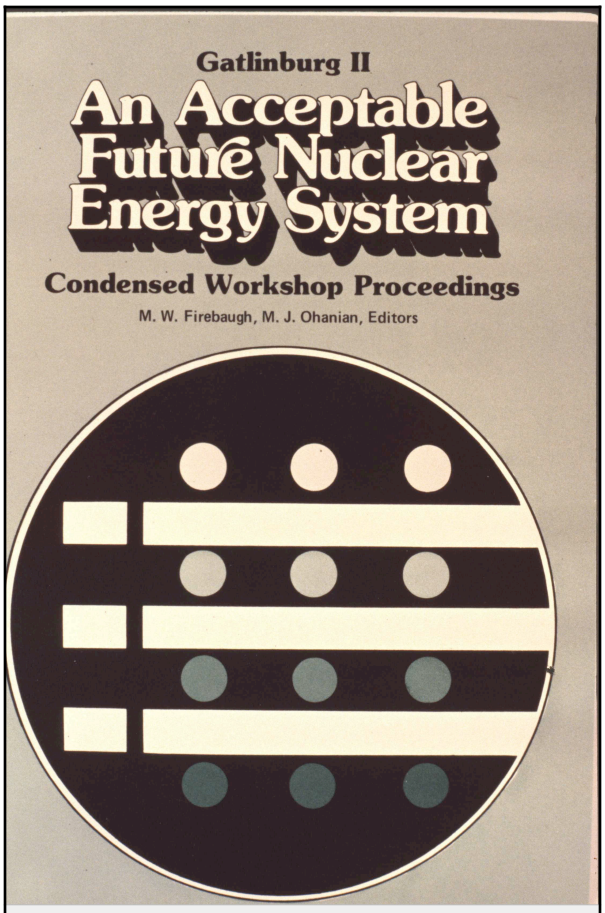
Alvin proposed and became the Director of the Institute for Energy Analysis in 1976. The Institute was a "think tank" producing papers, conference proceedings, and books. It had no experimental laboratories. Such think tanks are sometimes called "paper factories". Its primary missions were nuclear safety, CO_2 emissions and global warming, and geothermal energy. The first picture I show are the attendees at a conference the Institute held on reactor safety. Alvin is in the front row on the right. I'm in the third row immediately behind him. The attendees at this conference included the presidents of all major reactor manufacturers, the chairmen of many nuclear engineering departments (including MIT's) and Institute staff.

Seminar at the Institute

Several times a week we had seminars on a range of energy related topics. Many of the Institute's staff were Alvin's colleagues from ORNL as were many of the speakers. Alvin usually was the first to ask each speaker a penetrating question. Seminars were a tremendous educational experience for me.

One of the most delightful

experiences at the Institute was the afternoon tea. All members of the staff, who were not tied down with their projects, would gather in the library for tea and cookies at 4:00 p.m. each day. Alvin was always there and would lead the discussion which could be on any imaginable topic. For instance, I was nailed with the query, "What the heck is with your crazy senator?" At the time, William Proxmire was giving the "Golden Fleece Award" to federally funded projects which Proxmire picked upon. The Institute staff saw this as an attack on science.



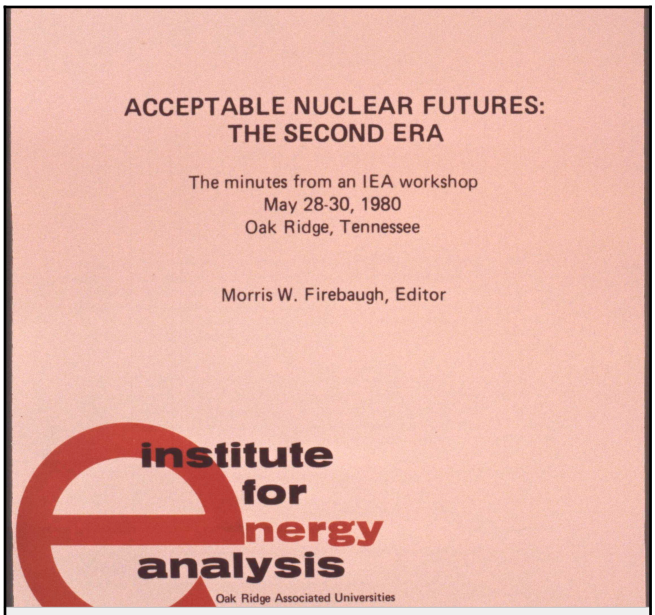
Book I Co-edited

My duties at the Institute were three fold. First, I was to research public attitudes on nuclear power. With some help from Elizabeth Peelle, Alvin's friend from ORNL, I wrote a paper on this subject and published it it the journal *Nuclear Safety*. It was also included in the book, *Gatlinburg II*, shown here.

My second task was mapping the geothermal resources of the eastern half of the U.S.. My tools for this task included a teletype (TTY) console and a phone connection to the main computer at ORNL.


Alvin at a Party on our Deck

I would key in the coordinates and depth of the underlying rock formations which limit geothermal resources of an area of the U.S., and the ORNL computer would plot these topographic maps out. I got the output graphs the next day and repeated the process. I believe that the main conclusion of this research was that there were no geothermal resources in the eastern part of the U.S..



Another Sabbatical Publication

They are mainly in California and Nevada.

My third duty was as coeditor, with another Visiting Scientist, Professor Jack Ohanian, to produce a book, *An Acceptable Future Nuclear Energy System*, which was the condensed workshop proceedings of the second Gatinburg conference. This was held in Gatlinburg, TN, in December of 1979 with 43 experts from industry, universities, ORNL, ANL, the Institute, and the U.S.Regulatory Commission. This two and one half day conference was recorded by court recorder and by audio tape. It was my job to reduce the 723 page transcript of the proceedings to a 239 page book. As we say in a Note from the Editors, "It was our desire to publish a coherent and easily readable condensed proceedings while preserving the context of the statements and the individuality of the participants comments." I presented Session V - Public Education and Attitudes. On a trip to the University of Florida where Jack was head of the Nuclear Engineering Department, I presented the final draft to Jack for his approval. These proceedings actually won a Tennessee award for technical writing.

This was at the dawn of the computer age. No one at the Institute had a computer. The only computing that was done had to be through teletype to the state-of-the-art mainframe at ORNL. My geothermal topological mapping project on which I spent weeks could be done in minutes on a personal computer. However, as you might conclude from my reminisces of the sabbatical, the experiences of working with some of the world's leading scientists was one I will always treasure.

I don't mean to give the impression that the sabbatical year was all work and no play. We did not neglect our social or recreational life. I swam a mile every day in the natatorium which was a block from the Institute. We attended the Unitarian-Universalist church


Steve and I on the Clinch River

which was in downtown Oak Ridge. We attended parties which some of the staff threw, and we hosted one for the Institute staff on our beautiful deck.

Joyce's Birthday Party on the Deck

Alvin Weinberg was an avid tennis player, playing almost every day. Several times that year he would call me and say, "My partner can't make it this afternoon. Can you meet me at the court at 5:00?" Of course I did and usually got beaten about 6-1.

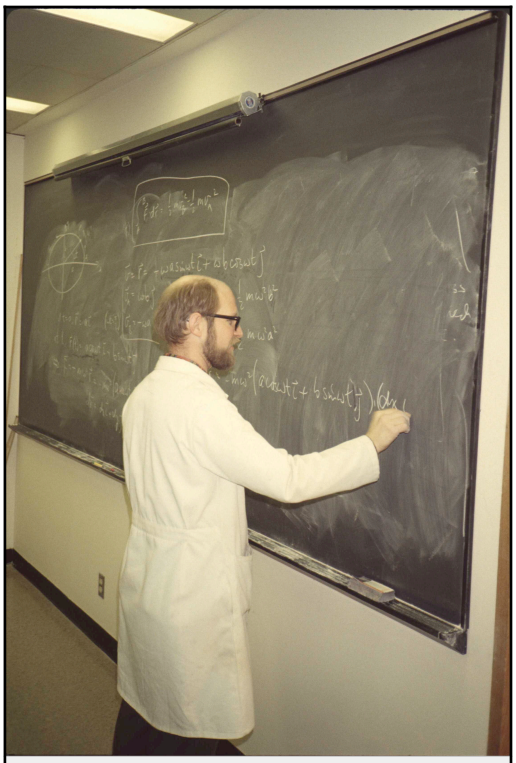
In fact, in retrospect, I am amazed by all the toys we took along to Oak Ridge. We took the canoe, our skis, my motorcycle and at least one bicycle, and our tennis rackets. Steve and I canoed the Clinch River which ran right through Oak Ridge and the Little Tennessee River before it was dammed. Our family spent almost every Saturday in the Great Smokey Mountain National Park with its marvelous trails and peaks. In fact, the highest point east of the Mississippi is there and we climbed it. In January we got several inches of snow, and I skied into work, and the whole family skied up Clingman's Dome.

Two social events which stand out in my mind were these. First, we met a couple who were fans of folk music. They persuaded us to attend a Harry Chapin concert in Knoxville and took us there in their nice Mercedes. It was an extraordinary performance, and he held the audience in his hand. He was not only a great composer and singer, but also an active philanthropist. Tragically he died in an auto accident later that summer.

Our Family in the Smokies

The second social event of which I'm a bit proud was Joyce's 40th birthday party. Janet Paulson, our neighbor in Racine, and I se-

cretly planned to have eight of our nearest neighbors drive down from Racine to Oak Ridge for a big celebration! I reserved space for ten at our favorite restaurant, and, on her birthday, took her there for dinner. Surprise! When we got there, all four couples were already there and sang her Happy Birthday! After a wonderful celebration at the restaurant, we all toured the Great Smokey Mountains the next day. It was quite a special celebration.



Professor Steve Luzader

The only disappointment I have with our sabbatical was that, even though we met many nice people at the Institute, UU church, and school system in which Joyce substituted, we did not keep up these friendships.

Meanwhile, back at UW-Parkside, I recommended that they hire Dr. Steve Luzader as my replacement. Steve had been my lab assistant in the electronics laboratory at UW-Madison and was an extremely knowledgeable physicist. He rented our house on Crabtree Lane while we were gone to Oak Ridge. I hoped that we could keep him on the staff at UW-Parkside, but we were not allowed to. He was a good colleague and a close friend.

UW-Parkside was changing while I was gone. Not only was it adding dormitories to become a residential campus as well as a commuter campus, but it was adding a new major: computer science. Engineers, mathematicians, and physicists with computer experience were recruited to form the faculty for this new major. As previously explained, UW-Parkside already had excellent computer facilities, and I joined as a halftime faculty in the new major.

New Dorms North of the Union

Partly due to my new position and partly due to my own keen interest, I bought my first computer, an Apple II Plus. In addition to its 16 K of memory, it had an additional 48 K memory board, giving it 64 K of memory. This allowed me to do Pascal, a high level language. All this, and an Epson printer for less than

$3,000! I was amazed!

Apple II Plus - My First Computer

The American Association of Physics Teachers had requester that I chair a session at the annual meeting on the nuclear option. I assembled a panel of several experts on nuclear power, and requested that each of them submit a paper outlining their talk. This they did, and I typed all their papers into the Apple II which was connected to the UW-Madison Univac 1110 TeX-Metafont system of scientific typesetting. After several trips to Madison to retrieve the final copy, the complete text of my paper session was distributed at the meeting in book form. The AAPT later reset the conference proceedings in a condensed typographic format and distributed it. But it was my first experience of using the computer to write a book.

This TeX-Metafont experience had a profound effect on me. It inspired me to produce the two major works of my academic career, my artificial intelligence book, and my computer graphics book. It is hard to over emphasize the influence of this experience.

My joint appointment in physics and computer science was a mixed blessing. Each department saw me as "one of theirs" and , perhaps unconsciously, expected me to behave like a faculty member on their department. For this reason, and to simplify my life, I switched to become a full time faculty member of the computer science department.

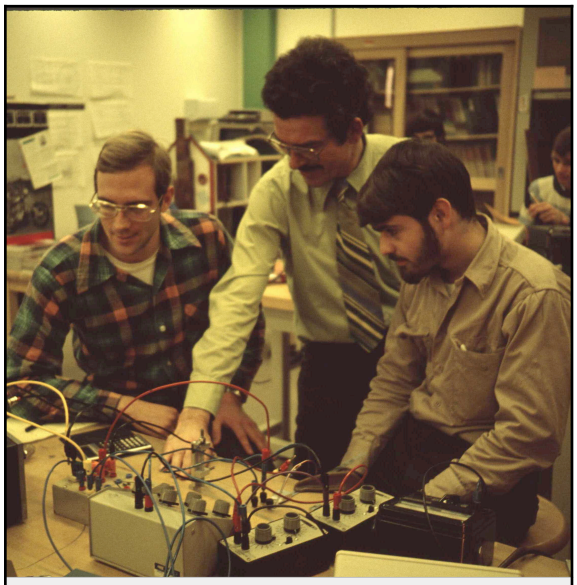
Instructing Electronics Lab

In the physics department my teaching duties consisted of a work load of nine to ten hours of general physics for the health sciences, general physics for physics and engineering, modern physics, electricity and magnetism, atomic physics, nuclear and reactor physics, and two electronics courses. The good thing about the university policy in those

Students in Lecture

days was that one hour discussion sessions and three hour labs counted towards our teaching load. So our full time load usually involved just two courses.

Of course, both general physics courses had three hour labs as did the modern physics course and both electronics courses. During the first half of my career I was thankful for the month that I had been responsible for unpacking the new physics lab equipment since that meant that I knew where each experimental apparatus was stored.



Assisting in Lab

One of the major events that occurred while I was a physics professor was that our department hosted the annual American Association of Physics Teachers (AAPT) convention. I was responsible for making all the arrangements and inviting the keynote speaker. I invited Dr Ned Goldwasser,, my thesis advisor, and at the time he was Research Director at Fermi National Accelerator Laboratory. The convention was very successful, and Ned's talk was well received. The Wisconsin chapter of AAPT was very active at the time, and several of my colleagues attended the annual conventions regularly. Here are two of my physics colleagues, Dr. Steve Luzader and Dr. Feredoon Behroozi at a physics convention.

Steve and Feredoon

In this time of plenty we also had a diverse physics faculty. The next photo is of Janet Landato, instruction her students. We also had a female astronomer who taught both astronomy and physics. So time brings changes. I must express my disap-

pointment at reviewing a recent UW-Parkside directory and observing that, in the new Mathematics and Physics Department, there are twelve mathematics faculty and one physics faculty member.

Janet Landato and Students

Tom Beck, one of UW-Parkside's first physics graduates, worked together with his brother, Jim, and his Dad to establish UNICO. This company builds automation and computer control systems used world wide, and Tom was President of the company. At various times, both I and my engineering colleague, Dr. George Perdikaris, worked as consultants to UNICO.

The really big project which I worked in involved an assembly line on which conducting metal sheets (such as aluminum or copper) would move, carried by a traveling magnetic wave and automatically cut themselves to the correct length by a pulse of magnetic energy. The federal government was funding a program for small business research projects. I helped write the proposal and was responsible for communications with the agency which funds such research. I was present when the federal program director visited UNICO to help answer questions on the feasibility of the research.

The project was funded, and I vaguely recall that it was for several hundred thousand dollar. It was a powerful and interesting concept, dreamed up completely by Tom. He was an imaginative theoretical physicist as well as competent experimentalist. He actually won the first UW-Parkside Distinguished Alumni Award. We proved the feasibility of cutting copper and aluminum with the pulse of magnetic energy but were not able to cut steel. Since most assembly lines carry steel sheets the project did not produce a commercial product. One of my former students, Keith Van Patton now at UNICO, and I wrote a paper on this system, and I delivered it at an engineering conference in Flint, MI.

Tom Beck and his Colleagues

To help visualize the magnetic field configuration produced by the coil windings of the transport magnets I used the newly developed computer technique of finite element analysis

(FEA). To help me better understand this approach UNICO sent me to a week long seminar on FEA at Union College in New York. Several of the leading experts were professors there, and I had a most enjoyable and educational week. Subsequently the company bought a highly capable FEA program which I used to produce maps of the magnetic field for this and several subsequent projects.

UNICO in Franksville, WI

The university was very generous and liberal about our consulting arrangements. We were allowed one day a week off for consulting. At the end of the year we had to declare outside activity income. I think the university like to claim such activities as "engagement with the community". So we had no problems, and the outside income was welcome, particularly as our children entered college.

At this point I have to show a curious phenomena. I had a very primitive FEA program running on my first computer shown above. It had an Epson printer. As I would run output from a computation our cat would be intrigued and watch intently. He (she) would never paw at the output but was clearly curious!

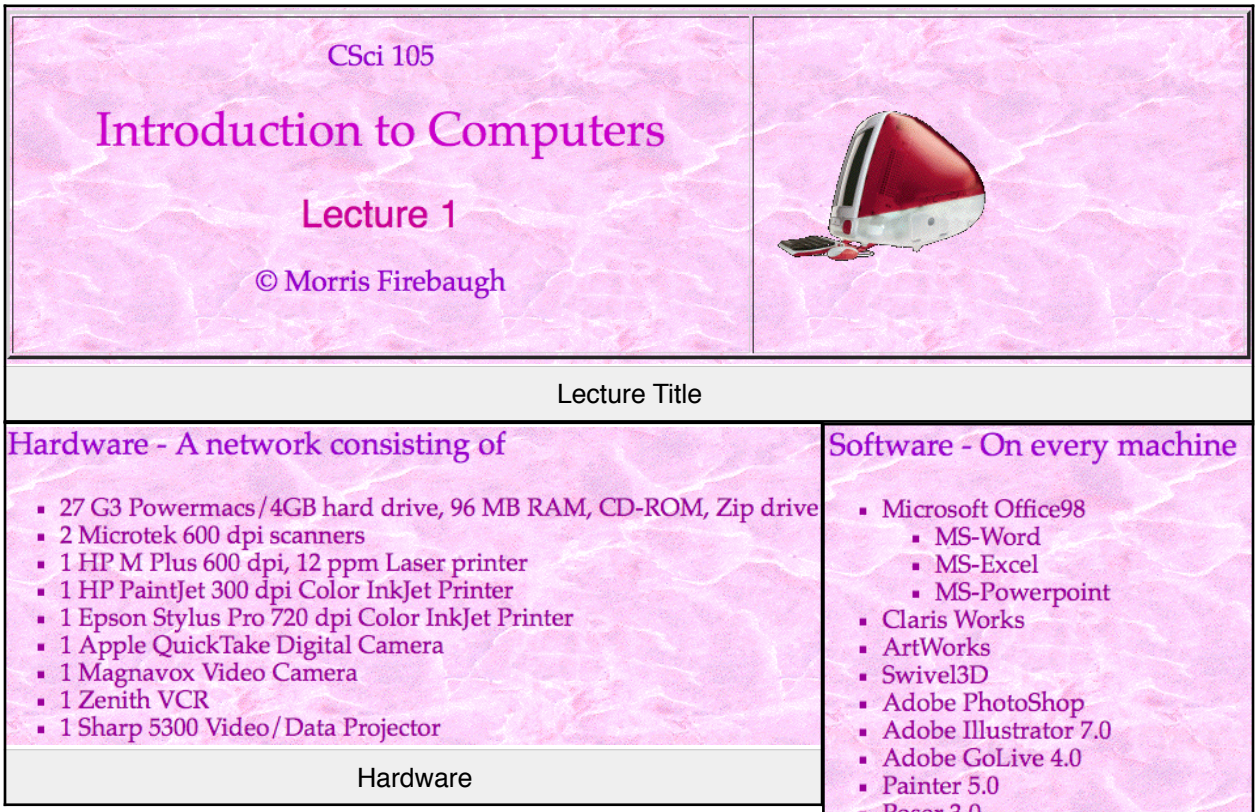
I should mention one other important fact. Steve had done several programming jobs for UW-Parkside's athletic department. They included scoring programs for wrestling and other sports. He had also taken my FORTRAN course as a Case H.S. senior. So I had no problem getting him hired as a programmer at UNICO the summer between high school and college. At that time, both we and UNICO were completely Mac shops. His project was to turn a Macintosh into an oscilloscope. He dug into the Mac operating system and successfully finished the project. This experience was of great help for him getting the job as electronic technician at UW-Madison.

Cat watching Output

As my obligations in the physics labs phased out, my efforts to establish well equipped computer labs increased. I wrote several proposals to the university for building a well-equipped teaching laboratory for

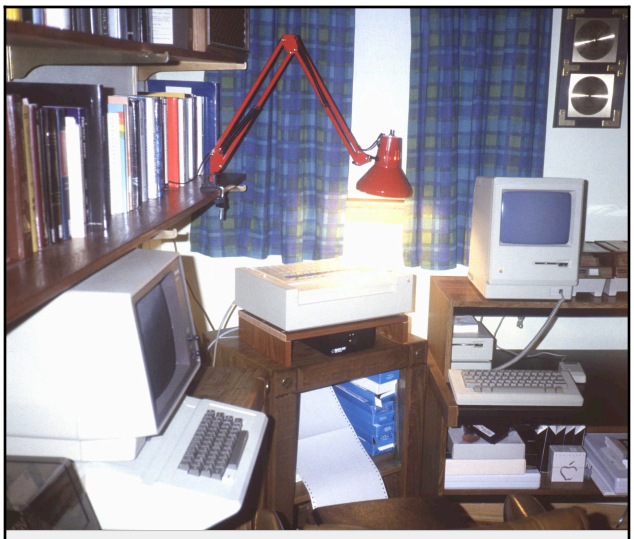
teaching my computer courses. To give you some examples of the work involved I will present three snapshots of my first lecture in Computer Science 105. These lectures are still posted on the web.

These images illustrate the huge effort required to build a state-of-the-art computer laboratory. This laboratory in the basement of Greenquist Hall was eventually



subsumed by the Mac Lab in the Library in which I taught my final courses. But you can imagine the work involved to put this network together and obtain licenses for the software involved. This lab was one of the proudest achievements of my teaching career.

My first use of "modern technology" to teach computer science, instead of the blackboard, was to use my Apple II to produce my lectures, print them to transparencies, and project them with an overhead projector. O course, these were only in black and white. Then I heard of a data projector to which I could hook my Mac and project my lectures "live". Eventually the world wide web became available and I eventually posted all of my lectures to the web where they remain to this day. I could then tell my students, "You



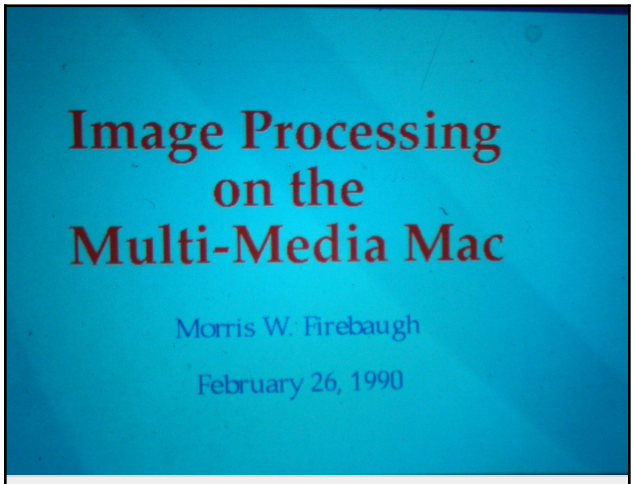
Mac, the Second Generation

don't have to take notes. My lecture is available to you on the web. All you have to note are my auxiliary comments." By then all the students either had their own computer or could use one in the PC lab or the Mac lab in the library.

I believe I was the first UW-Parkside faculty member to use these modes of Computer Aided Instruction (CAI). By my final class in web page design I gave the final exam completely by computer. Students signed in on a computer, called up the 100 question multiple choice exam, and the computer system graded it automatically. I must stress the enormous amount of work required to implement such CAI. It consumed most of the later years of my teaching career.

There is an interesting and bittersweet story of CAI. Just as personal computers were emerging the University of Illinois was developing the advanced PLATO project for CAI. Professor Donald Bitzer had invented the plasma display panel which could display black pixels on an orange (neon) screen. A PLATO terminal had this screen, a keyboard for communicating, connection to an Illiac computer, and a microfiche image selector for projecting colored images on the screen. It was the most advanced CAI system of its day, and the university gave course credit for courses taken on PLATO terminals. Eventually, Control Data licensed the system and distributed it to various universities and even United Air Lines for training pilots.

I kept fairly close tabs on the PLATO system and invited Professor Bitzer up to UW-Parkside to give a faculty seminar. He flew up, and I helped him transport the PLATO terminal to the lecture hall. I was amazed by the capabilities of the system and even more amazed when he used the terminal to call up his colleagues at the University of Illinois and had them send him another course. The plasma display panel which he invented was the forerunner of our present LCD screens, and he also invented the touch-screen now common on many electronic devices.



One of My Mac Club Presentations

Interestingly, he served on a National Academy of Science committee with me around year 2000, and we renewed old times. More on the NAS later. The bittersweet aspect of the PLATO project is that it relied on a time sharing system which had to charge for the courses it provided. As personal computers began to have the capability of main frame computers at a cost far less than PLATO terminals, they gradually drove PLATO out of business.

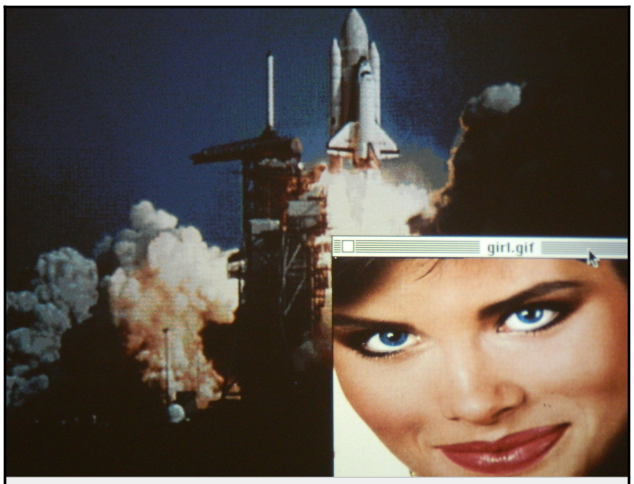


Image from the Presentation

With the introduction of the Macintosh in 1984, Mac Clubs became very popular. We had a very strong Kenosha-Racine Mac Club, and I arranged for the UW-Parkside Mac Lab to be available for club meetings. This made "show and tell" sessions very easy, and I made a number of presentations to the club. Here are some of the images I presented.

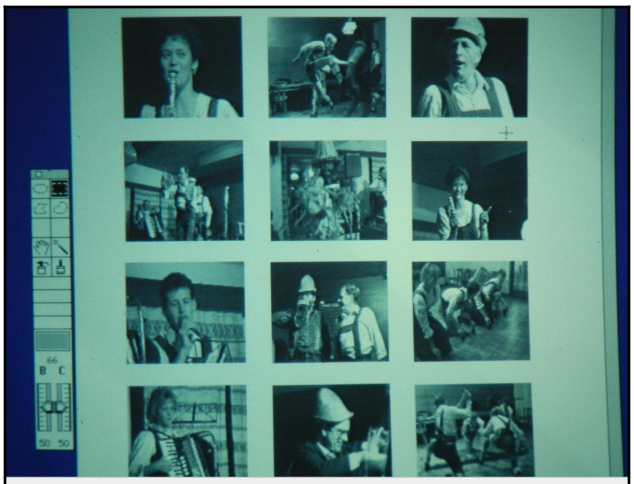
My good friend, Ken Lukow, heard that I was interested in artificial intelligence. As program chair for the engineering division at Johnson Wax in Racine, Ken needed a speaker on this topic for their engineering colloquium. Since I had nearly finished my book on artificial intelligence I was fairly knowledgeable in the field and had read his book on the subject, I recommended Dr. Donald Michie, a colleague of Alan Turing. Ken agreed that I should ask him to speak even though it meant flying him in from England.

I contacted Dr. Michie to ask him if he was interested. He said yes, but only if I could arrange several speaking engagements for him. I agreed and lined up a UW-Parside colloquium, an Allan Bradley symposium (they were just getting into AI), and a trip to meet with several UW-Madison AI researchers, as well as the Johnson Wax colloquium.


My Third Generation Mac

On our way to the hotel after his UW-Parkside speech I handed him a preliminary copy of my book for his input and comments. On our way to Madison the following morning I asked his impressions of the book. He was very enthusiastic, and we agreed that he would write the Foreword.

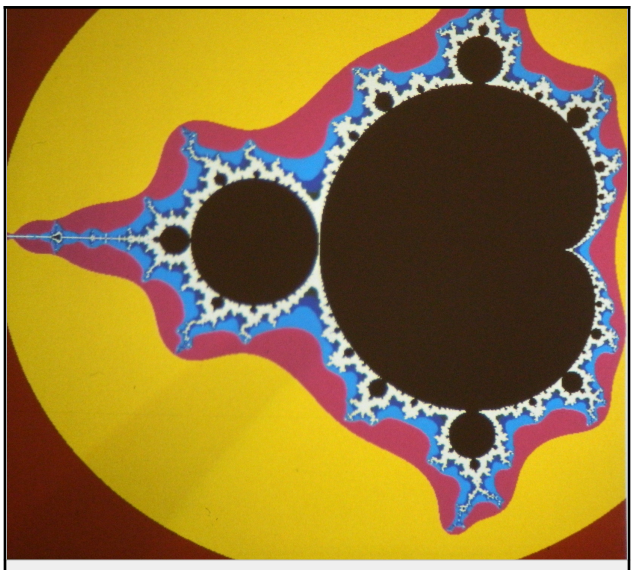
When I volunteered to teach AI in the early 1980s, the only definitive book on the subject was the five-volume *Handbook of Artificial Intelligence* edited by Professor Edward Feigenbaum. This was far too expensive (and heavy) to assign as a student text. So I decided to write one. It was a lot shorter, only 740 pages. At a later AI conference, Drs. Michie, Feigenbaum, and I had lunch together, and Dr. Feigenbaum said that he had used my text at Stanford University where he taught at the time.



Details of the Previous Screen

The text, *Artificial Intelligence - A Knowledge Based Approach*, took about three years to write. It was well marketed by my publisher, Boyd & Fraser, and, according to them, used at over 300 universities around the world. As I told my friends who asked how it was doing, I said, "It keeps my boat in the water!". One of the unique features of the book was that each of the 18 chapters began with a picture of one of the founders of the AI discipline. Of course, I had to get permissions back from them before publishing.

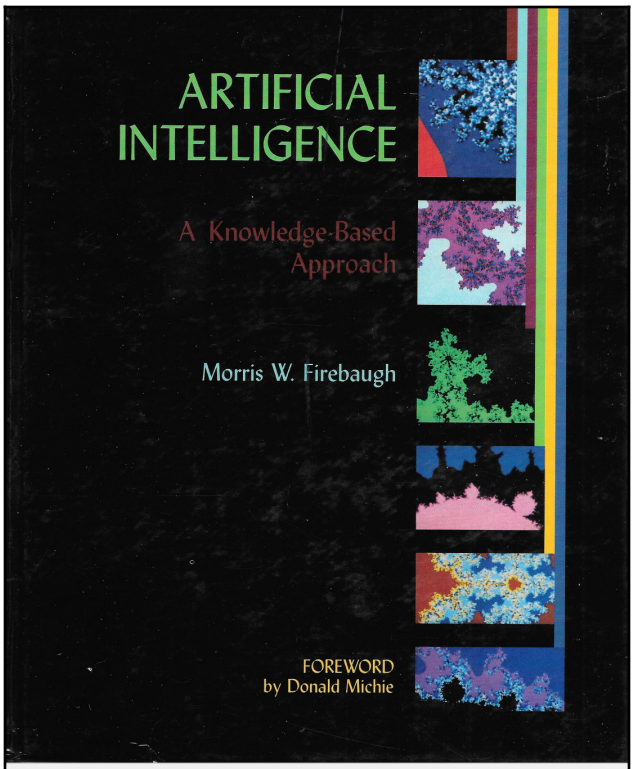
Another unique feature was that the text contained the only detailed presentation of neural networks as valuable techniques for computing. Traditional AI relied on the Physical Symbol System Hypothesis which stated: *A physical symbol system had the necessary and sufficient means for general intelligent action*. Clearly neural networks were not physical symbol systems.



Mandelbrot Fractal

So I say on the last page of the book, "Once the artificial intelligence community acknowledges that intelligence can be achieved both through symbol manipulation and non-symbolic processes, much of the controversy will die away." Recent success by quantum computers using deep learning and neural networks is proof of these predictions.

This book was completely desktop published. I had a Mac in my office both at home and at work, and the department had a networked laser printer. I printed every chapter on the laser



The Cover of the AI Book

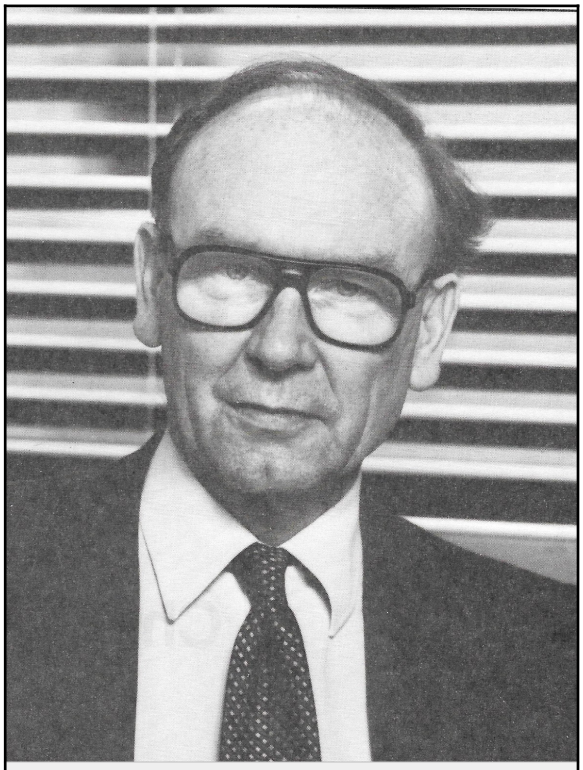
fractal shown in the previous photograph.

Because of the nature of desk top publishing the publishers did not do a very thorough job of proof reading. So the first printing of the book had quite a few typos. To find them and eliminate them in future printings, I paid my students in the AI class 25¢ for each error they found. One of my better students practically paid for her book this way. So my class helped me debug the book.

Another of my academic responsibilities during these later years was my appointment as Associate Editor of the American Journal of Physics for computer and electronics applications. Every month or so I would get a copy of a paper for the AJP, and it was my job to read it carefully and determine of it deserved to be published. This sometime required quite a bit of time and printer and mailed in the final appendix and index on January 31, 1988, and received ten copies of the finished version on March 1, 1988. So Boyd & Fraser produced the whole book in the 28 days of February.

Appendix A, Introduction to Programming in LISP, was written by my UNICO colleague, Yong Auh. It is an excellent summary of the favorite language (at that time) of AI researchers.

At the time I wrote the book, I had a Zenith personal computer which could do color. My publisher asked me to provide a color photograph for the book cover, so I sent in six, hoping they would choose one of them. They liked them so well that they included all six photographs of fractals. Most of these images are a subset of the Mandelbrot



Professor Donald Michie

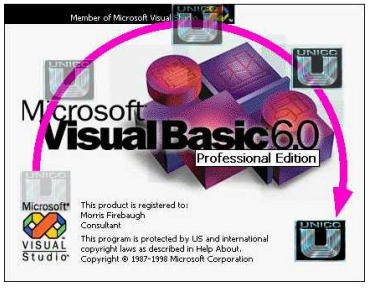
Professor Steven Pinker

additional research if I was not familiar with the contents of the paper. But it was important for maintaining the quality of the AJP that all papers be referee reviewed.

Mr good friend, Professor Emeritus Wayne Johnson, and I were instrumental in forming the UW-Parkside Forum on Religious Issues. I have already mentioned the Racine Kenosha Mac Users Group (RK-MUG). UW-Parkside also sponsors Adventures in Lifelong Learning, a forum on current issues. And of course there is UNICO. For all of these organizations I presented one or more seminars. A partial list includes:

- Building a WWW Page (with Sue Hess)
- Adobe GoLive 4.0
- Olympus D-400Z Digital Camera
- Visual Basic Seminar Series (6 lectures for UNICO)
- Book Review *The Age of Spiritual Machines* and *The Status of AI*
- Spinning the Web (UW-Parkside Communications Conference)
- Advanced Web Design (6 lectures for UNICO)
- Netscape vs. Internet Explorer
- Ethics and the Internet
- DotPhoto & Photoshop Elements 2
- ISIHGT & ICHATAV Video Conferencing for the Rest of Us
- Book Review *The Blank Slate* by Steven Pinker
- Journey Out of Fundamentalism
- My Latest Digital SLR & Slide Scanner
- An Analysis of Nuclear Power

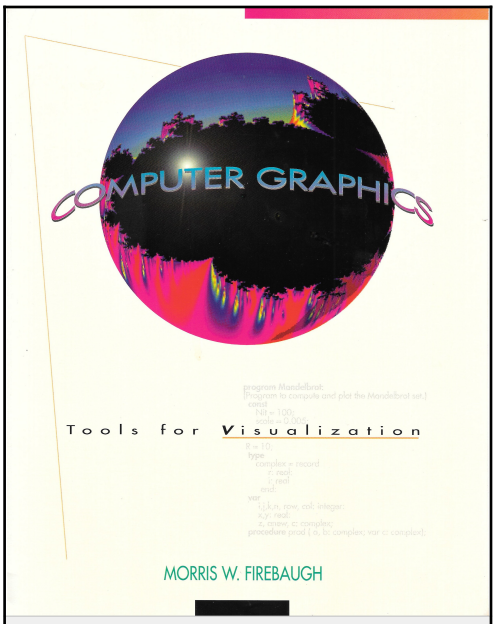
This list seems to be rather scattered and random. However, I was speaking to both the hardware oriented RK-MUG, the technically oriented UNICO, and the philosophically aware Religious Forum. Different groups required different topics. The "Journey . . ."seminar documents our religious—> atheistic conversion. All seminars as well as my courses are available on the web at



Modified Icon for Series

www.firebaugh.com/FDA/Seminars/Seminars.htm

The final writing project of my academic career was my book, *Computer Graphics - Tool for Visualization*. This book actually took two years longer to write than the AI book. It was the culmination of my interest in computer graphics which began with the 1970 WARF grant for the Adage project. My fascination with computer graphics had grown along with the capabilities of personal computers and graphics software. I attended the first computer graphics conference in San Diego where I heard lectures by the founders of Pixar and had Benoit Mandelbrot sign my copy of this book *The Fractal Geometry of Nature*. As you may notice the Mandelbrot fractal has played a big role in my writing.



My Graphics Book

One theme running through the book is progression from one to two to three to N dimensional graphics. This allowed me to devote a whole chapter to fractals as objects of fractional dimension. The language I used for programming in the book was Pascal, the language of choice for teaching computer science at the time. Again, my UNICO friend, Yong Auh, wrote Appendix A, this time on *Vectors and Matrices*. Appendix B, *FIGS, Fundamental Interactive Graphics System*, was written by Dan Knudsen, Steve's friend from Microsoft I got to know. Dan, Steve, and I climbed Glacier Peak in Washington state together.


Dr. Benoit Mandelbrot

Although the figures in the book were in color, my publisher, Wm. C. Brown, chose to produce it in black and white with the color images from the book attached in a 3½" disk included in the text. Although this feature should have helped with book sales, the marketing efforts were not up to those for the AI book and so the Computer Graphics book did not do as well as the AI book had. It did work very well as a text for my course in computer graphics.

Teaching and research, particularly for my books, UNICO, and the AJP were my primary activities during these later years of my career. But

our family did not shirk our social and recreations functions. Nearly every summer we traveled to the mountains, fished at Island Lake, climbed at Devils Lake, and partied with our friends and neighbors.

Joyce Racing at UW-Parkside

After learning to ski at local ski hills and Telemark, our family regularly spent ski vacations in Colorado. Our favorite resort was Brekenridge, but we also skied Keystone, Copper Mountain, Aspen, Vale, Crested Butte, Steam Boat Springs, and Winter Park. Various members of the family also skied Teton Mountain and in Utah. Joyce and I only gave it up after learning of so many accidents among our friends. One year five died at Brekenridge according to our skiing friends, Mike and Lily Lo.

Racing was another sport which we regularly participated in. Here Joyce is racing at UW-Parkside and I am racing in the Light House Run in Racine on the next page. The Light House run is a ten mile run that has become a Racine tradition. It started shortly after we moved to Racine, and I ran it the first twenty years. I stopped after an Achilles tendon injury, during the race, which pained me for nearly a year. Joyce and I are back to walking the four mile version!

Another competition in which I participated was the Racine triathlon. Our race consisted of about one quarter of the Ironman Triathlon, namely one half mile swim, 25 mile bike ride, and 6 mile run. In one triathlon I got fifth place and in one I got third place. This event has died out, and sadly there is no local triathlon.

Family Skiing in Colorado

One evening we had a curious event with our neighborhood friends. It was a cold fall evening, and the State Street bridge had just been reopened. For some strange reason (too much alcohol?) we all decided it was our duty to christen the new bridge. I don't think we broke any champaign bottles on the bridge buttress, but from the expressions on our faces it is clear that we're having a good time. In spite of religious and political differences we had many good times with our neighbors.

This chapter closes with a photo

Headband Me in Light House Run

Neighbors Christening the State Street Bridge

of one of many outings to Devils Lake. By this time, our close friend, Ray DiIulio had several Goldline climbing ropes to add to ours for climbing instruction. We would usually drive up Saturday, eat together around the campfire, camp overnight and climb the next day.

Here Ray has his arm around Susie on the far right hand side, Joyce, his son Dale and Steve are next to them, and Don Piele, Helen DiIulio, and Nancy Hennessy are on the left hand side. In between are all the kids. Some of this gang had outstanding balance and climbing skills. Linda Piele, Don's wife, was one of those as was Wendy, Nancy's daughter. This was about the year Ray, Dale, Steve and I drove to climb in the Col-

Devils Lake Climbing Party

orado mountains. Our crowning achievement was our climb of Crestone Needle in the Sangre De Christo mountains.

Me, Ray, Nancy, Helene, and Linda at Devils Lake