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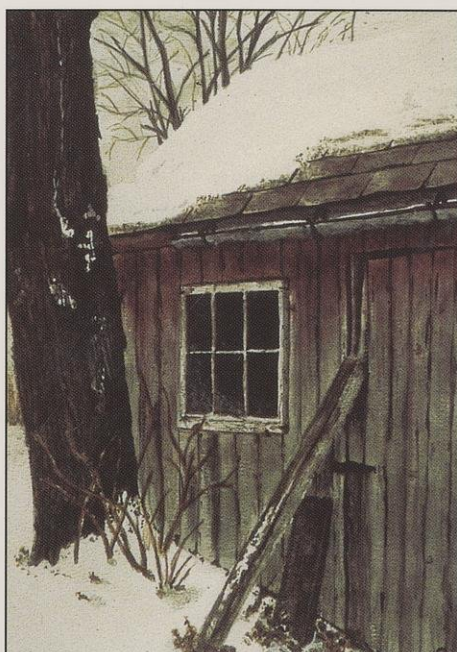
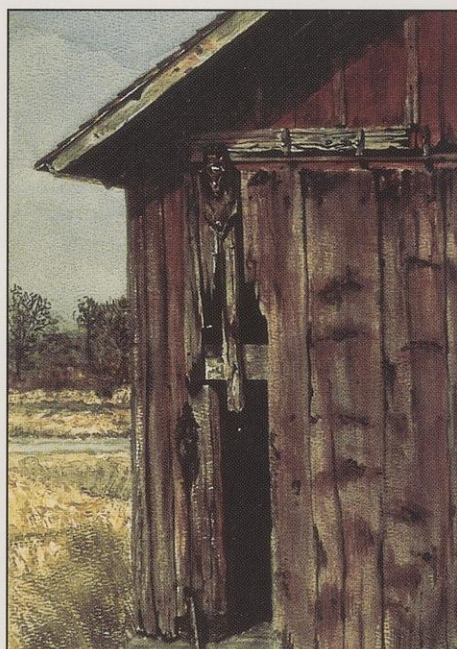
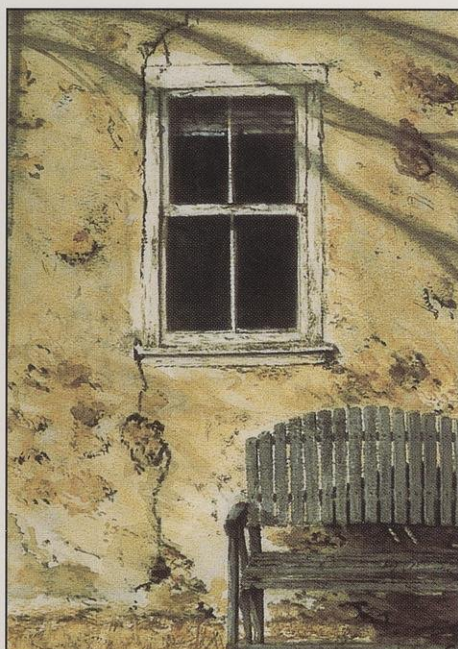
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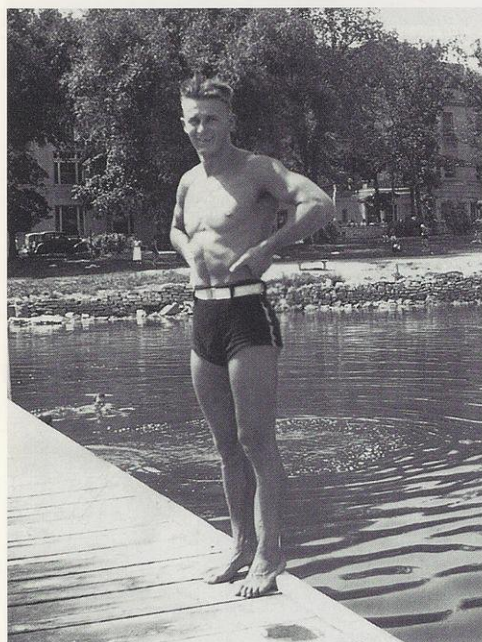
Wisconsin Academy Review

A JOURNAL OF WISCONSIN CULTURE



Wisconsin Academy Review

Spring 1998



Edward Walsh (1910–1983), model for Paul Bunyan figure in the murals painted by James Watrous at Memorial Union, University of Wisconsin–Madison. Photo taken October 1935 in Madison (see p. 50).

FRONT COVER (Clockwise from top left): The Bench, Lofy's Shed, The Old Garage, Wood Shed. BACK COVER: Chicken Coop. Images from the watercolor series *Forgotten Places* by Charlette Hein, 12 x 8 1/2 inches, 1997.

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 To the Editor

The Wisconsin Academy of Sciences, Arts and Letters was chartered by the State Legislature on March 16, 1870, as a membership organization serving the people of Wisconsin. Its mission is to encourage investigation in the sciences, arts, and letters and to disseminate information and share knowledge.



In 1995 the Wisconsin Academy observed the 125th anniversary of its founding, and many of us turned to the riches of our archives to better understand our organizational roots, our mission, and our place today in the cultural community of our state. During 1998, Wisconsin's sesquicentennial year, once again we find ourselves looking back, this time in concert with citizens throughout the state. While we do not plan a single special issue of the *Wisconsin Academy Review* in observance of the sesquicentennial, we will be offering glimpses of our past in each issue.

But first, we stand firmly in the present—our feet on Earth, our eyes on the universe—with Arthur D. Code's continuation of the Hubble Space Telescope story. We cannot think in terms of advances made in science and technology since that long-ago day of statehood without acknowledging the many contributions of Wisconsin scientists; and the Hubble Space Telescope story is generously peopled with Wisconsin scientists who played key roles.

Through his teaching and writing, the late scholar Merle Curti helped us better understand our history and ourselves, both as part of a democracy and as individual citizens. Now Paul S. Boyer has provided us with an appreciation which better acquaints us with the legendary Curti and his significant contributions.

During the mid-nineteenth century, two travelers—one British, the other Austrian—explored Wisconsin and recorded their observations of life here. One, known only as anonymous, left a lively journal of his experiences in Wisconsin just prior to statehood; the other, brought to our attention by Rosemarie Lester, is Franz Hölzlhuber, who enhanced his journal with vivid watercolors during his stay in Wisconsin from 1856 to 1860. We are grateful for the help of the State Historical Society of Wisconsin in bringing both of these features to print.

Three contemporary contributors—a writer, an artist, and an advocate for the environment—have likewise given us a feel for the more recent past. Beth Franks, who now lives in New York state, has written a touching memoir of her childhood in Wisconsin; Charlette Hein has created watercolors which ennoble some of the “forgotten places” of Washington County; and, lest we continue to forget, Charlotte Zieve has brought to our attention a troubled lake which may never be the pristine body of water it once was, but could motivate us to prevent future disasters.

An eclectic group of poems by both emerging and experienced poets, book reviews, and an Inside the Academy feature

on one of the Academy's science teacher enrichment programs complete this issue.

Finally, I have done some personal “looking back” and thinking about the many writers and artists who have contributed to the *Wisconsin Academy Review* since I became editor in 1990. Some had never before been published; some have international reputations in their various fields. It is a privilege and an honor to work with these contributors who have given so



The family farm near Oconomowoc where author Beth Franks grew up (see p. 36).

generously of their talents and knowledge. I also want to express appreciation to the many individuals who have helped behind the scenes, including staff, advisers, and our production people at University Publications and American Printing—many of whom have no bylines in print but who nonetheless have contributed significantly to the publication. Thank you.

Faith B. Miracle

Wisconsin Academy Gallery schedule

March: Paula Schulze, printmaking
April: Warrington Colescott, printmaking
May: Diane Levesque, paintings

Special event

“Genesis & Legacy: Wisconsin's Environmental Pioneers”; forum, film premiere, dinner, and tribute. Saturday, April 18, 1998. For information contact the Academy office or Website.

CONTRIBUTORS

- ▶ Anonymous was an Englishman who kept a detailed journal while traveling in America during the summer of 1841. His lively observations were published in London in 1842 under the title *Life in the West*, and excerpts relating to Wisconsin were reprinted in *A Merry Briton in Pioneer Wisconsin*, published by The State Historical Society of Wisconsin in 1950. The true identity of Anonymous remains unknown to this day, and if anyone has information which might solve this mystery, please let us know and we will pass on all clues to The State Historical Society of Wisconsin.
- ▶ Paul S. Boyer is Merle Curti Professor of History and director of the Institute for Research in the Humanities at the University of Wisconsin–Madison. He holds a Ph.D. from Harvard and has received Guggenheim and Rockefeller Foundation fellowships. He has written and/or edited numerous books, textbooks, articles, essays, reviews, and encyclopedia entries; and *Salem Possessed* (1974), which he co-authored, was nominated for a National Book Award. He is former editor of the *History of American Thought and Culture* series for the University of Wisconsin Press, currently serves on the National advisory board of the public television series *The American Experience*, and is editor-in-chief of *The Oxford Companion to United States History*, forthcoming in 1999.
- ▶ Robin Chapman teaches courses in language development at the University of Wisconsin–Madison and is a frequent contributor to the *Wisconsin Academy Review*. Recent poems have appeared in *The Hudson Review*, *Poetry Canada*, and *The American Scholar*.
- ▶ Arthur D. Code received his Ph.D. in astronomy and astrophysics from the University of Chicago and has been active in stellar astronomy, galactic structure, extragalactic studies, radiation transfer theory, astronomical instrumentation, and space astronomy. He came to the University of Wisconsin in 1950 and established the university's Space Astronomy Laboratory, which has been an active participant in the national space program since the formation of NASA in 1958. He has published and lectured widely and served on numerous advisory panels and committees. He is currently Hilldale Professor of Astronomy Emeritus and a scientist at the National Optical Astronomy Observatory at Kitt Peak, Arizona.
- ▶ Patricia Dyjak has lived and worked in Madison for the past ten years. She is a member of The Writers' Place (TWP), where she occasionally teaches classes, and is active in the collaboration between TWP and Mind's Eye Radio. She was born in New Jersey, received her M.A. in English literature and her M.F.A. in poetry from Western Michigan University. Her poems have appeared in *Passages North* and *Anemone*.
- ▶ Kellie Eggert lives in Whitewater and edits her own small literary magazine. Though she has been writing poetry since age thirteen, she considers herself "a relatively new poet" who has come "to value the preciousness of each word." She studied literature at the University of Wisconsin–Madison.
- ▶ Yvette Viets Flaten holds degrees in Spanish and history from the University of Wisconsin–Eau Claire. As an air force child she traveled extensively in the United States and Europe. She now lives in Eau Claire and writes fiction and poetry and has been named editor of the 1999 *Wisconsin Poets Calendar*.
- ▶ Beth Franks was born and raised in Wisconsin and now lives in Rochester, New York. Though she has traveled far geographically, she continues to return to the farmlands of the Middle West. It was her trips to Milwaukee to visit her aunt, however, that were etched in her memory and which have become the focus of some of her current writing. She teaches in the education department at Hobart and William Smith Colleges in Geneva, New York.
- ▶ Charlette Hein received her B.S. degree in architectural studies and a master of architecture degree with a historic preservation studies certificate from the School of Architecture and Urban Planning at the University of Wisconsin–Milwaukee. She and her daughter live in an 1850s farmhouse in rural Washington County. She also designs and installs perennial gardens under the firm name of Orchestrated Gardens. Six of her paintings have been produced as limited-edition prints and are for sale.
- ▶ Rosemarie K. Lester was born in Berlin, Germany, and received her M.A. and Ph.D. degrees from the University of Wisconsin–Madison. She has taught German language, literature, and cultural history at Augustana College in South Dakota, Miami University in Ohio, and the University of Maryland in Frankfurt, Germany, where she also worked as a free-lance radio journalist. She recently retired from the Department of Liberal Studies at the University of Wisconsin–Madison. Her special interest areas and publications focus on blacks in German cultural history, stereotype and prejudice in the print media, and German-American interrelationships.
- ▶ Christine Wallin grew up in Shawano, graduated from Lawrence University in Appleton, and received a master of music degree from the University of Wisconsin–Madison. She now lives in Milton-Freewater, Oregon, and teaches at Walla Walla Community College. Her work recently has appeared in two Seattle publications, *Point-No-Point* and *The Raven Chronicles*.
- ▶ Charlotte Zieve of Elkhart Lake received a degree in chemistry from the University of Illinois and a Ph.D. from the University of Wisconsin–Madison, where she was enrolled in the land resources program at the Institute for Environmental Studies (IES). She lectures widely and is an IES honorary scholar. Her primary concern is municipal solid waste management policy in Wisconsin, and she continues to conduct research in this area. She represented IES at the International Conference on Population and Development in Cairo in September 1994 and attended the Beijing conference in 1995 as a representative of the National Audubon Society.

Hubble Space Telescope

by Arthur D. Code

PART TWO: DISAPPOINTMENTS AND TRIUMPHS

Early Operation

On the morning of April 24, 1990, astronomers, engineers, and NASA officials joined the many other official guests to watch the launch of the space shuttle Discovery from the Kennedy Space Center in Florida. They had been there two weeks earlier when an engine problem prevented the launch. This time, however, with one short delay, Discovery was on its way with its precious cargo, the Hubble Space Telescope.

While one gets an excellent view of a shuttle launch on television, there are three distinct differences when you see one live. First, at lift-off television cannot in any way convey the brightness of ignition; the whole landscape lights up. Next, because sound travels much slower than light, the sound of ignition is delayed; and when it arrives it rumbles in your chest as though a freight train were passing through. The final difference is that there is no instant replay—it happens just once, and the cheers go up.

The next anxious moment on that spring day in 1990 would be deployment—the Hubble Space Telescope (HST) was finally placed into low earth orbit (375 miles) by the crew of the space shuttle Discovery the following day. The deployment went off smoothly with only one disquieting episode: One of the solar arrays, which unroll somewhat like a window shade, did not fully extend, and for a time it appeared the crew would have to go out and repair it. A software fix did, however, solve the problem, and the telescope was released into orbit. At last our “window to the universe,” as the media would call it, was ready to reveal nature’s long-kept secrets.



The first activities of the ground control were to determine whether all the space support systems were working, such as power, communication, attitude control, and a host of others. This procedure is known as “orbital verification.” Astronomers and the interested public would have to wait until after “first light” for the adventure to begin.

First light occurred on Sunday, May 20, nearly four weeks after launch. The telescope was pointed at a cluster in the con-

stellation of Carinae in the southern sky, and two exposures were taken using the wide field/planetary camera (WF/PC, pronounced wiff-pick) and stored on tape until the images could be downloaded to the tracking and data relay satellite, and then to the ground.

Because of the extraordinary hype that had preceded the launch of HST, the viewing of these first light images had become quite a media event, and personnel most closely involved took pains to point out that it was unlikely the very first images would be impressive. After all, the telescope had

not yet been focused, and a great deal had yet to be learned about how to operate such a complicated system. Typically it has taken many months to work out the bugs in ground-based telescopes. As it turned out, however, the first light images were surprisingly good! The star images were about twice as sharp as the typical images obtained from the surface of the earth.

The viewers were impressed: “Hubble works! Look at that!” The

WF/PC team leader, Jim Westphal, broke into a grin and told the world, “I’m as pleased as Punch!” Of course the expectation was that HST would deliver images not twice as good as ground-based telescopes, but ten times better; and while one could never expect the first images to approach that quality, some of the astronomers were puzzled by what they did see. There was something not quite right about these early images that could not be ascribed to just poor focus and alignment. The images showed a relatively sharp core, a large diffuse halo, and strange tendrils extending out from the core.

This was discussed at a meeting the day following first light, and one of the WF/PC team members, Roger Lynds, who had a great deal of experience looking at stellar images in large telescopes, stated that he believed HST had a serious spherical aberration problem. While most of those present dismissed the idea, Chris Burrows of the Space Telescope Science Institute and some members of the WF/PC team followed up on the concern. Burrows analyzed these early images and agreed that they were consistent with spherical aberration.

Dan Schroeder, who had obtained his doctorate in physics at Wisconsin and became a professor at Beloit College, was one

of the two HST scientists. It was their job to characterize the performance of the telescope and to develop a set of tests to carry out that task. This would be part of the science verification phase following orbital verification and would be continued into normal operation in order to provide calibration and monitoring of performance.

As attempts by the project engineers to focus and collimate the telescope did not improve the images, the concern grew. Schroeder and Fastie, the other telescope scientist, had little opportunity to influence the daily engineering operations. Neither the contractors nor NASA headquarters were prepared to accept the possibility of a flawed mirror.



Prior to launch the wiff-pickers had moved their operations from California Institute of Technology to Bowie State University in Maryland, near the Goddard Space Flight Center, in order to interact with HST operations and the Space Telescope Science Institute. Two team members, Sandra Faber and Jon Holtzman, managed to successfully reproduce the strange-looking images by assuming that the large 2.4-meter primary mirror was 0.0001 inch flatter at the edge than it should have been. The comparison of computer-generated images with the observed images was striking, and there was no longer any doubt that Hubble had serious spherical aberration. Gloom was pervasive. It was to mean that many of the research programs planned by the instrument teams would not be possible.

At Bowie State we wiff-pickers picked through our programs attempting to select those which we felt could still be done. We thought that perhaps 30 percent of our programs might be possible. The rest were challenging even for a healthy space telescope—these were the cosmology programs planned to establish a secure distance scale for distant galaxies and to address questions such as the origin of galaxies and the early history of the universe.

After the evidence was presented to the HST scientific working group and became public knowledge, each of the instrument teams set about determining the impact of spherical aberration on their science. Of course the media harshly criticized NASA and anyone who had anything to do with the Hubble. During the next few months many groups and individuals delved into the reason or reasons for the misshapen mirror. An incorrectly placed lens in the fixture used to test the mirror during polishing was identified as the culprit. Interestingly enough, the fixture was still in the test stand at the contractor's facility nearly eight years after the mirror was finished.

While WF/PC is the instrument that generates pictures which can easily be appreciated by the general public, all the instruments were severely affected, including the faint object camera, the Goddard high resolution spectrograph, the faint object spectrograph, and the University of Wisconsin's high speed photometer. The high speed photometer (HSP), unlike the other instruments which were built by industrial firms, was

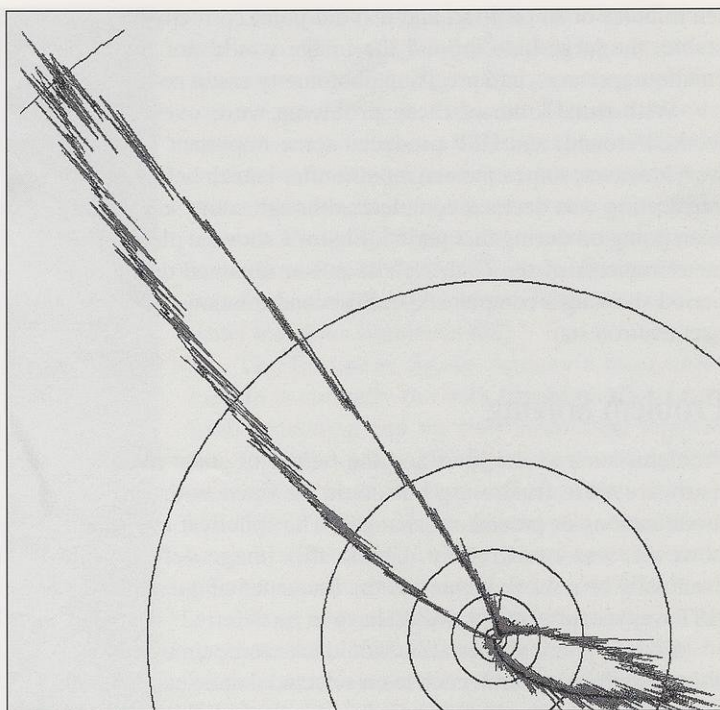


Figure 1. High speed photometer measurements of the Crab Nebula pulsar showing the two beams of light that sweep past once every thirtieth of a second. Courtesy Robert Bless and the high speed photometer team, University of Wisconsin-Madison.

made at the University of Wisconsin's Space Science and Engineering Center and the Space Astronomy Laboratory under the supervision of astronomer Robert Bless. As such it was made at a relatively low cost, delivered on schedule, and when finally placed in operation, worked flawlessly for some three years.

The HSP was, however, affected by the spherical aberration more severely than any of the other instruments for several reasons, not the least of which was that it was removed to make room for the correcting optics used to fix the flawed telescope. The HSP was designed to provide accurate measurements of light intensity in the visual and ultraviolet regions of the spectrum with a time resolution of 20-millionths of a second. This instrument took full advantage of the orbital environment. From the ground you cannot observe the ultraviolet light emitted by celestial objects—the accuracy is limited by fluctuations in the transparency of the air, and it is difficult to determine if a rapid variation of light intensity is due to a variation of the source or atmospheric twinkling of the star.

Unfortunately Hubble had two other problems. The fine guidance sensors did not always lock onto their guide stars correctly, causing pointing errors; and when the spacecraft passed into or out of the daylight side of the orbit, thermally induced oscillation of the solar panels resulted in telescope jitter. For HSP that meant that a star might not be placed in the aperture, and if so, it would oscillate in and out of the entrance during the

ten minutes or so of jitter; and if it did point correctly and was stable, the large halo around the image would not fit in the smallest apertures, and precision photometry could not be done.

With time some of these problems were overcome or worked around, and HSP produced some important results. It was, however, some nineteen months after launch before orbital verification was deemed complete, although some science had been going on during that period. Figure 1 shows a plot of HSP measurements of the Crab Nebula pulsar obtained during this period showing a complete 33-millisecond rotation of the compact neutron star.

Problem Solving

Problems such as the jitter and the failure of some redundant hardware were frustrating but could be fixed with software modifications or procedural changes. The spherical aberration, however, was catastrophic. Unless this image defect could eventually be removed, many of the fundamental questions that HST was meant to attack would have to be deferred.

Fixing spherical aberration would take some time and ingenuity. For the near term, each team selected that research which could most effectively be carried out with the telescope as it then existed. There were several things going for it. First, the images in visible light were better than one could get from the

ground. In the ultraviolet it was better in all ways than any other observatory that had previously been placed in space, including the International Ultraviolet Explorer, which was still turning out valuable science after more than a decade. Moreover, unlike the experience with telescopes on the ground, the size and shape of the image did not change with time; therefore, it would be possible to do some computer processing of the images to improve the resolution. In fact the sharp image was there in the core; and by properly removing the broad halo, sharp images could be achieved, albeit at a loss of sensitivity. This process of image restoration is called "deconvolution" and was in common use in some other disciplines.

Image restoration had been used in solar and radio astronomy for many years and occasionally in stellar astronomy, but the first application to HST data was carried out by one of the wiff-pickers, Tod Lauer. The Space Telescope Science Institute was also experimenting with this computer-assisted image restoration and organized a panel of experts from different fields to share their wisdom with the Hubble users. One of the favorable features of astronomical pictures is the presence of stars in the image, which provide the information on what has happened to a point and therefore how to partially correct the images. If, however, there are too many stars, or there is a background, or the objects are too faint, then deconvolution will not work. The only thing left is to fix the telescope or modify the instruments.

In the case of the wide field/planetary camera, NASA felt that picture-taking was so important there should be a backup, and thus they funded the development of WF/PC II. The team leader for this backup instrument was John Trauger, who had obtained his doctorate in physics at the University of Wisconsin. When the spherical aberration problem was announced, Trauger had already determined that it would be possible to correct the aberration within WF/PC II by modifying its optics.

For the remainder of the instruments it was decided that a set of mirrors would be fabricated which would correct the image and relay the light to those instruments. This set of mirrors, called COSTAR (corrective optics space telescope axial replacement), would be installed in place of the high speed photometer during the first servicing mission to HST. COSTAR was constructed at Ball Aerospace under the direction of the Ball program manager and the Space Telescope Science Institute astronomer Holland Ford, another University of Wisconsin astronomy doctoral recipient.

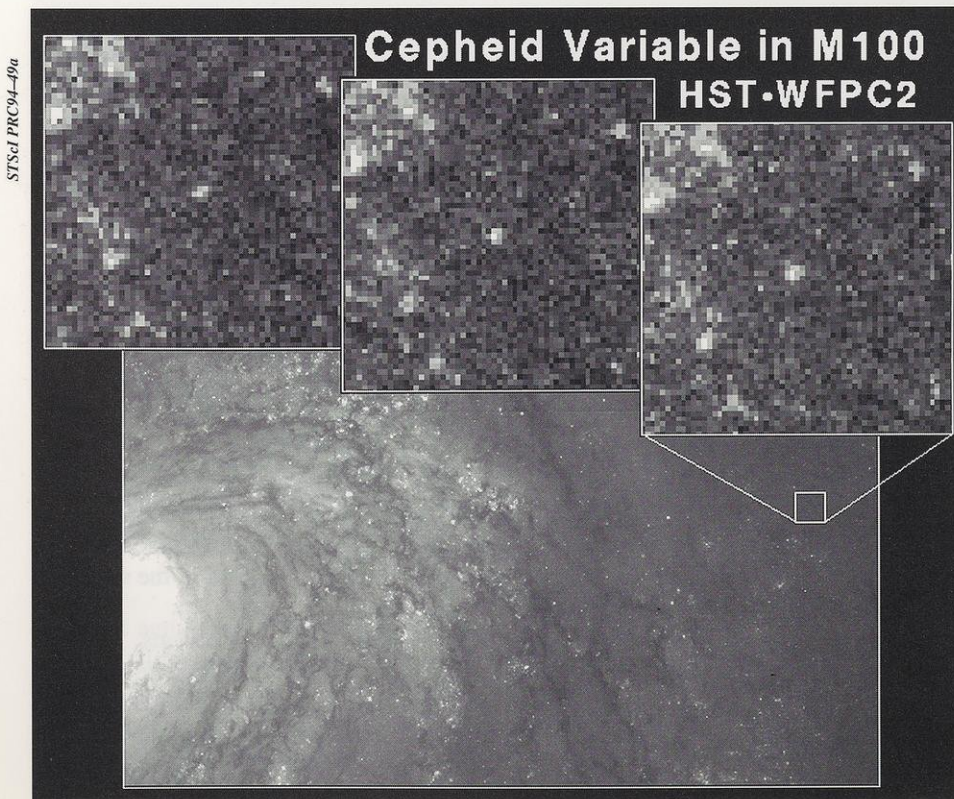


Figure 2. Wide field/planetary camera images of a Cepheid variable in the galaxy M100. The three panels show the periodic variation of light with time.

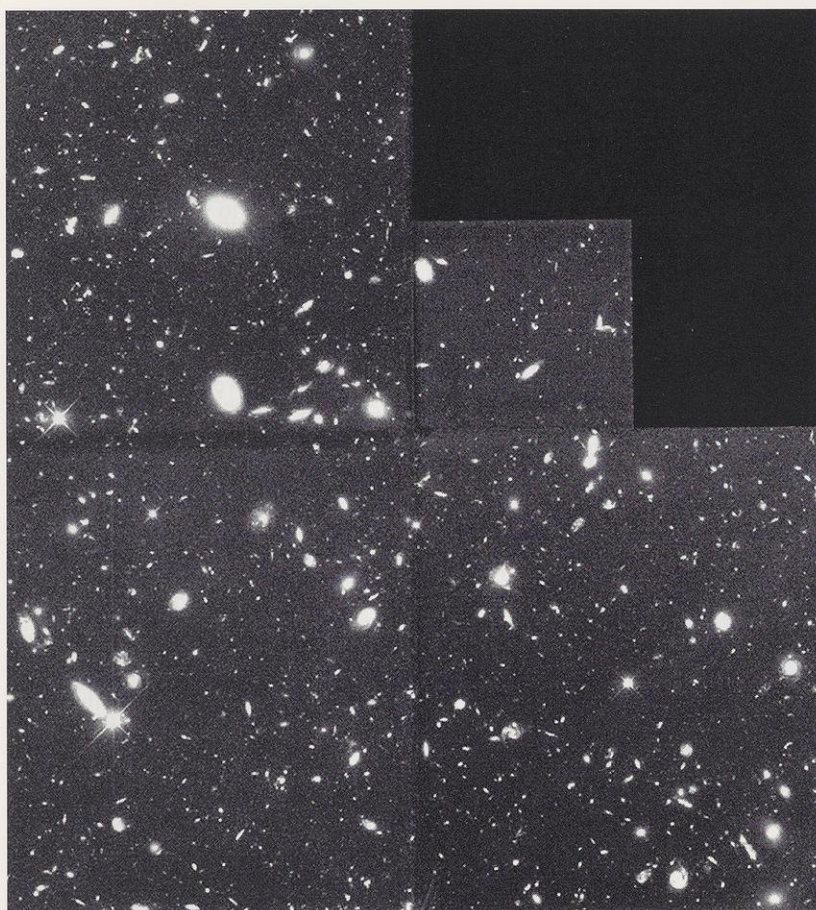


Figure 3. The Hubble deep field image is a composite of 342 separate exposures taken with the wide field/planetary camera II over ten consecutive days between December 18 and 28, 1995. It represents the faintest images Hubble Space Telescope has yet to record and probes galaxies as they were some ten billion years ago.

The first servicing mission took place in December 1993, three and one-half years after initial deployment. It was a great success, but a bitter pill for Wisconsin's high speed photometer. The correcting optics came close to providing the two spectrographs and the faint object camera with the capabilities originally anticipated. WF/PC II nearly recaptured the imagery expected of WF/PC I. During the preceding three years, however, many exciting discoveries had been made through the use of the HSP; and in fact for those observations where image restoration is appropriate, the deconvolved WF/PC images are better than unprocessed WF/PC II images. On occasion the media have illustrated results of the repaired HST but have unknowingly used deconvolved WF/PC I images!

With WF/PC II it was now possible to attack some of the puzzles for which the Hubble Space Telescope was conceived. University of Wisconsin professors Jay Gallagher and John Hoessel were among the WF/PC II team members who set out to explore these new domains. At any rate, the production of new and exciting results again stimulated positive media response.

The second servicing mission carried out in February 1997 replaced the Goddard high resolution spectrograph and the faint object spectrograph with second-generation instruments. The near-infrared camera/multi-object spectrograph (NICMOS) explores a new region of the spectrum while the space telescope imaging spectrograph (STIS) replaces the two first-generation spectrographs with a two-dimensional format that provides spectra not just from a single spot in the field, but rather at many locations simultaneously.

The European Space Agency's faint object camera is currently the only first-generation instrument remaining and the only instrument requiring the corrective optics. The other instruments have the corrections built in. It is expected that during a November 1999 service mission the faint object camera will be replaced by the advanced camera. The advanced camera team is led by Holland Ford.

Many bugs existed here on the ground as well as aboard the HST. With time, the operation has become much smoother and more efficient, and the HST support of the worldwide user community has become more user friendly. HST is available to any researcher anywhere in the world on a competitive basis. Selection is made by a telescope allocation committee, which considers the scientific merit of the observing proposal.

Window to the Universe

It was because of the potential for the space telescope to produce fundamental advances in our understanding of the size, structure, and evolution of the universe that it was named the *Hubble* Space Telescope. Edwin Hubble, an astronomer who gained early experience at the Yerkes Observatory in Williams Bay, Wisconsin, and later at Mt. Wilson Observatory in the mountains north of Pasadena, was one of the first to recognize that there were countless other star systems—galaxies—far beyond our own Milky Way.

The sun around which Earth orbits is one of some hundred billion stars that make up our galaxy. These stars are arranged in a rotating, flattened disk with a central bulge and a spiral pattern of stars within the flattened disk. When we look along the plane of the disk, we see more stars than when we look out of the plane. This shows up as a band of light in the sky, which we call the Milky Way. This is our spiral galaxy, and we live about two-thirds of the way out from the center.

If we look with a telescope we see many stars and some clouds of gas and fuzzy blobs called nebulae. Edwin Hubble found that when he photographed these nebulae with what was then the largest telescope in the world, some were made of stars and clouds of gas like our own Milky Way. While many others were arguing about whether these nebulae were part of the



Figure 4. Eagle Nebula in M16. Star formation is going on at the tips of these gaseous pillars, while the less dense gas has been eroded away.

Milky Way or outside our star system, Hubble was identifying individual stars in these systems, and from their brightness he knew they were far outside our own galaxy. In fact they were also galaxies of stars, and there were as many “island universes” out in space as there were stars in our own island universe.

Hubble found stars in these galaxies that allowed him to establish a distance scale for measuring the universe. In particular, Hubble found a type of variable star called Cepheid variables. These stars vary in light by about a factor of two in periods from about a day to approximately a hundred days. This variation was due to the fact that the stars were pulsating; and it was established that the longer the period, the more luminous the star. This even made sense, all other things being equal: the bigger a star, the brighter it would be; and the bigger it was, the longer it took to change its size.

A period luminosity relation for Cepheid variables had been established from Cepheids discovered in the very closest external galaxy, the Large Magellanic Cloud. Hubble could use this relation to establish the distance to any external galaxy in which he could find Cepheid variables. Over the years the calibration of the period-luminosity relation has changed, and measurements have been extended to many more galaxies. But it is only for the nearest systems that we can see Cepheids; for greater distance we must use larger or brighter objects, like the ionized clouds of gas or even the entire brightness of a galaxy. Nevertheless Cepheids remain as one of the fundamental techniques.

One of the questions often asked before the space telescope launch was how much farther the Hubble will eventually see. My answer always was that I don’t know—this is one of the questions we hope to answer. It depends on the structure of the universe, on whether it’s open or closed, curved or flat. HST may help answer these questions.

Apparently NASA and the media felt they knew the answer: HST would see seven times farther than any other telescope, or ten times, or expand the observable universe by a factor of 100. While I didn’t know the answer, I knew that these answers were all wrong. What we did know was that HST’s expected performance specifications would allow us to observe Cepheids out to the nearest clusters of galaxies and thus increase the number of galaxies that could be used to calibrate the extragalactic distance scale by factors of a hundred.

The measurement of Cepheids in nearby clusters is a difficult problem and not one that could be tackled until the spherical aberration was taken care of. It is one of the key projects being undertaken by a team of astronomers, and substantial progress is being made. Figure 2 shows the identification of Cepheids in the galaxy M100 using WF/PC.

It is also to Edwin Hubble that we owe the concept of the expanding universe. V.M. Slipher at Lowell Observatory, using extraordinary skill and patience, had been obtaining spectra of the nearer galaxies. Spectra record the light of different wavelengths at different positions on the photographic plate. Absorption or emission of light by the atoms in the source produce absorption or emission lines at specific wavelengths in the spectrum. Each atom produces spectral lines at wavelengths specific to that atom—leaves its fingerprint so to speak on the spectrum.

It is from spectra that one can determine the presence and abundance of different atoms. Now, if the source is rushing toward you, the light waves are squeezed up—that is, they appear at shorter wavelengths. The light is shifted to the blue by a relative motion of approach. On the other hand if the object is moving away, the waves are stretched out or are longer. Relative motion away from the observer results in a red shift. This effect is called the Doppler shift.

What Slipher found was that virtually all these galaxy spectra showed a red shift, indicating the galaxies were moving away. Hubble added to this data observations of his own along with photographs of these galaxies. He found that the fainter the galaxies’ distance indicators, or the smaller the galaxy, the larger the red shift. That is, he found that the more distant a galaxy was, the faster it was receding from us. This is characteristic of an expanding universe.

Imagine a rubber balloon covered with polka dots. Pick one of these polka dots to represent us. The nearest polka dots to us are one inch away; more distant ones are two, three, or more inches away. Now blow the balloon up, doubling its size, say, in

one second. The polka dots that were one inch away are now two inches away. The polka dots that were three inches away are now six inches away. The nearest polka dots moved from one to two inches, indicating that their velocity was one inch per second. A more distant polka dot, originally at three inches, has moved with a velocity of three inches per second. Similarly the relative velocity of a galaxy in an expanding universe is proportional to its distance. Edwin Hubble discovered this velocity-distance relation, and it is called the Hubble Law.

Of course if you don't like the two-dimensional balloon surface as an analogy, imagine making a loaf of raisin bread; as it expands the raisins move apart following the Hubble Law. I used the balloon surface deliberately, however. You can see that if we consider distances comparable to the dimensions of the balloon, some odd things happen. For example if you go too far, polka dots start getting closer to you. In any event the shortest distance between two dots is a great circle, not a straight line. You have to use spherical geometry, not plane geometry.

What kind of geometry should you use to describe the universe? Is it a three-dimensional surface positively curved in a fourth dimension, even as the balloon is a two-dimensional surface positively curved in a third dimension? Or is it flat, or negatively curved like the surface of a saddle? Some of the properties of curved space are given in the sidebar on space curvature.

When observing very distant objects, the curvature is important. How far we can see, how old the universe is, and whether the universe will continue to expand or eventually collapse depends upon what the appropriate geometry is. This is what is called the cosmological problem, and we have yet to solve it. That is why I said earlier that I did not know how much farther we could see with HST.

This is also the basis for the overly optimistic hype that the space telescope received prior to launch. If observations made by HST could solve the cosmological problem and if the universe behaves properly—that is, does not have some bumps and wiggles in its geometry—then the secrets of the universe will be revealed through “our window to the universe.” Of course many new findings and new ideas have come along

since HST was first planned, and discovering the hidden secrets may not be as straightforward as we once thought. Indeed most of the universe will remain invisible to HST, with some matter being confined to dark stars and black holes while 90 percent or more of the mass is believed to be in the form of dark matter not made of common protons and electrons. Even so what light and radio waves we do see may be sufficient for us to eventually understand the structure of the universe. The luminous matter is a tracer of this structure.

How far can the Hubble Space Telescope see? Remember too that we are also asking *how far back in time* Hubble can see. We often measure extragalactic distances in light years, the distance light can travel in one year. This distance is about six thousand billion miles! The light we see from the nearby Andromeda galaxy left about two million years ago. Many faint galaxies are believed to be more than five or ten billion light years away.

The director of the Space Telescope Science Institute, Robert Williams, thought we should find out how far HST can see. While most observing time is determined by a peer review of proposals submitted by researchers throughout the world, the director has a block of time that can be used at his discretion. In general he uses this time to redress some imbalance in allocations or to react to singular events, such as a new comet or bright nova outburst, or to permit an investigator to follow up on a new discovery.

In December 1995, Bob Williams used the director's discretionary time for a program called the Hubble Deep Field, a

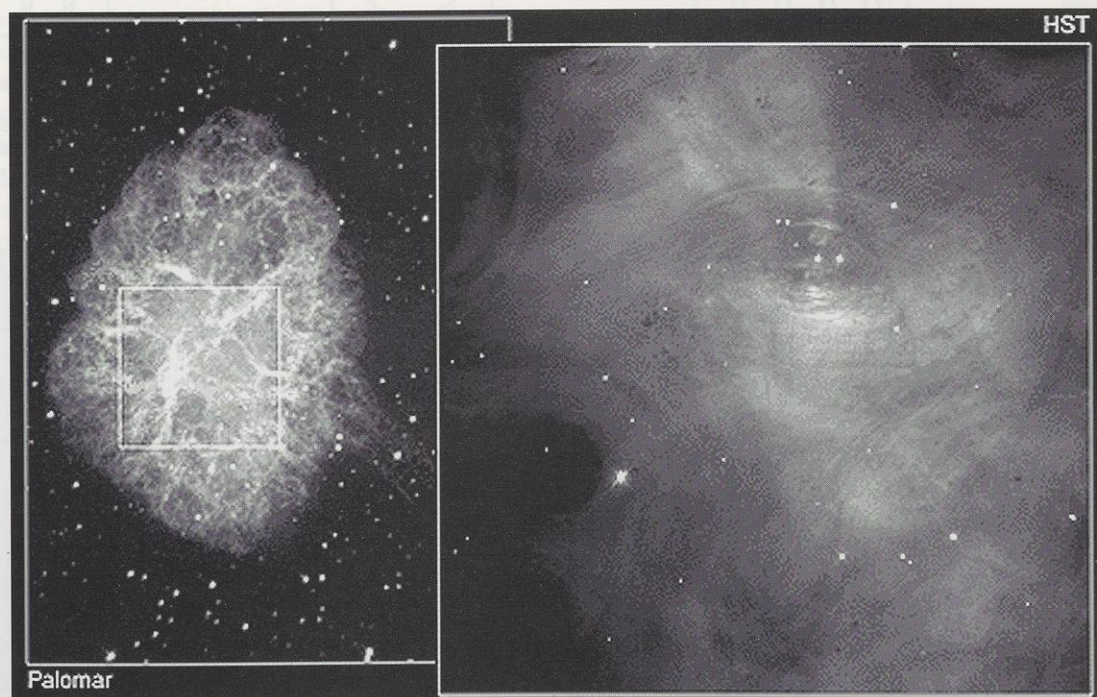
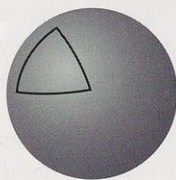


Figure 5. Center of the Crab Nebula. The left-hand image was taken from the ground with the Palomar 200-inch telescope. On the right is one of the wide field/planetary camera images showing the ripple of light moving outward, powered by the pulsar which is shown in Figure 1.

SPACE CURVATURE

A space is always curved in a higher dimension. A line is one dimensional; it is curved in a second dimension. A surface is two dimensional; it is curved in a third dimension. Three-dimensional space is curved in a fourth. We have trouble visualizing a fourth dimension, since we ourselves are three dimensional; but the curvature of a two-dimensional surface in a third dimension exhibits the same properties.

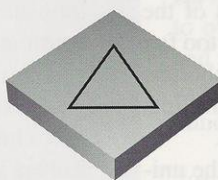
POSITIVE CURVATURE



One way to know what kind of geometry should be used is to look at a triangle drawn on the surface.

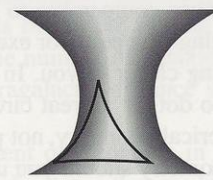
In positively curved space, the sum of the angles of a triangle are greater than 180 degrees. This is spherical geometry.

FLAT SPACE

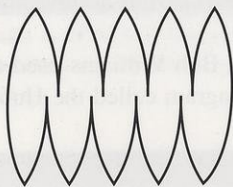


In flat space, the sum of the angles of a triangle are equal to 180 degrees. This is plane geometry, or Euclidian geometry.

NEGATIVE CURVATURE

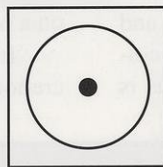


For negative curvature, the sum of the angles is less than 180 degrees. Sometimes this is called Hyperbolic geometry.

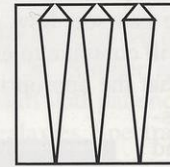


Another way to determine the curvature is to try to lay the surface out on a flat surface.

A positively curved surface must be cut apart to map it onto a plane. This is like flattening out an orange peel.



Flat space is the transition between plus and minus curvature. It is unique—the only surface whose radius of curvature is zero.



A negatively curved surface requires folding the material over on top of itself. That is, you must make pleats.

If we draw a circle of a given radius around a point on a surface, the area is πr^2 on a flat surface. On a positive curved surface, it is smaller (i.e., covers less area when flattened) while for negative curvature, the area is greater than on the flat surface. The analogy for the universe is that if galaxies were uniformly distributed, the number of galaxies would increase less rapidly in positively curved space and more rapidly in negatively curved space than for flat space as the distance is increased. This is one test to determine the curvature of the universe.

If the circle were expanding, it could continue to grow indefinitely on an infinite flat surface or on a negatively curved surface, which can also extend forever. On a positive surface, say a sphere, the circle will expand until it crosses the equator; and then it will collapse. The analogy for the universe is that if the universe is positively curved, the expansion will slow, and then stop, and will then start to collapse; if negative, it will expand forever. Determining the change in expansion rate with distance is another test of the curvature of the universe.

The curvature is caused by the presence of matter. Is there enough matter to close the universe and stop the expansion? We don't yet know the answer.

Arthur D. Code

region of the sky well away from the disk of the Milky Way in what is called the continuous observing zone, a region near the pole of the telescope's orbit. This field contained many galaxies and hardly any stars. It was a window to the universe! These images were obtained with the WF/PC II, in four wavelengths, for ten consecutive days.

All of these images were carefully combined to produce the Hubble Deep Field data set and made publicly available. Figure 3 shows a Hubble Deep Field image. It represents the limit in faintness to which the present instrumentation on HST can be expected to go and possibly as far as it can see. Most of the faint images appear irregular or scruffy in shape, and many are blue. Perhaps we are looking at galaxies or parts of galaxies in the process of forming.

We can also see many faint arcs of light. Some of these are most likely due to gravitational lensing, the bending of light by unseen mass. Many astronomers are busy trying to understand the Hubble Deep Field or observing objects in this field to learn more about them. A Hubble Deep Field South is now being planned that will use the new second-generation instruments as well as WF/PC II.

Many of the Hubble research programs address the formation and evolution of galaxies and their distribution in space. As galaxies begin to form, the more massive galaxies apparently capture smaller galaxies; and many examples exist of interacting galaxies and of this cannibalism. These massive galaxies often display active central nuclei emitting great amounts of light in the optical and radio region of the spectrum. We believe that the very luminous quasars are distant galaxies in the early stages of formation when activity in the central nucleus is very energetic. It is also believed that the source of this activity is a massive black hole in the center of such galaxies.

It is in the framework of this scenario that many extragalactic studies are directed. Not all the gas collapsed into galaxies, and not all the gas remained in galaxies. There are intergalactic clouds of gas which show their presence by absorbing light from the galaxies behind them. The Goddard high resolution spectrograph has obtained important insight into these intergalactic clouds. Among those researchers has been Professor Blair Savage and his collaborators at the University of Wisconsin.

Stellar Birth and Death

Not all HST research is directed towards cosmology. Galaxies are made of stars and gas. One very important theme centers on the history of stars. Others address the interstellar medium, the space between the stars, and still other programs focus on the planets. These three areas—stellar astronomy, the interstellar medium, and solar system research—are closely connected.

Stars are formed from clouds of gas and dust in interstellar space. Planets are made as a protostar collapses toward its nuclear burning stage. The planets receive their energy from this stellar radiation; and then when the star has expended its nuclear fuel, it puts back a part or all of its mass into the interstellar medium to fuel a new generation of stars made of a gas enriched with heavy atoms brewed in these earlier generation stars.

At the present time we see stars forming in gas complexes like the Orion Nebula, a cloud that can be seen with the naked eye in the sword of Orion. Robert O'Dell, a Wisconsin Ph.D. recipient who served as the HST project scientist at the Marshall Space Center and is now at Rice University, discovered many protostar candidates in WF/PC images of the Orion Nebula. A clue as to how stars form in nebulae like that was found by WF/PC team members, in particular Jeff Hester and Paul Scowen.

Figure 4 shows an image of the Eagle Nebula, a part of a young star cluster called M16. To the upper right of this picture is a cluster of very hot, recently formed massive stars. The light from these stars is causing some of the gas from which they formed to evaporate, except for sites where new stars are starting to condense; these are the tips of the protruding fingers. This spectacular image made the cover of more than one news magazine.

As stars age, the central hydrogen is all converted to helium, and the star contracts, becoming hotter. In this hotter central region there is enough thermal energy to cause the helium to combine to form carbon; and later, in more massive stars, carbon makes magnesium, and so by these processes the heavy elements were made.

What happens to a star next depends upon how massive it is. For stars similar to the mass of the sun, they continue to contract and become what astronomers call "white dwarfs," which eventually cool down and remain simply as dark stars. More massive stars shed their mass either slowly to become planetary nebulae or explosively to become super nova. Figure 5 shows an image of the center of the Crab Nebula. It is the remnant of a super nova explosion in 1054 AD.



Here I have simply touched on the nature of the Hubble Space Telescope research and have said nothing about the planets, centering the discussion primarily on wide field/planetary camera images. There are many significant scientific results and discoveries that have come from the other instruments on the HST. An excellent discussion of the history and the science yield of HST can be found in *Hubble Vision* by C.C. Petersen and J.C. Brandt, published by Cambridge University Press in 1995. 🐾

Part I of the Hubble Space Telescope story, "Beginning and Development," appeared in Spring 1997, Volume 43, Number 2, of the Wisconsin Academy Review.

A Merry Briton in Pioneer Wisconsin

Anonymous

Travels in Southern Wisconsin, 1841

"This is the first time I have set foot on American ground without being hailed by runners, as the hotel porters are called, and still there seems to be a very goodly hotel beside the pillared façade of yon courthouse," said I to myself, as the boat shoved off back again to the steam-boat, leaving myself and baggage on the deserted plank wharf of Racine.

Leaving my portmanteau and carpet-bag to the tender mercies of the winds and grasshoppers, I shouldered my umbrella, and marched up to the hotel; entered the bar, found the bar-keeper, and the boarders, the family, and all inmates seated at a long table, enjoying a most luxurious tea.

"Walk in, sir," said the landlady.

"Madam," said I, "my baggage must walk first." What is a man without baggage, without change of raiment, without wherewithal to make his exterior agreeable to himself, and amiable to the ladies?

"Jonathan! Ira! Thomas!" cried the landlady, turning from right to left, and from left to right, with unexpected vivacity, "fly down, and fetch up this gentleman's baggage."

I like Racine; it is one of the prettiest little spots, without pretensions, I have seen for a long, long time. Standing on high banks, or bluffs,

above the lake (Michigan), its little white villas and frame houses, backed with the dark green forest trees, the wild ravine, and the river, said to be the only inducement held out by the landowners to settlers who have got up the little town. Land is a drug everywhere; but water, and water power, has a mystic charm that draws men together in this country. The river I soon discovered to be a stagnant pool, or succession of stagnant pools, separated from the lake by a goodly barrier of sand, mayhap earth and rock. When this bar is cut away, and a convenient harbour established—what then? Then, sirs, Racine will

become a place of note—the root, as its name betokens, of a flourishing city, rivaling Chicago, and its rival Milwaukee.

Rambling through the woods, I gathered some flowers new to me, and conceived the idea of forming a herbal of Wisconsin flowers. The tract through which I proceeded was little frequented by sportsmen, birds and squirrels exhibiting a tameness not at all "shocking to me." In fact, if I had carried a gun with me, I question if I should have shot or banded at the red, grey, and black squirrels, racing up and down the beech-trees, or quietly nipping off the beech-nuts and acorns, the falling of which produced a sound like the pattering of rain, which, save and except the shrill chirp of the grasshopper, and scream of the red-headed woodpecker, disturbed the solemn silence of the woods.

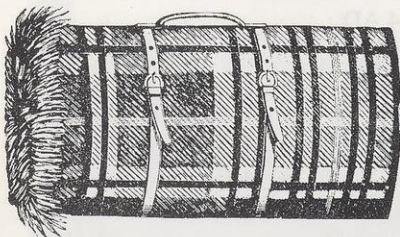


Dined at the house of a thriving New Englander, who, from small beginnings is now the proprietor of five thousand acres of prairie land; he has enclosed several fields of Indian corn with ditches instead of rails—more permanent work—answering the double purpose of staying the prairie fire and keeping off cattle; he has sunk a well, and built stables, barn, and hog-pen, on a large scale, and, like a wise man, lived, up to this, in a simple log and mud cabin.

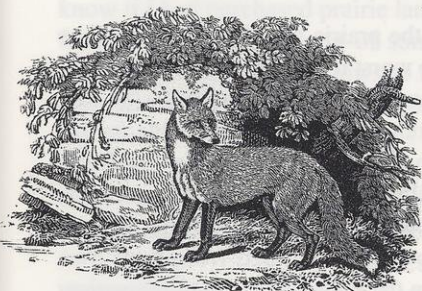
I am really at a loss to know where the good people in this country—this out of the way place—find all the good things they set before travellers,

especially the New Englanders; they seem to live better here than they do at home, and riot in pumpkin pies and all sorts of cakes and meats, savoury stews, and, to be

sure, wine and strong drink is not to be found on the table, but rich cream, and excellent tea and coffee, fill up the vacuum, and invariably conclude a meal fit for an alderman.



Started across Rock River this morning, with a fresh letter-carrier, who has a one-horse waggon and two buffalo robes, sundry sacks of letters, a severely dressed gentleman and his trunk, myself, and a youth, bound for Sugar River Diggins. The horse, I say, has enough to do to walk with this load at his tail, over the prairies; and to make the trip more delightful, the rain began to fall in torrents.



Janesville, though the name betokens a town, contains but three or four houses in its bailiwick. The site of it is pretty enough, but the grass grows high enough in the streets and squares as yet.

This dismal day we have not had a single gleam of sunshine; even the prairie hens, and we saw several packs, did not think it worth their while to fly more than a rod or two, when we disturbed them. A walking-stick gun was fired at them, with little effect, and, as I thought, proved a mere catchpenny affair, though the owner boasted he had shot brown deer with it. Saw a fine fox leisurely trotting along the side of an oak opening; he was nearly black. Certes, he seemed as vain of his brush, as many of our Eastern dandies, or a Broadway loungeur, of his moustache, or rouch.

Met a horse trotting merrily along the prairie, with some broken harness dangling about him; he soon joined our horse, with a glad neigh. We caught him, and found it no easy matter to lead him along. Five or six miles further we found the trail of a buggy; followed it, and soon discovered the buggy, upset between two trees, and broken—no owner to be seen. We continued our route through fine rolling prairie and oak openings, quite parkish, and the oak seems to be the only tree that escapes or resists the fires; however, I observed their stunted growth and gnarled appearance bespoke the rough raising of prairie trees, exposed to winds, fires, frosts, and snows.

This day we passed the debris of two houses—one a log, and the other a frame house—which had been burned by prairie fires—fate of the inmates unknown, though their carelessness is manifest to all—a simple trench or ditch round their dwellings would have stopped the fire, or turned aside the destroying element. The absence of streams and ponds of water is one of the draw-backs to a prairie farm; though water is easily found, by digging wells, even on the highest prairie; still, in my mind, a stream of water, though feeble as a silver thread, should be a *sine qua non* to settlers in the West.

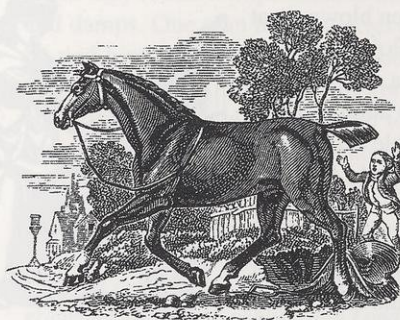
Seven miles from the broken buggy, we found an old man asleep under a tree, and, having roused him up, to know what

he did there, were favoured with some very hard names, and a sharp rebuke, for having disturbed his slumbers. Rubbing his eyes with his horny brown hands, and stretching himself out longer and taller every minute, he demanded—“Where the d—l we came from!”; then, suddenly starting forward, pounced upon the led horse, exclaiming—“Aha, ye loafing half-breeds, d’ye mean to steal my horse? I’ll have ye Lynched all round for this!—where’s my buggy?”

“Upset—smashed—wheel upwards—seat downwards, seven or eight miles away, on the prairie!” responded one of my party.

This seemed to recall the wool-gathering brains of this bewildered man, especially as we refused to let him have the horse until he gave an account of himself; and, after some grumblings, he told us, he was “all straight.” “You see I’ve been to Madison with my son the printer, as prints the ‘Loco Foco’ newspaper; we took a horn before I left, last night, and I came right away in the buggy, and turned in here—so give me the

horse, and have done with your jabber.” We permitted him to take the horse, and not forget his bottle, which had been his consolation under the greenwood tree.



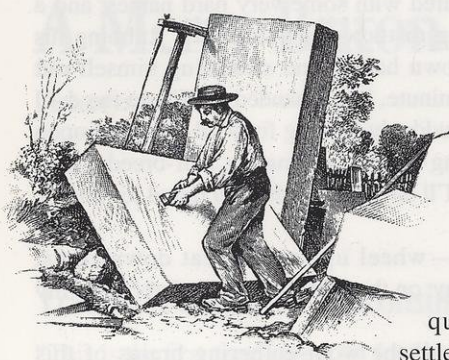
It was night before we wended our way through the magnificent streets, squares, and avenues of the young

capital of Wisconsin. My companions, favoured by the darkness of the night, amused themselves by telling me the names of the various streets we passed through, on our way to the hotel, while I strained my eyes into the oak openings, right and left, in quest of balconies, piazzas, stoops, and colonnades. Mr. Morrison, the innkeeper, welcomed us to Madison, led the way into his bar, volunteered whisky and water, or a cobbler, to drive the night dew out of our throats. Moreover, the good man accommodated me with a single-bedded room, a luxury I had not enjoyed for some time.

Sunday morning: rose refreshed, and marched out to look at the city, which had vanished like a dream, leaving that great unsightly fabric, the capital, with its tin

dome glittering in the sun, and some forty houses, of all sorts, shapes, and sizes, rained about here and there sparingly, at the corner of the *projected* streets and thoroughfares of this embryo town. Entered the capital, which I found full of chips, shavings, and mortar: from the door and raised platform, *en revanche*, we have a splendid view of Third and Fourth lakes—for, as yet, the lakes have been





only numbered, it would seem—and there is a chain of beautiful little lakes about Madison. There is nothing grand about the scenery, but all that quiet beauty of wood and water, frequently seen in the old settled country at home.

Tomato was the word—the theme—the song, from morning till night—from night till morning. The first morning I descended to the bar, there sat the colonel in his white and black chip hat, set jauntily over his round, heavy, swelled face, his crooked foot resting on one knee, his twisted hand resting upon that (he had been blown up at the Diggins, near Mineral Point), and his expressive mouth full of a red tomato. That swallowed, he held up another love-apple tantalizingly, to a feeble little child, and, mincing his voice, he would exclaim, “Who’ll have a tomato?” “Who’ll kiss me for a tomato?” In truth, not I; having in the early part of my days looked upon that grovelling fruit as poison, and never having tasted it even as a pickle with much gusto, I was not prepared to enjoy the tomato feast, at the capital of Wisconsin.

The garden at the rear of the house seemed to produce no other fruit or vegetable. At breakfast we had five or six plates of the scarlet fruit pompously paraded and eagerly devoured, with hearty commendations, by the guests. Some eat them with milk, others with vinegar and mustard, some with sugar and molasses. I essayed to follow suit, and was very near refunding the rest of my breakfast upon the table, the sickly flavour of flat-tongue grass, sour milk, and raw cabbage, being concealed under the beautiful skin of the love-apple I had the temerity to swallow.

At dinner, tomatoes *encore*, in pies and patties, mashed in side dishes, then dried in the sun like figs; at tea, tomato conserves, and preserved in maple sugar; and to crown the whole, the good lady of the hostel launched forth at night into the praise of tomato pills.

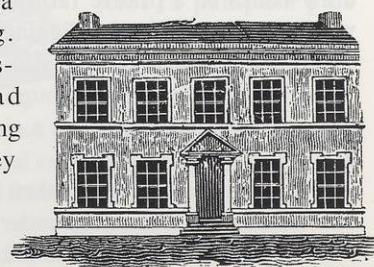
Whitewater is decidedly the prettiest little village I have yet seen in this wild country; the villas are built apart, as they ought to be, with great regularity, each having a goodly garden of rich soil; so that, in the words of Goldsmith, “Every rood of ground (may have) maintained its man,” even in a town, without the aid

of the noble army of capitalists and speculators and their martyrs. There are several Germans, and some very intelligent New-English folks at Whitewater. They have a mill which does not require great water-power; and if the great manufacturer can be kept at bay, they will grow up a happy community, in the midst of a fine agricultural and pastoral country.

We have left the pure air of the prairie behind us, and now we progress very slowly over the worst road I have ever travelled—in fact, the trees have been just cut down and pulled aside, and the stumps, rocks, and ruts, render it almost impossible for the horses to tug the waggon along. This being Sunday, we have put up our guns and rifles, and walk before the waggon, perspiring at every pore and panting for breath. From time to time we pass groups of Norwegians, who have emigrated from their own forests to locate themselves in the only difficult and impracticable belt of woods in Wisconsin; they have already made some little clearing, but I think their labour and time quite thrown away. At last, *Dieu merci*, we catch a glimpse of the blue waters of Lake Michigan, at the end of the long avenue of dismal woods and infamous roads through which we have been wending our way for hours from Prairieville to Milwaukee. Even in that short route of fifteen miles I suffered more from heat and fatigue than I have yet experienced in America; for what with the closeness of the air, absence of water, and—but here we are at last, crossing a good wooden bridge into quite a gay looking town—white stoops, sign boards over stores, houses and villas perched on high banks and cheerful aspects—our waggon proudly drawn up at the door of the Milwaukee House. We are invited to enter and prepare for dinner by one host, while the other (for there are a pair of them) recognises one of our party as an old friend, and invites him into the bar.

From the stoop in front of our hotel, we look down upon the river—the lake *a la distance*—the wooded point, on which white villas already begin to rise—the marsh, through which a road has been made and lots conveyed—and the main street. In another direction we see the light-house, the episcopal church, the presbyterian and methodist chapels, and sundry gay white cottages rising out of a scrubby sort of jungle which grows on the high bluff above the lake.

Here I became acquainted with several Germans, and, amongst the rest, a very worthy man, a Chandler, from Wirtemberg. The Germans were dissatisfied—they said they had expended their money building houses in this town; that they had originally intended to have settled on prairie lands, and farmed; many of



them had been educated for that purpose at home, in the agricultural schools or colleges, but when they landed here, they could find no prairie lands—all seemed wood, and therefore they did as the Yankees did.

Now, they discovered that there were plenty of prairie only fifteen miles from them, but they could not buy a single acre of it, and were hard set to make both ends meet. They wished to know if I had purchased prairie lands, and would lease them, or farm a rural establishment of some sort on the prairie. I was grieved to see the poor fellows so much cast down, and assured them that if I did purchase lands in the prairie, I would not forget them.

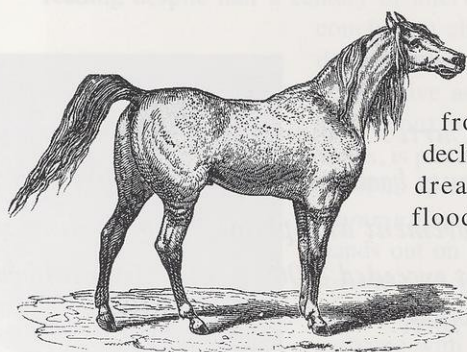
Several bands of Norwegians have recently arrived in the town; these hardy woodsmen have been to the land office, and bought up lots in the woods.



Meantime they lodge in a public-house, where the Germans have a rendezvous every night, and sing the songs of their distant fatherland. Sometimes they sally out at night, retiring from the public-house, and sing for an hour through the deserted streets. One night I

was roused from my slumber by a band of those sons of harmony; they marched past, singing the national hymn of Norway, a wild and melancholy air, and as the singers retreated

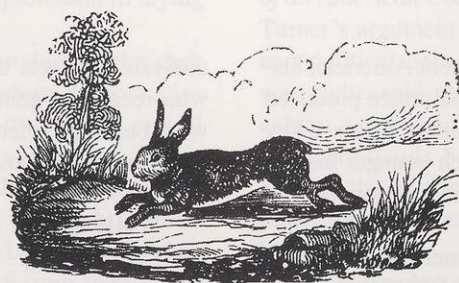
down the lake shore, the music had a peculiarly plaintive and solemn effect. I afterwards heard it was a band of Norwegians, who were thus chanting their favourite airs as they marched away into the woods in search of their new homes.



Some wayworn and weather-beaten travellers have arrived from Green Bay; they declare the road to be in a dreadful state; between floods, and sloughs, and fallen timber, they were obliged to fag along on foot, leading their horses, and occasionally camping out,

when they found it impossible to kindle a fire, owing to the rain and damps. One man had lost a very fine horse, he said, though he tied him to a tree—he broke loose, and he despaired of ever seeing him again. This was not very encouraging to me, especially as I had made up my mind to visit Green Bay; indeed, I found it would be madness to attempt the journey alone in such weather, and quietly awaited a change for the better. ❧

From A Merry Briton in Pioneer Wisconsin, published by The State Historical Society of Wisconsin in 1950 and reprinted with permission. Original text appeared in Life in the West, an "anonymous autobiographical narrative" published in London in 1842.



Remembering Merle Curti: Historian, Teacher, Activist, Friend

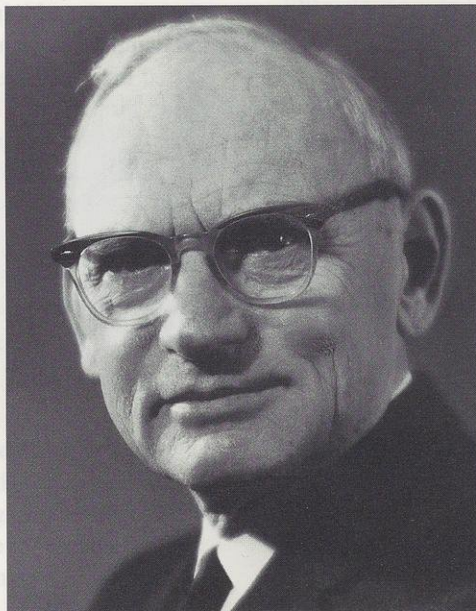
by Paul S. Boyer

T*o assess Curti's scholarship briefly is a formidable challenge, since his awesome vita encompassed some twenty books and more than fifty articles exploring a vast terrain of U.S. history from the peace movement and philanthropy to dime novels and world's fairs. Someone has calculated that his published output exceeded 4,000 pages! His final book, *Human Nature in American Thought*, appeared when he was eighty-three.*

He contributed to two fields now usually thought of as distinct: intellectual history and social history. His special forte was the beautifully crafted, insightful essay synthesizing a wide range of literary, intellectual, and popular-culture sources. His 1937 *Yale Review* essay on dime novels, for example, drew upon the vast collection at the Huntington Library, where he spent a year as a Guggenheim fellow in 1929–30. Except for the heavily quantitative *Growth of an American Community*, his work remained grounded in an older narrative and belletrist tradition.

But while not personally drawn to social science methodology, he did participate, as an intellectual leader of the profession, in the movement to bring more theoretical self-consciousness and methodological rigor to historical scholarship. Active in the Social Science Research Council in the 1930s and 1940s, he chaired the committee on historiography, which also included his friend the prominent American historian Charles A. Beard (1874–1948). This committee produced the 1946 report *Theory and Practice in Historical Study*, a key document in the postwar reorientation in which younger historians acknowledged the profession's social science component as well as its humanistic side.

As a member and then chair of the American Historical Association's program committees in 1939 and 1940, he pushed for more sessions on theory, social science method, and marginalized topics ranging from women's history to folklore and photography. At a time when the profession still remained focused on politics, diplomacy, and war, Curti helped lay the groundwork for the broadened focus that would transform the



Merle Curti (1897–1996)

Harold H. Hone
profession in the 1960s and beyond. As his student John Higham said when Curti received the Organization of American Historians' distinguished service award in 1981:

Our scholarly attention has spread from an early preoccupation with certain preferred segments of the population and certain kinds of behavior until it now reaches into every level and every dimension of our common life. Merle Curti shows us the astonishing meaning that growth has had for America and its historians. In [honoring him], we are honoring what has been most vital and most characteristic in ourselves.

Curti's work in the early 1930s—when capitalism was in crisis, the class struggle loomed large, many left-liberal intellectuals embraced Marxist social analysis—reflects the most radical phase of his career. Those who recall the gentle, soft-spoken manner and benign, somewhat bemused tolerance of his old age might miss the fact that he engaged fully and vigorously in the ideological battles of his era.

While always temperate and judicious, he did not shrink from controversy. His 1935 book, *Social Ideas of American Educators*, still influential today, examines the thinking of educational leaders from the early nineteenth century through the 1930s, focusing on their relationship to the capitalistic, individualistic ethos of the business class and how it shaped their view of education—either as a bulwark of the status quo or as an agent of social change.

Anticipating revisionist historians of education in the 1960s, Curti made clear in this 1935 work the degree to which such ionic educational leaders as Horace Mann and Henry Barnard had reflected the interests of the emergent capitalist class. A sharply critical chapter on E.L. Thorndike (an influential contemporary not to be taken lightly) points out the political conservatism and hierarchical social values that underlay Thorndike's obsession with educational testing as a way of ranking students and fitting them into fixed social and economic slots.

Curti's discussion of John Dewey, while favorable, finds a certain naivete in Dewey's underestimation of the power of social class in America and his benign belief in the ability of progressive schools to transform capitalist America into a socialist utopia.

In the book's final chapter, Curti writes sympathetically of George Counts, the radical educational theorist of the 1920s and 1930s who documented the way business interests in America dominated American education from the national level down to the local school boards, and who insisted that educators must choose sides in the emerging class struggle. Implicitly, at least, Curti appeared to agree that violent class upheaval might lie ahead, and that educators must be prepared to declare their loyalties.

In the same revisionist vein, Curti's 1936 book, *Peace or War*, an overview history of three centuries of the American peace movement, criticized pacifists who ignored the role of imperialism, social injustice, and class exploitation in laying the groundwork for violent conflict and war.

The Growth of American Thought, a product of the dark early days of World War II when the Western democracies faced a mortal threat from fascism, reflects little of the radical class consciousness of the 1930s in its generally benign assessment of the American intellectual tradition. In his introduction, Curti rejected the hermetic history-of-ideas approach to intellectual history associated with Arthur O. Lovejoy of Johns Hopkins University, which separated "ideas" from their social and cultural context. To understand an era's ideological debates, social commentary, and cultural creations, Curti insisted, one must explore that era's social, economic, and political contours. He also went beyond systematic thinkers and elite writers to incorporate a wide range of sources, from newspaper editorials to ballads.

A broad-brush overview, very different from the more narrowly focused studies typical of intellectual history today, *The Growth of American Thought* remains a pioneering work of synthesis, full of suggestive themes and insights on which later historians would build. The gracefully crafted work still repays reading despite half a century of intervening scholarship; the

concluding chapter on the 1930s, a decade in which Curti himself had been active as a public intellectual, and about which he held strong views, is particularly valuable.

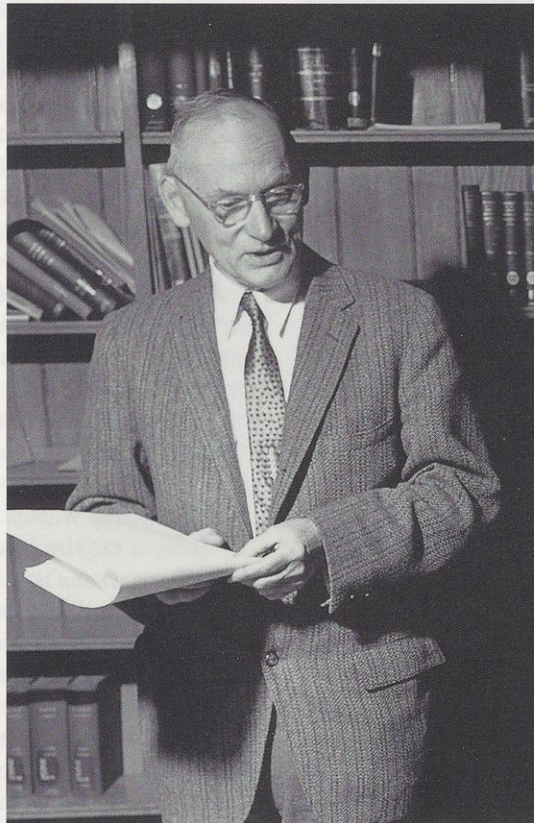
The Making of an American Community, published in 1959, stands out on several counts. Except for the two-volume history of the University of Wisconsin he co-authored with Vernon L. Carstensen, it is Curti's only collaborative book. The title page acknowledges the assistance of three of his graduate students—Robert Daniel, Shaw Livermore Jr., and Joseph Van Hise—and of Curti's wife, Margaret Wooster Curti. The book draws upon a variety of sources—tax lists, census rolls, legal documents, and political records, as well as local newspapers, letters, and oral history—to explore the social, economic, and political development of the frontier region of Trempealeau County from 1840 to 1880. This is also comparative history, contrasting developments in frontier Wisconsin with several long-settled Vermont townships in the same year.

Reflecting his continuing interest in Frederick Jackson Turner, Curti and his students planned *The Making*

of an American Community to use social science methods to test Turner's argument that the frontier fostered economic mobility and political democracy. Essentially, they concluded, Turner was right: mid-nineteenth-century Trempealeau County did exhibit a pattern of quite dramatic differential economic mobility: farm hands became farm owners, the poorest residents enjoyed the most rapid rate of advance. With economic opportunity came increased political participation, from voting to holding office.

In a conclusion that distinguished himself methodologically from Turner's intuitive and impressionistic approach, Curti nevertheless embraced Turner's basic argument:

In sum, our study, both in its quantitative and qualitative aspects, lends support to . . . the main implications of Turner's thesis about the frontier and democracy, so far as Trempealeau [County] is



Merle Curti on the University of Wisconsin–Madison campus in the fall of 1957. Courtesy the University of Wisconsin–Madison Archives.



Merle Curti and the author at American Players Theatre, Spring Green, August 18, 1990, enjoying a picnic prior to a performance of Ibsen's *An Enemy of the People*. A storm interrupted the play shortly after it began, and "we had to make our way down the hill and back to Madison in a driving rain—a dramatic ending to what had been a pleasant evening." Courtesy the author.

concerned . . . Turner's poetical vision of free land and of relatively equal opportunity was for a great many people . . . realized in Trempealeau County. The story of the making of this American community is a story of progress toward democracy.

The Making of an American Community is something of a hybrid, methodologically. While Curti wrote approvingly of quantitative history and rigorous social science methodology, he was not himself much drawn to it. As he acknowledges, the more quantitative chapters, with their charts and statistics, are those drafted by his graduate student collaborators. His own characteristic approach emerges most clearly in chapters exploring the social values of the county through its newspapers and other print sources, and tracing the region's cultural and intellectual developments.

The book also underscores the importance of Margaret Wooster Curti (1891–1960) in her husband's career. A gifted scholar in her own right, Margaret Curti was a skilled psychological researcher with a solid publication record, including a 1930 textbook, *Child Psychology*. He not only listed her on the

title page but noted in the acknowledgments that she had reworked the data in two key chapters, taken "special responsibility" for the tables and graphs, and "read critically the entire manuscript." Margaret Curti unquestionably reenforced Curti's interest in social science methodology, which at least somewhat counterbalanced his own inclination toward a more literary and impressionistic approach.

The Making of an American Community, generally viewed by historians as Curti's most significant and pathbreaking book, helped lay the groundwork for the outpouring of statistically based community studies that followed. Unfortunately, some of the more quantitatively inclined young social historians, in their fascination with numbers, often overlooked two important lessons the book teaches: the usefulness of traditional print sources as well as census rolls and tax lists, and the value of stories, along with charts and statistics, to make one's point. For example, Curti showed the openness and comparative social equality of the frontier not only statistically, but with telling quotes, such as the one preserved in local lore from the immigrant Michael Konkel: "Dis is one hell of a free country." And he included stories such as this, illustrating the cooperation that frontier conditions demanded:

When young William Lincoln became ill and died during the winter of 1853, his neighbors provided what medical and clerical services the boy received. Neighbors dug a grave. One, Stuart Butman, laid out the body, helped build a coffin of rough lumber, and transported it to the grave on his back. In the absence of a minister, two neighborhood girls sang a hymn.

The Making of an American Community is, of course, a work of its time. Certainly a comparable study today would pay more attention to the experience of women and to gender relations. And the book reflects Curti's own secular outlook in its almost total lack of attention to the role of religion on the frontier. Nevertheless, it stands as a landmark and pathbreaking study.



Curti's career shows the artificiality of the distinction between teaching and scholarship. He excelled at both. Alternating courses in U.S. intellectual, cultural, and social history, Curti was a sought-after undergraduate lecturer. Some have suggested, however, that his large course enrollments reflected more his devotion to his subject matter, and perhaps his fame and reputation, than any charismatic platform manner; his lecturing style was apparently quite understated and somewhat dry. Nevertheless, some who took his undergraduate course remained his fans for life, and decades later would fondly recall him as their most memorable and beloved teacher.

But it was as a graduate mentor that Curti exerted his greatest influence. He directed an astounding total of eighty-six doctoral dissertations at Wisconsin. During the 1960s, when graduate enrollments mushroomed, Curti, though near retirement, taught his graduate seminar in sections, to accommodate all the students who sought him out. "No teacher," E. David Cronon

has observed, "could more deftly ask just the right question in such a way as to open a new vista before a discouraged or unimaginative student while at the same time leading him to believe that he (the student) was somehow instructing and enlightening the master."

Curti invited his students to his home, got to know them socially, and showed interest in their lives, not just their academic progress. Sometimes this could lead to awkwardness. One former student, David Allmendinger, now at the University of Delaware, tells of standing outside Curti's open office door and overhearing him say to another graduate student, "Today's students seem preoccupied with material things. I just heard that David Allmendinger has bought a car." Chagrined, Allmendinger sold the car and bought a bicycle. A few weeks later, in a similar situation, he overheard Curti say to yet another student, "Today's students seem obsessed with material things. I just heard that David Allmendinger has bought a new bicycle."

Some of his students became well-known scholars in their own right, though the gender pattern, of course, is obvious when one looks at the list of names—this was the era before the influx of women into graduate history programs, a fact Curti lamented in later years. However, not all Curti students were outstanding. He was famous for his softhearted willingness to take on unpromising but eager students. The trauma of having his own Ph.D. dissertation rejected by his Harvard advisor, Arthur M. Schlesinger Sr., may have heightened Curti's kindness toward his own students. He mixed fulsome praise with gentle suggestions for revision where tougher-minded mentors might have delivered withering criticism. In a variant of Garrison Keillor's Lake Wobegon, where all the children are above average, legend has it that every letter of recommendation he wrote for his graduate students began: "I rank this student in the top ten percent of all the students I have ever taught."

But who is to say that an excess of generosity is a mortal sin in academia? After a session honoring Curti at the Organization of American Historians' meeting in San Francisco in April 1997, a middle-aged historian whom I did not know, not one of Merle's own students, commented to me, "When I was preparing for my final oral defense, I sent Professor Curti a copy of my dissertation, because I thought the subject would interest him. Curti wrote back: 'This dissertation is adequate, and you certainly deserve the Ph.D.'" The man added emotionally, "I still cherish that letter."



As with Curti's vigorous engagement in the ideological wars of his day, those who admired his gentle manner and unflinching courtesy sometimes missed the depth of his sharp-edged commitment to social equality. He combatted racism well before the full-scale civil rights movement emerged. In the fall of 1944, only two years after coming to Wisconsin, he helped mobilize a campaign to end racial discrimination at the University Club, which at that time housed entering graduate students. When Arthur E. Burke, a black graduate student in English, was

Merle Curti was born in Nebraska on September 15, 1897, to Swiss immigrants in the small town of Papillion, near Omaha. Of his childhood, Curti wrote: "A shy, frail, badly coordinated youngster, I was not welcome on the playing fields . . . [and] I found compensation in doing well in school studies." Coming east to Harvard on a scholarship in 1916, he found his great love: American history. He remained for graduate work and encountered mentors who would profoundly influence him, among them Frederick Jackson Turner and Arthur M. Schlesinger Sr.

In 1925, after a year at Beloit College, Curti became professor of U.S. history at Smith College, where he remained until 1937. Smith was a lively intellectual mecca and an arena of radical politics during that period, and that ambiance along with the intellectual currents of the New York academic scene and the 1929 crisis of the Great Depression clearly shaped Curti's major book of this period, *The Social Ideas of American Educators*, published in 1935.

The Columbia University philosopher, educator, and socialist John Dewey was a major intellectual influence. Dewey's secularism, his pragmatic theory of truth, his commitment to democracy and social justice, and his optimistic belief in the power of applied intelligence and the public school system to transform society all resonated with Curti's own values; and in 1937 Curti moved to Teacher's College at Columbia.

In 1942 Curti made an unlikely move, from cosmopolitan New York to the University of Wisconsin at Madison. This move shifted his base from a school of education to a history department; reestablished his rootedness in the Midwest; and deepened his links to the legacy of Frederick Jackson Turner, who had taught at Wisconsin before moving to Harvard in 1910. In 1947 Curti was named Madison's first Frederick Jackson Turner Professor of History.

Curti taught at Wisconsin for twenty-six years until his retirement in 1968. Here in 1943 he published his Pulitzer Prize-winning *Growth of American Thought*. He was active in teaching and professional organizations and was visiting professor at various universities, including Calcutta University in India in 1946. Curti and his first wife and colleague, Margaret (who died in 1961), had two daughters, Nancy and Martha, the latter now Mother Felicitas, Order of St. Benedict. In 1968 he married Francis Bennett Becker, who died ten years later. He continued to make his home in Madison and in 1982 was named a fellow of the Wisconsin Academy of Sciences, Arts and Letters. He remained vitally interested in global developments and local cultural events until his death in March 1996 at the age of ninety-eight.

denied a room, Curti, with Helen C. White, Elizabeth Brandeis, Leila Bascom, and others, organized the protest that forced the club to change its exclusionary policies. As the *Daily Cardinal* and the *Capital Times* entered the fray, the University Club members—by the less-than-overwhelming margin of 150 to 98—endorsed a referendum permitting the admission of Negroes. E. David Cronon tells the full story in Volume III of the university history, a worthy successor to the Curti and Carstensen volumes.

Curti played a role, too, in ending the Madison Club's exclusion of Jewish members. And in 1952, as president of the Mississippi Valley Historical Association, he pressured a divided executive board to shift the convention to Chicago from New Orleans, where black members would have been barred from the convention hotel.

Curti fiercely opposed McCarthyism. He gathered recall signatures in the "Joe Must Go" campaign in Wisconsin, and in his 1954 American Historical Association presidential address soundly defended intellectual freedom in a time of "strong pressures and . . . severe tests." He outspokenly opposed loyalty oaths and other conformist pressures on educators in the early Cold War era. Though never in a self-dramatizing way, he made his egalitarian and liberal values clear, and he acted upon them.



And finally, Curti as friend. Some people have a gift for the clarinet, others for golf. Merle had a gift for friendship. He treasured his friends and savored good conversation. He could not have made me feel more welcome when I arrived in Madison in 1980. My history department colleague Carl Kaestle and I came to treasure our regular lunches with Merle, first at the Madison Club and, in later years, over cheese sandwiches at the retirement center, even though I always felt edgy as I waited for the inevitable question: "And what have *you* been reading lately?" Elmore Leonard or Tony Hillerman were not answers that one would have contemplated giving. Whether the conversation turned to Willa Cather, Emma Goldman, or Mahatma Ghandi, the chances were that Merle had met the individual in question and could add a personal reminiscence.

Despite his many honors, including eleven honorary degrees, Merle lacked any hint of social pretense and almost ritualistically directed the conversation away from himself to inquire about the well-being and family of the person he was speaking with. His holiday greetings struck a warmly personal note, sometimes including a handwritten passage from his favorite poet, Emily Dickinson. Toward the end of his life, when his once vast library had dwindled to a few books, a volume of Dickinson remained near his bedside.

While Merle kept in close touch with a host of academic friends and former students, he remained open to new friendships and particularly savored contacts with young people. One

of my young graduate students sought out Merle, who was then past ninety, for advice on his doctoral dissertation, which involved Turner. The two became good friends.

His capacity for friendship seemed to have no social limits; he responded to those he encountered with warmth, courtesy, and curiosity. An active member of the Unitarian Universalist Society in Madison, he drew many friends from that lively community. He enjoyed long, stimulating conversations with the learned Mother Superior of his daughter's religious order. When nearly ninety, he was approached on a Madison street by two young women who asked if he would like to come up to their apartment for "a good time." The soul of chivalry as always, he graciously thanked them, but declined on the grounds that he was perhaps a bit old for that sort of thing.

Curti's modest, down-to-earth quality, his avoidance of the flamboyant or the trendy are rooted, I believe, in his Nebraska origins and his ethnic ties to the Swiss, who are often observed to be a friendly but sober people not known for exuberance or preening self-promotion. This legendary self-effacement prompted much amateur psychologizing by his friends and students: One acquaintance has described him as a man whose "healthy ego [was] tempered by nearly obsessive modesty," while another has compared him to a submarine captain, stealthily raising his periscope and peering around the horizon.

One of the world's great correspondents, Curti's thousands of letters were long and meaty, discussing his work, commenting trenchantly on current events, and empathizing with the successes and setbacks of the person to whom he was writing. In some letters written when he was younger, he notes that it is early in the morning, and he is writing by hand rather than typewriter to avoid waking the family. In this age of ephemeral e-mail exchanges, casually dashed off and just as casually deleted, will we see his epistolary likes again?



We in Madison were blessed to have had Merle Curti among us for so many years. He was a model of the public citizen, the socially engaged intellectual, the scholar successfully negotiating the pressures that so often pull us in several directions at once. He enriched our common life, and he made the university, our local community, and our American society better and more humane places.

Merle himself, with characteristic modesty, summed up his career in a letter written near the end of his life: "By and large, I have thought of my work . . . as reflecting and possibly giving support to my hope and (wavering) conviction of the human potential for more decency and empathy in collective behavior." Then he added a passage from Camus: "I do not want to lead. I do not want to follow. I just want to walk by your side." ■

This is a version of a paper presented to the Madison Literary Club on September 8, 1997.

An Austrian in Wisconsin, 1856–1860: The Impressions of Franz Hölzlhuber

by Rosemarie K. Lester

Franz Hölzlhuber was an enterprising young Austrian who taught art and music in Milwaukee's German American Academy. From 1856 to 1860 he kept a fascinating and delightfully illustrated journal of his travels through the New World. His writing style reveals a mixture of journalistic curiosity and an earnest desire to bring to the folks back home—and the readers of Harper's and other American magazines—a kind of grassroots account of what this great New World was really like.

Franz Hölzlhuber departed from his native Austria in 1856 and, together with a shipload of German emigrants, set out for America. Unlike most of his fellow travelers, he only intended to stay for a short time “in order to become acquainted with and study the land and the people beyond the sea.” He wanted to acquire knowledge for the future, he said, to get ahead in the world in a way that was impossible for him in his beloved homeland—his attempts to earn a living as a law clerk in Austria in the 1850s had failed.

Drawing on his experience in Europe as a traveling singer-songwriter and itinerant landscape painter, *Der Franzl* certainly had everything it took to become a success in the New World: “Along with my modest talents as a musician, singer and draughtsman, I brought with me only my will to work, few demands, a cheerful nature and an eye open for all that is beautiful.” After a few initial difficulties, he found work as a housepainter, actor, singer, music

conductor (he was organist and choir master in the Jewish synagogue), drawing and singing teacher, and “as collaborator on several illustrated newspapers in New York and Boston.” It appears that in his spare time he also introduced Viennese pastry to Milwaukee. Not bad for someone who just wanted to look around a bit!



Franz Hölzlhuber from the cover of The American Sketchbooks of Franz Hölzlhuber: An Austrian Visits America in 1856–1860.

In spite of all this activity, Hölzlhuber traveled and made sketches and watercolors in Minnesota, Michigan, Wisconsin, Nebraska, Iowa, Kansas, Missouri, Arkansas, Tennessee, Louisiana, and Texas. He met other travelers and Indian chiefs, settlers and slaves, loggers and traders; recorded the destruction of a wilderness and described the emergence of a new civilization; and stood in awe of the New World's natural wonders. His pictures and commentary convey the kind of immediacy and simple charm that can make immigration history—and in particular, Wisconsin history—come alive, and thus they are an important part of the social history of the time.

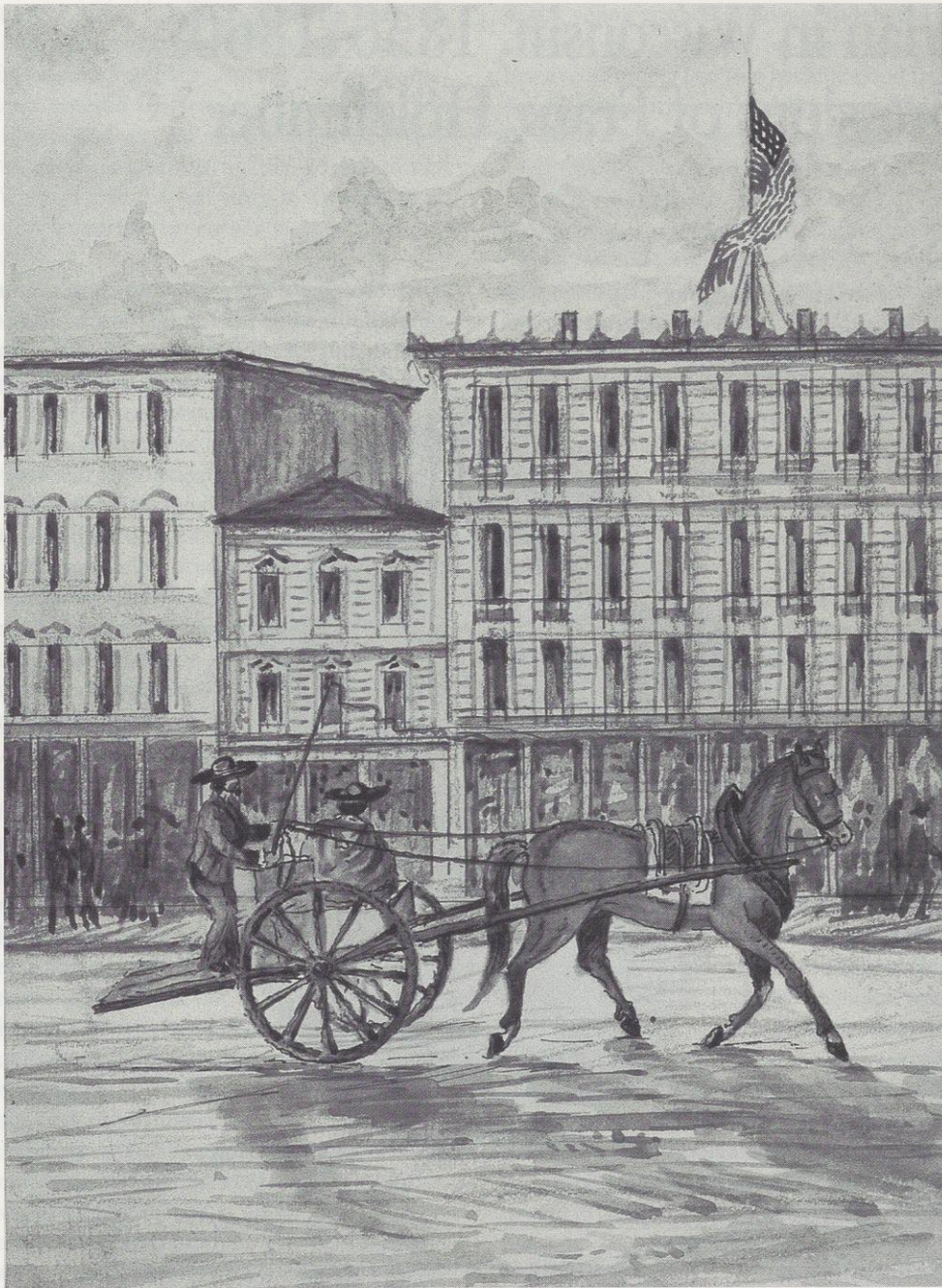
Hölzlhuber returned to his beloved Vienna in 1860, and it appears that the Austrian government did appreciate his broad experience and talents: He became an official of the Austrian railways, in charge of its museum and library. Moreover, he was decorated with the Gold Merit Cross and other medals upon his retirement.

Here in Franz Hölzlhuber's own words are some of his comments and observations made during his travels through Wisconsin, enhanced by examples of his paintings.

Introduction

There are impressions in our lives which remain indelibly imprinted on our minds and souls, and which reappear again and again, with renewed strength, in our memory.

To transmit this experience to my immediate surroundings and my friends, I have, in the course of my many travels, put down on loose sheets of paper quick sketches, accompanied by impressions and experiences written down just as I saw and felt them at that moment in time.



My arrival in Milwaukee on June 20th, 1856

In a two-wheeler driven by a man called "Herrgott", I went from the depot of the lakeshore railroad . . . through the magnificent East Water Street to the market square and then to house number 251 inhabited by the Vintschger family. . . I was received most cordially, with open arms and loud cheers at my happy arrival in America. When I got to Milwaukee, a singing festival was being held and in the evening, I was honored by a serenade.



A view of a part of the City of Milwaukee

The view of magnificent Lake Michigan from the second story of the Salesianum, the residence of Dr. Salzmann, is indeed wonderful. The lake is 360 miles long and 95 miles wide. One day I counted from the window of this house 42 big ships, some of which came from Chicago, Racine, Manitowoc, Sheboygan, etc., all in the direction of Milwaukee, and in this way animated the powerful inland ocean.

In the foreground of the sketch the old mission church is depicted, together with some more ancient buildings, a new orphanage and the cemetery where all the priests lie buried who came here to find rest from the heavy toils of the mission fields.





The Schulz Farm near Stevens Point in Wisconsin

This farm is situated in the midst of fertile soil which had already been cultivated for several miles far inland; it is about three German miles from Stevens Point.

The beautiful wooden farm house stood in the midst of poor looking farm buildings which had hardly more than the most basic roofs and were boarded with wood where they were most exposed to wind and violent rain.

The stables for three to four horses and several cows were located some way from the farm house so that any outbreak of fire would not burn down all of the buildings. Not far from them was a whisky still which made huge profits.

The house of Martin Stein in Milwaukee, 1840

Martin Stein, the owner of this house, came to this region at the end of the 1830s and on a hill, close to the Milwaukee River, he built in 1840 the house which remained on its present site in line with the plans for the City of Milwaukee.

For four years I lived opposite the small wooden house, which was still inhabited by Mr. Martin Stein and his family. . . . Stein was a tin-maker and furnished and repaired the guns of the trappers and farmers of the region.



A steamboat trip on the Fox River in Wisconsin

After crossing the Winnebago Lake, I boarded the steamer Plymouth in order to continue my trip on the Fox River. The steamer was unusually high but narrow and it had a wheel almost in the middle of the boat. It was built in this way in order to be able to navigate the river more easily because at many places, the river was narrow and the banks were grown over with mighty trees. The unusual steamer was able to accommodate forty passengers who were able to shelter in the two low decks—six-and-a-half feet in height. Suddenly, our steamer stopped in the midst of a forest and a man with a small boat rowed to the shore. From a box that was fastened to a tree and protected against the rain, he took out the mail which was placed there for dispatch by a mail carrier belonging to the surrounding farm region. There were three such primitive postal stations where our steamer had to stop.



On Horicon Lake in the State of Wisconsin

It was the beginning of April 1860, that I went by railway from Milwaukee via Rubicon to Horicon on the lake of the same name . . . to have a look at the young city and the life of its settlers there. Near a hospitable house which was hidden behind oaks and shrubs, . . . I came upon people who led their lives as genuine outsiders, depending only upon themselves. They were their own builders of houses and ships, nets and traps, but they were also their own masters and uknique [sic] oddities as one could not easily find their like again.

[He joins a hunting party about to cross Lake Horicon.]

Five boats, fitted out very expertly for trapping and hunting were ready to receive us. After the provisions which consisted of small casks of Lager beer, some bottles of Brandy, Kirsch, Kummel, Bitters, ham, cheese and bread, etc., were brought out and packed . . . in the five boats, we took our seats and now the vessels glided away . . . across the smooth surface of Horicon Lake to the first island where a tent was already put up.



The farm of Heinrich Cordes in the Onalaska region on the Black River, Wisconsin

Cordes bought his cultivated land from an Irishman and built for himself in 1859 a nice brick home. Because of the rainy weather, I accepted an invitation to stay on this lovely farm and on the second day, he took me with his horses to the nearest steamship dock on the Mississippi at the mouth of the Black River.

I must not forget to mention that during my four years in North America I met many malcontents who, in most cases, were most unhappy because they had not been received with open arms and had been told to rely on their own strength. But they did not make use of their resources which would have enabled them to move immediately into the interior of the land, seek out a new field of activity and be ready to work their way up gradually and to accept hardships.

All images and excerpts from the Hölzlhuber journals courtesy The State Historical Society of Wisconsin. Reprinted with permission.

Photo of Franz Hölzlhuber WHi (x3)51647.

Wisconsin Lakes at War

by Charlotte Zieve

There is a war going on against the lakes of Wisconsin, and Elkhart Lake is at the forefront. The assaults on the lake include familiar problems like leaking septic tanks, runoff from agricultural land, and invasion of non-native plants such as Eurasian milfoil. There are a number of new concerns of such magnitude that they threaten to irrevocably change the character of the lake.

It is distressing for me to watch what is happening to Elkhart Lake because I realize I have been unable to stop a single project or degrading activity, even though the environmental causes I worked for in the past in most cases resulted in legislation or policy which I supported.

I began my interest in the environment early in 1970 when a spectacularly beautiful 200-acre Milwaukee County tract of land on the shores of Lake Michigan was slated for a housing development. I became involved with a small group of determined women who went to work to save it, and two years later it became what is now known as the Schlitz Audubon Center. The center, which provides recreational and educational opportunities for children and adults, has been operating since 1971. What makes it so remarkable is that it exists in the midst of a large urban setting, making it easily accessible to thousands of people.

The 1970s were good times for the environment and exciting times for an environmental activist. As president of the Milwaukee Audubon Society I participated in efforts that resulted in the passage of an impressive body of environmental laws which to this day represent more legislation designed to protect the air, land, and water of our state and nation than had ever been passed before or since. These include the Clean Water Act, the Clean Air Act, the Endangered Species Act, The Wilderness Act, and legislation to protect Alaska's great wilderness. I served on an advisory council for the Wisconsin Electric Power Company; I frequently lobbied in Madison for greater control over companies that extract the resources of our state; and I joined others, like Lorrie Otto, who fought to ban DDT.



Charlotte Zieve at her home on Elkhart Lake.

I heaved a sigh of relief when James Watt was ousted as Secretary of the Interior, feeling sure that the many letters I fired off against his dismal idea of stewardship of our nation's national parks and wilderness areas had somehow helped to hasten his departure. And in the 1980s I enlisted the support of Betty Jo Nelsen, my state assemblyperson, to stop off-road vehicles from tearing up the shores of Wisconsin's rivers and streams. As a result, Wisconsin statute 30.29 prohibits the use of motor vehicles in the waters of the state. I worked against the Alaska Pipeline and lost, though eventually we felt we were proven right when the disastrous Exxon Valdez oil spill occurred in 1989. I was appointed to several DNR advisory councils that made decisions about scenic beauty and to a governor's advisory council on the environment.

nor's advisory council on the environment.

It was during this period that I affiliated myself with the Institute for Environmental Studies at the University of Wisconsin-Madison. I organized a conference involving speakers from around the country titled "Human Values and the Environment" and attended United Nations conferences in Cairo and Beijing, which culminated in documents affirming the need to recognize population growth as a problem as well as



ABOVE: Looking at the lake through the trees.

BELOW: Zebra mussels at Elkhart Lake, a serious threat to all Wisconsin waterways.

the need for developed countries to address the problems of overconsumption and pollution. I was called to a White House meeting to hear Madeleine Albright and Hillary Clinton ask for help in carrying out the objectives of the document that came out of Beijing and to ask for continued support in our home communities. To this day I continue to speak, lecture, and publish on matters relating to the environment.

Unfortunately all of that did not translate into skills to help me stop unwise development, invasion of degrading species and high-speed personal watercraft, and destruction of shoreline vegetation along the lake on which I make my home. What had been a peaceful lake fringed with venerable old trees had become almost overnight one that vibrated to the roar of noisy and powerful personal watercraft and whose shoreline was damaged as a result of the thoughtless destruction of shoreline vegetation.

The first of the recent changes to the lake came in the form of a plan to build a 200-unit complex on the site of what had been a resort founded in the 1800s. Many lake residents believed the proposed resort was substantially larger than a 286-acre lake could accommodate without serious damage to the environment. Numerous hearings were held, some with the DNR for various permits, some with the county for permission to block off the road in front of the property, some with the village board. There were many people, including myself, who testified about the need to scale down the size of the resort and about the folly of closing down the road.

There was not a single request submitted by the developer that was denied, and not a single objection submitted by the citizens opposed to the type of project being proposed that was accepted. Subsequently the bright, white resort was built, the road was closed, and what had been a large, unbroken fringe of shoreline trees was replaced with a stripped embankment and acres of weed-free, fertilized lawn. At night a row of high-intensity lights blot out the sky and intrude into every corner of the lake. Requests to dim the light have fallen on deaf ears.

In addition, several homeowners, wanting an unimpeded view of the lake, cut their trees down and replaced them with low walls made of stone and small ornamental shrubs. Since mature trees effectively filter runoff and stabilize the shoreline, the practice of removing old, established shoreline vegetation has more than aesthetic implications.

It appeared at first that there was a way to address this. After all, there is a state statute that expressly forbids such removal. It is clearly articulated in Wisconsin statute 72.18 relating to Removal of Shore Vegetation. It reads,

Trees and shrubbery cutting in a strip paralleling the shoreline and extending 50 feet inland from all points along the ordinary high water mark of the surface waters shall be limited . . . Natural shrubbery shall be preserved as far as practical to screen existing or proposed development, and where removed, it shall be replaced with other vegetation that is equally effective in retarding runoff, preventing erosion, and preserving natural beauty . . . No more than 30% of the trees within the strip shall be cut by selective cutting or by creating a clear cut crossing of this strip down to the water's edge, nor shall any such clear cut to the water's edge exceed 10 feet in width.

While the developer was apparently within his right to remove the trees because they were more than fifty feet from the shoreline, I was confident that our lake association would be able to invoke the statute and require several homeowners who had denuded their shores to replace what had been removed with



something akin to mature trees. Much to my dismay we were unable to convince a single agency—not the state, not the county, and not the village—that this violation of the statutes should be addressed. One of the homeowners submitted a replanting plan which the county accepted. But there does not appear to be any movement toward replanting, with the exception of some small shrubs.



Another problem is the recent invasion of zebra mussels. They are freshwater, bivalve mollusks, which until recently were confined to the Great Lakes. In the three years since they were first identified in Elkhart Lake there has been an explosion in their number and size. There is no part of the lake that hasn't been invaded. They get bigger each year, and as they proliferate they bring in a hitherto unseen type of slimy green algae along with a host of other vegetation that attaches to the lake bottom. The tragedy is that at this time no one has any idea what to do about them. While it is too late for Elkhart Lake, action should be taken to stop these intrusive pests from proliferating into other bodies of water by imposing a quarantine on boats that use this lake. At the very least a sign should be posted warning boaters of the danger of spreading the organism to other lakes and rivers. In spite of repeated requests for such a sign, no steps have been taken to warn boaters of the danger of contaminating other lakes.

The problem about which I have the most support from other people with regard to the need for controls is the invasion of a disagreeable type of personal watercraft known as jet skis. Complaints about jet skis include ear-splitting noise, reckless operation, danger to other lake users and to the operators themselves, the polluting nature of their two-cycle motors, and threats to wildlife. The National Park Service is now considering rules to ban them as inappropriate for use in national parks. To illustrate how universally detested jet skis are, an article about mute swans in the November–December 1997 issue of *Audubon* magazine stated:

In Michigan mute swans regularly attack Jet Skis, sometimes launching out of a marsh as soon as an engine fires up, flying



Elkhart Lake with shoreline intact.

across the lake at speeds approaching 50 miles per hour and knocking the rider out of the saddle. Half the lake owners cheer, reports the chief wildlife biologist at Michigan State University's Kellogg Bird Sanctuary.

State agencies are quick to point out that the state constitution expressly forbids regulating boats by motor size. State and county jurisdictions demur when approached about controlling them as having no authority to do so. So we are left with trying to convince our village boards to put controls on these watercraft that will at least limit their hours of operation. At this time personal watercraft continue to roar around the lakes in Wisconsin, offending almost everyone who doesn't ride, rent, or manufacture them.



Together with other like-minded people I will continue to look for ways to halt the degradation of Elkhart Lake and to be concerned about Wisconsin's other waterways. We are in urgent need of tools to stop commercial development that is inappropriate and environmentally damaging, to control the use of personal watercraft that diminish the ability of others to enjoy our waterways, and to make the penalty for removing shoreline vegetation severe enough that other property owners will not engage in this reprehensible practice. Future generations will be deprived of the ability to enjoy the myriad benefits of Wisconsin's beautiful lakes and rivers if we fail. 🐾



Forgotten Places

by *Charlette Hein*

Washington County has been a traditional rural setting dotted with small communities. However, the ever-expanding land needs of the metro-Milwaukee area are encroaching at a staggering rate, reflecting a dilemma which stretches across our entire country. But here and there forgotten places remain; and if we take time to consider these places, our imaginations can be seduced into dreaming.

What is it about a drive in the country that lingers on—perhaps evoking a childhood memory or the renewal of a longing for what is often perceived as a less complex lifestyle?

When beauty is in utility and “if it ain’t broke, don’t fix it” prevails, rural structures eke out nine lives in their usefulness. Even when that has passed, a building is not abandoned if left to

fend for itself against the moods of Mother Nature. Thus it serves one last time, a reminder of what was.

... we’re made so that we love
first, when we see them painted, things we have passed
perhaps a hundred times, nor cared to see:
so they are better, painted.

Browning, “Fra Lippo Lippi”

All images are from the 1997 watercolor series Forgotten Places by Charlette Hein. Originals and limited-edition prints measure 12 x 8 inches.



Kitchen porch



Back door

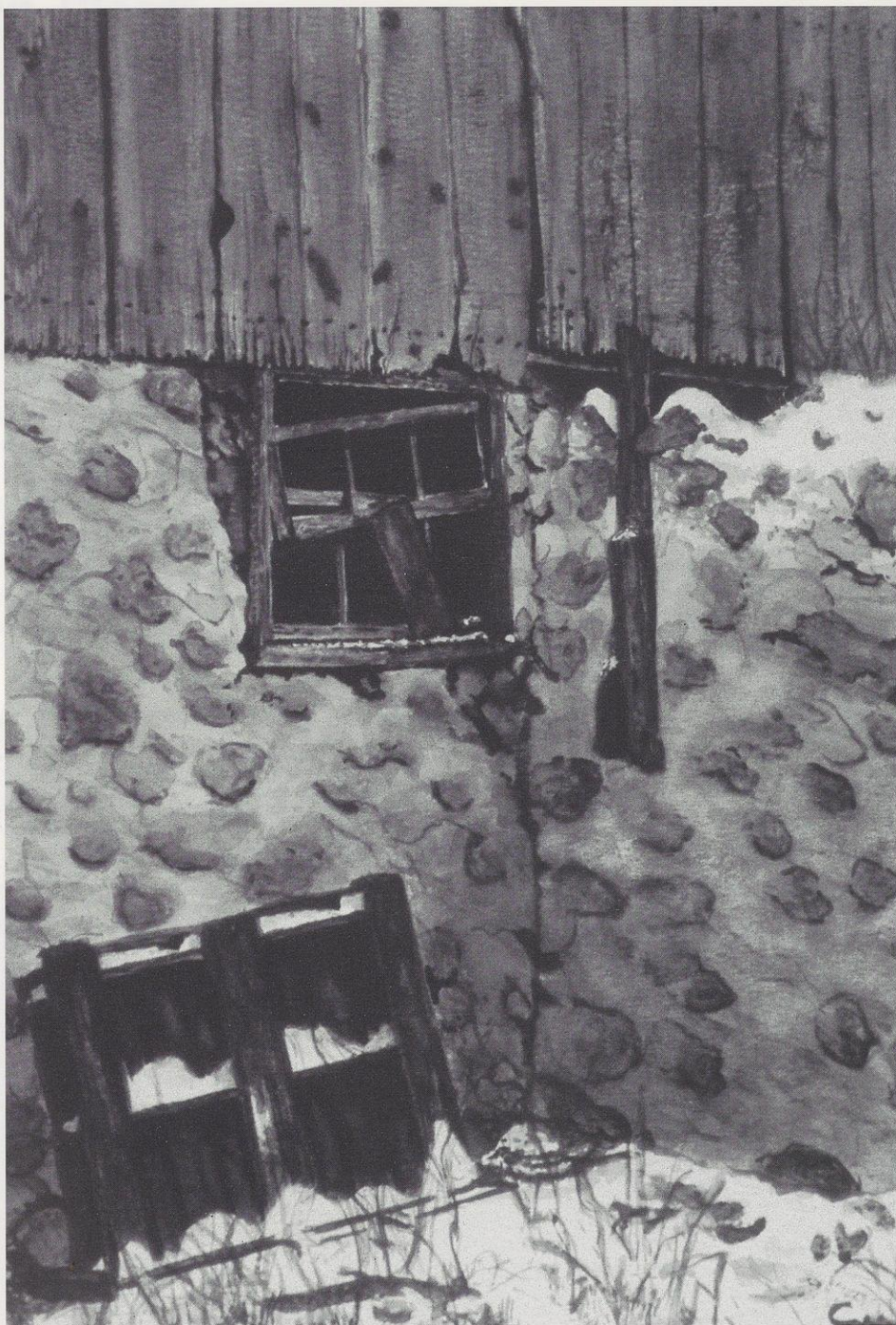
Forgotten

by Christian R.

W

all my own work, I
sometimes wonder if
I'm not just a
fantasy of my own

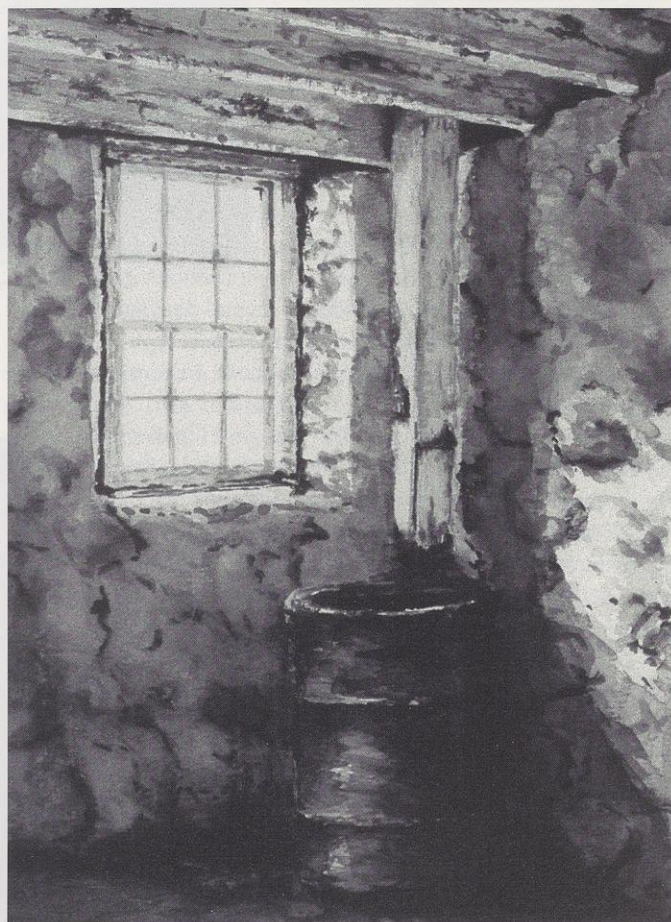
When I'm alone
I'm thinking of the
for what I'm doing
When I'm alone
I'm thinking of the
Even when that has



Behind the barn



In the barn



Grain barrel

Auntie Crescents' Trousseau

by Beth Franks

One Steamer Trunk, circa 1920, rectangular in shape, made of honey-colored wood, with metal bands. Inside it is divided into two sections.

My mother called from California, "Auntie Crescents died last night," she said.

"Auntie Crescents," I repeated. The phone line had an irritating transatlantic echo and it came out "Auntie CresAuncencies Crescents."

"The funeral will be held tomorrow."

"Are you going?" I asked.

"I don't think so," my mother said. "Wisconsin is awful in March. And it wouldn't serve any purpose."

"Oh," I said.

"She left some things to you and your sister. I'll have them shipped to the farm. You can take a look at them this summer when you come home." She paused and then added, "You are coming home this summer, aren't you?"

"Yes," I said, "I'll be there."

My mother spent part of the year on our farm in Wisconsin and part in California where we had moved when I was thirteen. I was now doing graduate work in England at the University of London, but the farm in Wisconsin was still home.

My aunt's estate was simple, her household items easily distributed. By spring a large picture, several packages, and her trunk had arrived at the farm. Both my sister, Ann, and I had July off. We planned to meet at the farm to go through Auntie Crescents' things.

The corn was thigh high when Ann and I arrived at the farm. We had barely put down our suitcases when my mother began edging us toward the stairs.

"Crescents' things are in the back hall," she said. "I put them at the top of the stairs where there's plenty of room to spread out. You should sort through them soon."

My sister and I climbed the stairs slowly. Auntie Crescents had been grandmother and grandfather and aunt all in one. Our parents' parents had died before we were born; Auntie Crescents had filled their places. Our visits to her house were part of the mosaic of our childhood.

In the back hall at the top of the stairs stood Auntie Crescents' trunk, the trunk that had been a final resort on rainy days or when my sister and I indulged in whining duets. At times like these, Auntie Crescents would take us upstairs to look at her trunk and go through

some of its contents. My sister's favorite object was a rainbow-colored shell that had been made into a spoon. A rich uncle had brought it back from Tasmania, just one stop on his world cruise. Auntie Crescents wrapped it carefully in tissue paper and kept it in her steamer trunk.

One Color Print, 24 x 18 inches. Print is matted and has a wooden frame. Signed by Lislett J. Pott. Probable title: "The Duel."

Several smaller boxes were stacked near the trunk and a large picture leaned against the wall. As I picked it up I was taken back twenty-five years or more, back to Auntie Crescents' living room with its dark, cool tones, where Auntie Crescents' grandfather clock muttered to itself day in and day out.

Sitting on the living room sofa, I would listen to the tock, tock, tock of the grandfather clock and I would wait—I would wait through the low white-noise of traffic, wait through the falling of the autumn leaves, wait through my childhood's sorrows and joys—for the grandfather clock to chime. Those mellow booms echoed across my childhood. Rather than rousing me to action, they lulled me into a semi-comatose state that I have only managed to duplicate, now many years later, with sleeping pills.

A picture hung over the sofa, the picture that now leaned against the wall near Auntie Crescents' trunk. I used to spend hours studying this picture, kneeling on the sofa to peer through



The author's family farmhouse near Oconomowoc.

the glass. A young woman in a dark red riding habit clung to the arm of a handsome young man. She seemed about to step toward another figure, an equally handsome young man. Both men were, to my eyes, mysteriously grey-haired and both held swords in their hands. A path led back into the forest, losing itself in the mist. Behind the pair was a dapple-grey horse with a cropped tail. His front feet were braced, his eyes wide with alarm. Who were the people, I wondered? What were they doing in the forest? What was going to happen? And most important of all—what would happen to the horse?

Twelve Royal Doulton China Plates with fluted edges, outside border of dark blue, central motif a basket with flowers.

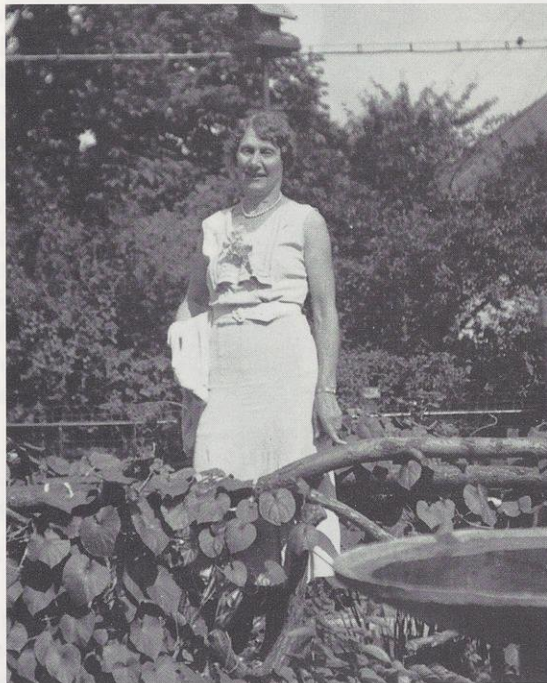
The Royal Doulton plates were easy. Ann and I would each take six. Ann has them in her kitchen today, displayed over her sink, surrounded by Fiesta Ware and Art Deco tea pots. Once, while scouring out Ann's sink and staring at a Royal Doulton plate, I was transported back to my aunt's kitchen. Superimposed over Ann's kitchen, with its white walls and plain wooden cupboards, another kitchen flickered into focus, a kitchen I hadn't entered since childhood. Did I say superimposed? Actually it was *Ann's* kitchen that had little substance, *her* kitchen that was the intruder.

It was that other kitchen, laid down in memory long before Ann's kitchen was built, that was real. It was the sharp smell of percolating coffee mixed with the odor of Ajax cleanser that recalled my aunt's kitchen, brought back its white porcelain sink, oil-cloth-covered table, and glass-fronted cupboards. Auntie Crescents' kitchen was a city kitchen and spoke a language unfamiliar to my country ears. Sometimes, while sitting at the table and waiting for my breakfast, I heard the muffled steps of The Tenant as he came carefully down the stairs. If I held my breath, I could hear him pass the locked kitchen door, and, with a barely audible click, let himself out the tradesman's entrance. Often a whisper of traffic or the sound of a distant horn crept through high windows that showed only treetops and sky. And if my aunt were working behind the swinging door that separated the kitchen from the rest of the house, I could hear the hushed sound of a radio set on the news channel.

Although three doors opened into Auntie Crescents' kitchen, it wasn't a kitchen I thoughtlessly ran though. With its precise neatness, its high-gloss finish, and my aunt's talent for subduing organic odors, this was a kitchen I entered consciously and with reverence. Coming in through the back hall, I

paused while Auntie Crescents unlocked the door dividing the entryway from the kitchen. Once inside, only a few steps separated the entry door from the swinging door leading to the dining room; but I never took those steps hastily, and I never, ever ran through the swinging door—even when it was pushed back against the wall of the dining room. Running might tempt the door to close, crushing my fingers in its dark brown grip.

One Mixed Dessert Set: Cut-glass crystal bowl with sixteen-point star design; creamer and sugarer with pineapple design.



Josephine Crescents Stolz in the mid-1930s.

Annexed to the kitchen, the sunroom was too small for more than one or two straight-backed chairs and a wrought-iron plant stand which kept several pots of plants arranged in military order. The sunroom bathed the kitchen in light. Double, counter-weighted windows dominated two of its walls. The third wall displayed two brightly colored, slipper-shaped, faux-oriental vases—one dark blue, the other orange, and each with gold designs traced on the front. Auntie Crescents filled these two vases with equally faux flowers, replacing them on a regular basis when they got dusty. The sunroom never disappointed, living up to its name even on cloudy winter days when, in defiance to natural law, it seemed flooded with yellow light.

Every three years Auntie Crescents had her kitchen and the sunroom repainted. Each time, the colors became brighter and more garish. The rooms may originally have been yellow or white, but through the years of my childhood they were transformed, first into bright green and finally into hot rose. She always chose the glossiest, smoothest enamel paint that top-of-the-line technology could put on the shelves of the paint store. I could see my reflection in the walls of the kitchen. And when the afternoon sun hit the walls of the sunroom, the glare was bright enough to make my eyes dance with black spots. Perhaps, though, it was the woodwork that dazzled me. Is it only my imagination, or could it really have been painted glossy black?

One Souvenir Spoon: The bowl is a small shell, the handle is sterling silver, the end an outline map of Tasmania.

Auntie Crescents' life was as neatly regulated as her home. Her days were spent in cleaning (always done when no one else was around), shopping, and cooking. Every autumn, Auntie Crescents would be tempted into her lot next door to battle

nature by picking up “them durned apples” that littered the ground. She would pick the biggest and the brightest, bring them inside, and make her incomparable cinnamon-heart apple-sauce, so hot and sweet that it scorched the tongue and, as an additional bonus, turned it bright red.

Everything in my aunt’s kitchen was clean and sparkling, even after she had cooked one of her rich meals (sauerbraten with raisin sauce followed by the sweetest schaum torte ever made in Milwaukee). The counters were scrubbed, the oilcloth shiny, the linoleum floors glowing with polish. Yet the only cleaning I remember my aunt doing was between the final preparation of a meal and its presentation as a *fait accompli* on the table. I can still see her, standing at her high, white porcelain sink, wrapping food scraps in an old newspaper, and tying the bundle with the white string she had saved from the Sunday newspaper. As soon as the bundle was securely tied, Auntie Crescents would take it out to the garbage pail in the alley. Only clean trash, like paper or plastic, went into the bucket under the sink. I am amused now by the thought of my aunt, born at the turn of one century, stubborn and orderly in her routines, separating and recycling (although she called it being thrifty) as if she belonged to the turn of the next.

Two Patchwork Quilts, unfinished, with calico butterfly designs. Twin bed size. Last row and a half of butterflies missing on one quilt.

The door to Auntie Crescents’ bedroom was off the dining room. This door was discreetly placed in the corner, partially hidden on one side by a radiator that jutted into the dining room and on the other by the built-in china cabinet that ran across the width of the room.

My aunt’s bedroom was, if possible, even more orderly than the rest of the house. Although small, the room held two twin beds, each with its own picture of a guardian angel above it. My favorite was that of a child, innocently (and stupidly I always thought) crossing a rickety bridge. I never would have crossed a bridge full of loose planks and holes. If that child, surely old enough to know better, took just one more step, she would fall into the stream below. It was lucky for her that an angel with widespread wings waited behind her, ready to scoop her up and take her either straight to heaven or the other side of the stream—neither fate being the one she deserved.

In addition to the twin beds, Auntie Crescents owned a matching dressing table and chest of drawers, or, as I thought of them at the time, Chester drawers, taking their name like Chippendale chairs from their designer—Chester. Auntie Crescents kept her jewelry on top of the Chester drawers, her perfume, powder, and makeup on the dressing table.

When I stayed overnight I would always sleep in the bed under the window, my aunt taking the bed closest to the bathroom. I wonder now if the bed I slept in was the bed her husband occupied, a man who died shortly before I was born. Uncle George Stolz (always given his full name to distinguish him from my father who was also named George) was twenty years older than my aunt. A close friend of Auntie Crescents’ father, George Stolz had already raised a family of his own. When my grandfather died, Auntie Crescents married George Stolz, moving from her family home into his duplex, moving from the care of one elderly man to the care of another.

Perhaps this was why I so dreaded hearing Auntie Crescents say, “You look just like me when I was a girl.” An ominous compliment. If I looked like Auntie Crescents when she was a girl, would my fate be Auntie Crescents’ when I was an adult? Besides, Auntie Crescents looked nothing like how I *wanted* to look. She had a large nose and steel-grey hair (curled every night with kid

curlers) which she rolled into two wings, one over each ear, and tucked into a neat bun at the nape of her neck. Though she wore red circles of rouge on her cheeks and her lips were bright with lipstick, color could not cover her cracking voice and the blue veins snaking across the backs of her hands.

Every time I saw Auntie Crescents, I dreaded hearing those words. After she delivered them, I would study her face and then covertly glance in a mirror to check for any possible similarities. The mirror always assured me that there were none. Or, if we were visiting her at her duplex in Milwaukee, I would sidle into the living room to examine a family portrait that hung next to the sofa. This picture, in faded brown and sepia and taken when she was about eighteen, was both a gentler and a tougher test. It too reassured me of our differences. Yet now as I look at the blue veins that run up my forearms, I am reminded of my aunt’s arms. And as I sweep my front walk of fallen leaves and grass clippings I remember Auntie Crescents sweeping her front porch evening after evening throughout the summers of my childhood.



The author and her brother, 1952.



Auntie Crescents, 1953.

Certainly there were no butterfly quilts in my childhood memories. My sister and I had never seen these quilts before. Part of the reason may have been that they were unfinished. But even in our trips to the attic to look at the keepsakes in her trunk, Auntie Crescents had never shown us her butterfly quilts.

My sister took the unfinished quilt. She was an able seamstress and generously offered to finish the row and a half of butterflies, knowing full well this was far beyond my sewing capability. After examining the fabric closely, she identified it as coming

from the 1920s or 1930s and probably from old flour bags. We wondered if Auntie Crescents stopped working on her two quilts when Uncle George Stolz died in 1943, just before I was born.

One Baby's Blanket, cream-colored, made of pure lamb's wool. Snowflake and basket-weave design, fringed on all sides.

Auntie Crescents' own childhood was generations separated from ours. She was born in 1886 and was already well over sixty by the time I was six. Having had no children of her own, my brothers, sister, and I had become her children. One of my first and most persistent memories of her, persistent because it was repeated every year, was her Christmas gift to me. Every Christmas Auntie Crescents would bring me a doll, each year a bigger and more elaborate doll, and each year a doll I didn't want. My only interest in these dolls was gynecological and, though I was warned by my mother, I could never refrain from immediately undressing my unwanted gift to examine the smooth, blank space between its legs. Each year I was disappointed and would then move my attention to its nippleless chest and, finally, tip it up and down to watch the blue eyes—they were always blue—open and close.

Ann and I sat now on the floor in the back hall of the farmhouse, objects from Auntie Crescents' trunk surrounding us. We had spread the contents of Auntie Crescents' life around us, and we were slightly lightheaded from the pungent scent of mothballs. In the top tray we had found a coral necklace, earrings with screw-backs, and several strands of faux pearls. We had lifted out our old friends the crystal bowl and Royal Doulton china plates and marveled over the rainbow colors of the Tasmanian spoon. But there were two things we had never seen before, not even during those rainy-day excursions to the attic, when we walked up the back stairs as carefully and quietly as The Tenant walked down them.

Kneeling side by side before Auntie Crescents' trunk, swept back to her dark living room by the smell of mothballs, we folded back the silent years. Underneath the unfinished butterfly quilts, wrapped in layer upon layer of tissue paper, was a soft woolen baby's blanket. ❧

Crescents Stolz nee Crescents Josephine Magdalen Gessert. Born: March 18, 1886, Milwaukee. Died: March 10, 1979, Milwaukee. Buried: Calvary Cemetery, Milwaukee. Married: George R. Stolz on November 26, 1924 in Milwaukee. George Stolz was born in 1866 and died in 1943. They had no children.

SAUERBRATEN

(Serves 4–6 people)

4 lbs beef (chuck, rump, or round)
1 large onion, sliced
3 bay leaves
5 cloves
1 tsp. whole peppercorns
Vinegar, water, and sugar for marinade

Sprinkle the meat well with salt and pepper and rub in thoroughly. Marinate in vinegar, water, and sugar with onion and peppers for 3–4 days. Put meat in kettle, add 1 large freshly sliced onion and marinating vinegar. Place in a hot (425 degrees F.) oven to brown all over. Put on tight-fitting cover and slowly cook (300–325 degrees F.) about 3 hours or until tender. Add more vinegar if necessary. Take out meat and slice for serving and keep hot.

SAUCE: Strain liquid in kettle and skim off fat. Let ½ cup of brown sugar melt in a skillet, then gradually add strained liquid, then ½ cup of raisins and 15+ gingersnaps. Cook until thickened and smooth. Add sour cream if desired. Pour while hot over the meat.

SCHAUM TORTE

2 cups of egg whites
2 Tbs. vinegar
3 cups sugar
2 Tbs. vanilla

Heat oven to 525 degrees F. Beat 2 cups of egg whites for 20 minutes. Gradually add the remaining ingredients. Beat for another 20 minutes. Pour into a large, ungreased springform tube pan. Put in the hot oven and immediately turn off the heat. Leave the cake in the oven for 5 hours or overnight without opening. Serve with strawberries and whipped cream.

Zoo

Head to tail the otters lie,
Close as logs on the fake rock
Under the spring sun;
Round and round the water runs
In the circular stream
That falls; and ripples
Pass over the fur of one
Through the whiskers and paws
Of the other, as though another
River ran through any two
Who lie down together,

While in the artificial night
Of the small mammal house
Clusters of fruit bats wake,
Pick themselves off, and fly about
The painted African night,
Or, two by two, and hanging by feet
From their sculptured tree,
Fit themselves one into the other,
Stretching bodies to match, the male
Folding his leathery wings into arms
Around her, laying his head—
Surprisingly dog-like, soft,
Gray-furred—against hers, over
Her shoulder,

And in the small woods filled with snow
The four arctic wolves
Sleep nose to nose
Like the Siberian tiger cubs
In their yard, before they wake
To stalk the snow and their mother;
And something like memory wakes
And follows us home to our houses.

Robin S. Chapman

April

Everywhere the branches hold up little green tapers
as if they were lighting the way out of dark
there is the smell of new soil rising
out of the leaf litter, flicker of cardinal
in the arborvitae, beak full of straw,
the pure white bloom of bloodroot above the mud
the smallest quick motion
of the wren the ginger unfolding
its hands the yellow bellied sapsucker
at the suet the squirrel hanging from his hind legs
emptying the feeder the young raccoons out on their own
the mallard couples crossing the busy roads
the hail of silver maple blossoms, dropping,
the open-mouthed congregations of Siberian squills
whose blue is only seen in deep evening and whose
eyes still remember the snow there are the first
nodding narcissi petals of the crocus
lanterns under a gray sky and the busyness
of the ant colony and the grass hurling spears
and everywhere the tender dandelion shoots
applauding the bare spaces where I have thrown seed
for shady places and the white-throated sparrows
singing and fattening on grass seed and all of us
awake and thinking of nothing but green

Robin S. Chapman



Untitled

This Spring rain
so gentle
you must hold up
your palms
to feel it
lace lattice of moisture
across dry air

or God
cradling the crystal
sprayed twice, scenting
with pine perfumes
growing things
grateful dirt humming mud

and the lone bee
buzzes bright yellows
against rain-dropped lavender
flowers

and you think
you could stay here
forever

but inside
you find
that you are soaked
and
the ink
has

run

the

page

Kellie Eggert

Generations

In a sepia photograph
in the background
behind her sons
and the first Model T
wearing an old straw hat
knuckles gone thick
standing four square
among the blackberry
brambles is the woman
—my grandmother—
whom my daughter
mistakes for me.

Yvette Viets Flaten

Playing a Mandala

My friend Mike knits mandalas:

hooking the chimes of the carillon,

locking them into patterns of air that rise

along beams of light—flung out the top of the carillon tower,

floating out over the lake, the campus, the town,

caressing the shoulders of friends and strangers alike

with a balance of sound.

Patricia Dyjak

Walking (Unexpected Climate Changes)

Yesterday it snowed;
it was the last day in April,
which reminded me that these days we spend together
are like a plant in bloom,
and I know nothing about what comes next.

The dogs went kind of crazy
stuck inside.

When we finally walked them along the railroad track
you sucked on your pipe, we held hands—taking in the sun,
searching for the spring green.

We talked about your kids and our age difference
while the dogs got mud-covered
bounding after rabbits in the melting snow.

An old lady walking by said,
“Late snow is good fertilizer.”

Today it's spring.

We walk through the grounds of the Louis Sullivan House
under trees with lime colored blossoms. We could not see
the flowers or the trees from the small windows inside the massive house.
Down the block there's a large cottage with a riot of native
prairie for a lawn. We declare
the Sullivan house too dark. We say
the prairie feels right.

When you made dinner this evening, I caught my breath,
amazed to be with a man who dices tomatoes
and chops turkey liver.

Last night the old, familiar moon rose
and got tangled in the maple tree out back.
It caught me by surprise when I took the dogs out;
I thought, all our moments have been like this.

We will not stand in awe for long.

Patricia Dyjak

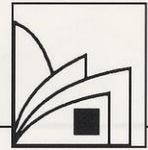
Marshfield Storm Warning

I watch from the bottom
step of the deck, out
of the way of TV and air-
conditioner. A blue slate
sky thickens
in the northwest, threatening
storm, tornado. This sky is all
action. She coughs up
a few cumulus, white
huffs on dark
canvas. A hot humid breeze
whirls around
my shoulders, rattles
bittersweet knots on the mountain ash.

My Norwegian great-granny,
so the story goes, would walk into
the wind, head high to sense
an approaching storm.
“Fill uppa de nordvest,”
she'd declare, as cloud rolled
over cloud, fulfilling a covenant
to water crops,
quench
the thirst
in a life abiding
before faucets, sprinklers,
circular irrigation. Behind

closed doors
and windows, the house
inhales
processed air. Twenty-seven
inches of TV weather
forecasts the advancing storm.

Christine Wallin



THE LITERARY HERITAGE OF WISCONSIN, Volume II, Part A: 1925–1960 edited and introduced by Richard Boudreau. Juniper Press, 1310 Shorewood Dr., La Crosse, WI 54601, 1995. 347 pages. \$25.00 hardcover ISBN 1-55780-141-8 \$18.95 softcover ISBN 1-55780-X

by Tim Hirsch

About twenty years ago I visited Richard Boudreau's office on the University of Wisconsin–La Crosse campus. His bookcases, even then, housed an amazing collection of works by Wisconsin writers. Most of the volumes were out of print, many were rare, and some I had never known existed. Both his collection and our conversation convinced me that Professor Boudreau was an expert on Wisconsin literature.

At the time of my visit, he was teaching a class on Wisconsin writers which was being broadcast by Wisconsin Public Radio. We talked some about the difficulty of teaching such a class when so many of the books he wanted to use were out of print. He had put together a temporary collection of materials for the students in the class, and he told me that he planned some day to publish a true anthology of works by Wisconsin writers.

The Literary Heritage of Wisconsin, Volume II, Part A, is the second installment of Professor Boudreau's plan. The first volume, subtitled *Beginnings to 1925*, was published in 1986. Volume II, Part A, covers the years 1925 to 1960. In this new volume, Boudreau includes a preface and an introduction. In the preface, he explains his working definition of Wisconsin literature: "Wisconsin literature is that written by a Wisconsinite . . ." In the introduction, he provides a survey of Wisconsin writers in each of four genres: fiction, poetry, autobiography, and nonfiction. He carries this survey through to the present, in anticipation of the publication of Part B of Volume II.

This volume includes work by seventeen writers, arranged chronologically according to their birth dates, 1887–1907. None of the writers represented in this collection is still living. Among the seventeen are eight men and nine women. Seven primarily wrote poetry, six were fiction writers, and four were writers of nonfiction, including autobiography. Thus the collection is balanced with regard to gender and genre.

Each of the authors represented in the collection is introduced with a biographical sketch of about 300 words, and there is a full citation for the selection which is featured in the anthology. Although the biographical sketches include information about other publications, there are no full bibliographies. However, this volume does have an index which helps the user find specific information and track intratextual references.

Reading through the introduction, I am reminded again of the extraordinary breadth of Richard Boudreau's knowledge about Wisconsin writers. Here he provides sketches of hundreds of writers, including biographical information which connects them to Wisconsin, and short summaries of most of their publications, especially those that have Wisconsin settings. In the introduction to the section on fiction, for example,

he describes the lives, Wisconsin connections, and literary contributions of thirty-two writers. Reminded again of Boudreau's rich and comfortable knowledge of so many writers, I wondered how he could possibly have chosen among them. I kept this question in mind as I read through the selections.

I turned first to the selections by Glenway Wescott because, in the introduction, Boudreau had called Wescott perhaps the greatest writer of this generation. He also gives Wescott thirty pages, about twice as much as the average for others in the anthology. I was surprised to see such high praise for Wescott, and I wanted to see his work through Richard's eyes and perhaps get more insight into some of the criteria he had in mind for selection. Wescott is urbane, sophisticated, and critical of life in Wisconsin. A motif of disappointment about his home state runs through his narrative, especially in *Good-Bye, Wisconsin*:

There is no Middle West. It is a certain climate, a certain landscape; and beyond that, a state of mind of people born where they do not like to live.

This theme is familiar to readers of Wisconsin literature, and I have heard Boudreau speak about the large numbers of writers from Wisconsin who leave the state as soon as they are able. Reading through the other selections, I find additional variations on this theme, especially from Horace Gregory and Margery Bodine Latimer. Though I admire the craft, such works do not please me; I find too much self-pity in them.

I am delighted to find among the authors represented some which I have not read. I especially enjoyed Regina Robinson Heard's narrative about her struggles to keep her restaurant during the depression. What a contrast to Wescott! The evident relish for life she communicates transcends the difficulties she had as a black businesswomen in Milwaukee during difficult economic times. I had heard about Gladys Tabor, but I had not read her work. I laughed out loud when I read "A Man's Castle" from *Especially Father*.

Boudreau included in his anthology works by two writers of science fiction: *A Martian Odyssey* by Stanley Weinbaum, and *Green Thumb* by Clifford Simak. Both writers were Wisconsinites, certainly, so if one grants Boudreau his definition of Wisconsin literature, their work qualifies. As far as I can see, there is no other Wisconsin connection; and though I prefer a definition of Wisconsin literature which includes an unmistakable connection to place, climate, weather, geography, social and economic conditions, shared history, and shared human values, I respect Boudreau's definition and admire the selections he has made within its boundaries.

This collection includes many entertaining, illuminating, and thoughtful works. It is an important addition to the literary heritage of Wisconsin, and it affirms Professor Boudreau's stature as an important contributor to the study of Wisconsin literature. I am going to keep the volumes of his anthology

available at my elbows. I look forward to Part B of Volume II. I hope that Boudreau someday will write a more detailed version of the introduction he includes in this volume. One senses the depth of knowledge beneath the short summaries he provides, and hopes for more.

Tim Hirsh is professor of English at the University of Wisconsin–Eau Claire and teaches a course on Wisconsin writers.

WISCONSIN LAND AND LIFE edited by Robert C. Ostergren and Thomas R. Vale. Madison: The University of Wisconsin Press, 1997. 567 pages, \$27.95 softcover ISBN 0-299-15354-1

by Anita Been

We love our Wisconsin land—the rolling farm fields, the northern woods and lakes, our shorelines along Lake Michigan and Lake Superior, the Mississippi and Wisconsin rivers, and other special places, both urban and rural, all over the state. Our great variety in ecosystems for living and looking and exploring, along with a fascinating immigrant history, substitutes for the mountainous sublime.

Now, thanks to a book of twenty-eight informative essays by past and present members of the Department of Geography at the University of Wisconsin–Madison we have information at hand to increase our enjoyment, knowledge, and appreciation of our state. Clarence Olmstead in his chapter titled “Changing Technology, Values, and Rural Landscapes” defines landscape as “an informed view from a selected vantage point . . . to read a landscape requires informed curiosity and the skills to derive meaning from what one sees.”

Wisconsin Land and Life is divided into three sections: “Natural Environments and Wild Landscapes,” “Settlement Processes and Cultural Patterns,” and “Regional Economies and Landscapes.” Within each section, the editors have selected essays to guide us from the broad outlines of the topic to specialized studies, such as “Geography, Wisconsin, and the Upland Sandpiper.” Here are some examples of information from essays which gave me that *never-thought-of-that* or *always-wondered-about-that* feeling.

In “The Cultural Landscape of Wisconsin’s Dairy Farming,” Ingolf Vogeler describes the outbuildings of dairy farms, their function, construction, style, and how the assemblage contributes to one of Wisconsin’s best-known photo ops—the pastoral landscape of our beloved cows and barns.

The City Hall in Milwaukee is a remarkable building with an ornamented tower and dormers in German Renaissance style with “. . . many sculptural details, such as cherubs and the heads of foxes and wolves . . . incorporated to indulge the German taste for richly carved ornament.” (I had no idea of the complexity of German influence on the cultural development of the city until I read “Milwaukee’s German Renaissance Twice-Told: Inventing and Recycling Landscape in America’s German Athens.”

Southwest Wisconsin was the first part of the state to develop a viable commercial base with lead mining, and later zinc mining from the lead tailings. In contrast to other mining regions with a legacy of mostly blighted land, agriculture and dairy farms restored the land to its present scenic state. The story is well told in “The European Settling and Transformation of the Upper Mississippi Valley Lead Mining Region.”

But agriculture could not save Northern Wisconsin after the logging of the whole area in the nineteenth century. A massive campaign to attract settlers to farming was supported by commercial interests, state government, and the university. It didn’t work. The climate had only half as many days of growing season as the southern part of the state, and the land was covered with stumps that were difficult to remove. Timothy Bawden reviews the hopes and frustrations of both promoters and settlers in “The Northwoods: Back to Nature?” Today we take for granted the beauty of the lakes and forests of our northern counties, but tree planting and the restoration of the land for recreational use is a twentieth-century achievement.

Why was the driftless area unglaciated? In an account of the origins of the last glacial period and similar glacial land forms, David Mickelson, in “Wisconsin’s Glacial Landscapes,” notes that the “east-west trending Lake Superior basin has always diverted glaciers to the east and west,” which resulted in our unglaciated driftless area in the southwest.

Many essays address characteristics of specific national groups which affected settlement patterns. For example, why did Dutch Protestants isolate themselves in close-knit rural communities while Dutch Catholics settled in urban areas and assimilated within immigrant communities? In “Americans by Choice and Circumstance: Dutch Protestant and Dutch Catholic Immigrants in Wisconsin, 1850–1905,” Yda Schreuder observes that church structure determined the pattern with the hierarchical Roman Catholic Church promoting large, integrated parishes, while the independent, self-sufficient and both ethnically and religiously intolerant Dutch Protestant communities sought an isolated salvation.

Informative essays on Native Americans include “Four Worlds Without an Eden: Pre-Columbian Peoples and the Wisconsin Landscape,” on land use by the Indians with recent archeological evidence about their agricultural fields and controlled burning to maintain oak savannas; “The Geography of Ojibwa Treaty Rights in Northern Wisconsin,” about the conflict over how and where to fish during an extended season; and “The Wild Rice Harvest at Bad River . . .,” which explains the tribe’s rejection of modernized and commercialized wild rice cultivation and harvest.

In his postscript to this collection of essays, Yi-Fu Tuan observes: “Just about every ethnic group now tries to resurrect its old customs and language; it does so playfully in the form of festivals and storehouse museums, but also with genuine pride and affection.” This book promotes that sense of knowing and sharing our specific experiences of Wisconsin. I rec-

commend the book as a travel companion for intellectual awareness. It will enable you to see more and enjoy more.

Anita Been is a free-lance writer and biologist and lives in Madison.

THE FINAL ENTRANCE: Journeys Beyond Life by Susan L. Schoenbeck. Madison: Prairie Oak Press, 1997. 164 pages. \$17.95 hardcover ISBN 1-879843-36-X

by Carolyn Heidemann

Among the descriptions of books about the Green Bay Packers, Wisconsin travel, and Frank Lloyd Wright in the 1997 catalogs of Madison's Prairie Oak Press is one that ends with the words: "A remarkable book." *Webster's New World Dictionary* defines "remarkable" as "that which is noticeable because it is unusual or exceptional." I would agree with the publisher's assessment of this book.

Author Susan Schoenbeck is director of resident care for Ingleside Skilled Nursing and Rehabilitation Center in Mount Horeb, a registered nurse, nursing home administrator, and associate clinical professor at the University of Wisconsin-Madison. She has won honors for her writing, both for health-care professionals and for the general public; speaks to groups; and makes an annual retreat to the Benedictine Monastery near Madison.

This 1990 "Wisconsin Nurse of the Year" writes in the preface:

This book offers a view of death from two perspectives—from the professional who cares at the bedside when patients die and also from people who have been clinically 'lost' to death, only to return to life again . . . Readers are invited to search in these pages for what they believe to be the truth. All are invited to question, challenge, and expand their knowledge and beliefs after reading what people report here.

In Chapter One, "Death as a Life Event," she sets the parameters of the discussion: "It is the spiritual side of the death process that is the subject matter of this book."

Chapter Two, "Spirits Among Us," begins with a list of "commonalities in stories of spirits among us" followed by fifteen brief accounts of experiences, each titled and introduced by the author. Subsequent chapters follow the same format; stories and quotes are presented as composites attributed to no specific person.

In her speeches Schoenbeck reveals that she has experienced near-death and out-of-body events. "It's hard to tell others you think you've been visited by a dead person. But, after listening to my talk, the audience knows that I believe such things can happen. It happened to me."

Her personal stories are situated in the appropriate chapters. The author defines and explains terms clearly:

A near-death experience, by definition, is a spiritual experience of undetermined origin occurring when a person is in clinical death or in a situation of grave physical or psychological danger. NDE occur with clinical death, not brain death. This is an important point to remember. Modern medicine can revive a person from clinical death. For someone to come back to life after brain death is humanly impossible.

Quotes from Michelangelo, Emily Dickinson, Will Rogers, Plato, and others plus poems (presumably by the author) help communicate the message of the book.

Author and psychiatrist M. Scott Peck has written about the spiritual aspect of dying in his books *A Bed by the Window: A Novel of Mystery of Redemption* (Bantam, 1990) and *Denial of the Soul: Spiritual and Medical Perspectives on Euthanasia and Mortality* (Harmony Books, 1997). The fact that author and nurse Schoenbeck has shared her personal experiences makes this book a good complement to Dr. Peck's writings.

Bruce Greyson, M.D., editor of the *Journal of Near-Death Studies* and director of research, International Association of Near Death Studies, wrote in the foreword to this book by the founder of the Wisconsin chapter of that association: "Schoenbeck dares us to think of dying not as an actor's exit at the play's finale, but as another entrance, perhaps for a final act not for public viewing."

Chapter Nine, titled "What You Can Do," appears after the stories and the sixteen-question list which Schoenbeck gives health-care professionals before speaking to them. Chapter Nine includes this paragraph:

What do you want to tell your loved ones about how you want to die? Do you want to be resuscitated if your heart stops? Do you want to be fed with a tube if you cannot eat? Will you accept being on a breathing machine if it means forever? There are no right or wrong answers to these questions. Your answer counts. You have the right to let your choices be known.

Wisconsin residents can write the answers to these questions on a Power of Attorney for Health Care form.

The book ends with a postscript, notes, and selected bibliography. It contains some typographical errors which I hope will be corrected for subsequent printings. While they slowed my reading, they did not interfere with my understanding and appreciation of this book.

Carolyn Heidemann is a life member of the Wisconsin Academy and looks forward to the twenty-minute papers presented at the Academy's annual conference each spring. She lives in Lake Mills and participated in the local Great Books group when it was active. She holds a Bachelor of Arts degree from a liberal arts college.

TRAVELING WISCONSIN TROUT STREAMS by Steven Born, Jeff Mayers, Andy Morton, Bill Sonzogni. Madison, The University of Wisconsin Press, 1997, 309 pages. \$18.95 softcover ISBN 0-299-15554-4 \$35.00 hardcover ISBN 0-299-15550-1

by Harold C. Jordahl Jr.

This book is not to be considered exclusively a manual for trout fishers. Anyone interested in Wisconsin's natural resource history, the history of resource exploitation and destruction—in other words, lay persons and recreationists interested in the environment and scientists interested in the summaries of relevant trout-stream research—will appreciate this book.

As an environmental planner, I have been criss-crossing the state for more than forty-eight years representing various conservation and natural resource agencies, and I know most of the rivers discussed in this well-organized and reader-friendly manuscript. I am impressed with the substantial research which the authors conducted to provide this comprehensive overview of Wisconsin's natural resource use and abuse history.

The authors set the stage nicely by noting the role Wisconsin conservation leaders have played both here and nationally, and they place pioneers in trout-stream research within that context. They acknowledge the part played by state and local leaders and the critical role citizen groups play in efforts to protect these streams.

They emphasize the totality of the trout-fishing experience: developing a knowledge of the fish, the limnology of the streams, and the physical and biological characteristics of the respective region which influences a particular stream and its fisheries—and then they address the specifics of how to catch trout in that stream. Their descriptions of the physical and biological settings for the streams and the short, often poetic, descriptions of the surrounding environment will indeed enrich anyone's personal experience.

The book also reflects a strong conservation message throughout which will, I am confident, substantially increase our sensitivity to taking care of not only trout streams, but other waterways and our whole natural environment—one might view the book as a text on conservation as well as a how-to book on catching fish.

Throughout the book the authors trace the significant historical role that research has played in fisheries management. I believe the only conclusion a reader can, or should, reach is that wise natural resource management is dependent on a continuous, ongoing investment in scientific research followed by citizen stewardship.

As for the level of detail on the sport of fishing itself, I have read many books on this subject and none match the breadth and depth of this publication. In my judgment it sets a standard that future writers addressing this subject will find difficult to achieve.

Harold C. Jordahl Jr. is emeritus professor in the Department of Urban and Regional Planning, University of Wisconsin-Madison, University of Wisconsin-Extension. He is former co-chair of the Upper Great Lakes Regional Commission and member and chair of the Wisconsin Natural Resources Board.

BOOK NOTES

MILWAUKEE AREA GUIDE BOOKS

THE FOOD LOVER'S GUIDE TO MILWAUKEE: An Insider's Guide to Ethnic Bakeries, Grocery Stores, Meat Markets, Specialty Food Shops and Cafes by Cari Taylor Carlson. Serendipity Ink, P.O. Box 17163, Milwaukee, WI 53217, 1996. For information call (414) 224-5440. 165 pages. \$12.95 softcover ISBN 0-9629452-3-4

Carlson is a restaurant critic and founder of the Milwaukee Walking and Eating Society. She also has taught environmental classes at the Schlitz Audubon Center and created the children's education program at Boerner Botanical Gardens. *The Food Lover's Guide to Milwaukee* celebrates the city's ethnic diversity and includes recipes.

MILWAUKEE WALKS—AGAIN by Cari Taylor-Carlson, 1997, 95 pages. \$9.95 softcover ISBN 0-9629452-4-2

A sequel to an earlier book which featured "twenty choice walks in a classy city," this book offers twenty more ways to explore historic neighborhoods, parks, outdoor sculpture, and two breweries.

MILWAUKEE FOR FREE (Or the Next Thing to It) by Susan Rice. Madison: Prairie Oak Press, 1997, 144 pages. \$8.95 softcover ISBN 1-879483-37-8

This is a comprehensive guide to low-cost family fun and includes more than 250 places to visit, things to do, and events to enjoy in Milwaukee and vicinity, including museums; festivals; bike, hike, and ski trails; and holiday events.



Wisconsin Academy Staff Development Initiative

by Noelle Rydell

Three years ago, WASDI (Wisconsin Academy Staff Development Initiative) set out to transform the way science, mathematics, and technology are taught. Moving from traditional approaches where students are expected to read the chapter, memorize terms, and fill in the blanks at the end of the chapter, students are offered opportunities for hands-on learning. Now, with almost two years still remaining in WASDI's \$6-million National Science Foundation grant, the results are already clear: WASDI is making a positive change in the professional lives of science, math, and technology teachers throughout Wisconsin; and WASDI's vision of inspiring students to be excited about learning is being realized.

Each year over 2,000 teachers have participated in summer academies which demonstrate the application and integration of the disciplines as they are experienced in the world outside of education. Each year 60 outstanding teachers have been trained to assume effective leadership in the improvement of mathematics, science, and technology education in Wisconsin. In addition, WASDI has now expanded from its original six summer academies; during the summer of 1998, ten academies will be held in convenient statewide locations.

A grade school teacher from St. James School in La Crosse attended WASDI's Washburn Academy and described her experience as rewarding:

I was in the *Fun with Technology* course. It turned my thinking around in regard to technology, science and math. I used so many of the projects in my classroom. The children looked forward to the 'technology' projects because it was such a fun way to learn. We created (and flew) hot air balloons and paper airplanes. We created homeless shelters and the world's tallest golf tee. We made fire starters. During all of these projects we discussed technological terms, learned about cooperative learning, and realized technology was fun not scary.

In the summer academies, one-week workshops consist of thirty hours of instruction and provide kindergarten-through-twelfth-grade participants with tools, activities, and knowledge to engage their students in inquiry-based work in science, mathematics, and technology education. Integration of disciplines and collaboration among participants is emphasized. WASDI's experiential hands-on method of instruction and assessment utilizes the latest brain research to enhance learning for all students. The workshops are led by classroom teachers, nationally recognized presenters, and university and technical college



Teachers fly hot air balloons at Cray Academy's science and technology workshop *How and Why Things Work*.

instructors identified for their ability to model effective teaching practices.

Summer academy participants describe how these workshops affected their teaching:



Participants gain hands-on experience at Southwest Academy's Criminalistics: An Introduction to Forensic Science workshop.

- This experience has made me a much better science teacher and helped me become more comfortable when teaching science.
- Attending the academy has greatly affected my teaching. I do not feel burned out. I have fresh and new ideas for this year.
- The academy made a difference in my teaching and leadership in my school . . . it gave me confidence to know that I was one of a band of like-thinking educators who thoroughly enjoy learning themselves.

The summer academies target public and parochial science, mathematics, and technology teachers at elementary, middle, and high school levels. Courses are designed for teachers who are inexperienced in the instruction of science, mathematics, and technology as well as for the seasoned professional seeking new ideas. Graduate credit is provided.

The academy week consists of a keynote address, workshop instruction, and business and industry tours. Teachers attend stimulating and active workshops, such as *The Science, Math and Technology of Aerospace: A Passport for Learning*; *Science for Life and Living*; *Calculators, Computers, and Cucumbers*; *Exploring Patterns in Nature*; *Accelerated Learning Strategies*; *Cultural Connections: Science and Multicultural Literature*; *Investigations in Numbers, Data, and Space*; and *Using and Developing Internet-Based Science Projects*.



WASDI Website <http://www.wisc.edu/wisacad/programs/wasdi-two/wasdi.html>

1998 WASDI Summer Academics

Chiwaukee Academy, Kenosha

(414) 653-6005

August 10-14

Christa McAuliffe Academy, Appleton

(920) 734-7101

July 20-24

Cray Academy, Chippewa Falls

(715) 720-2039

July 27-31 and August 3-7

Einstein Academy, Green Bay

(920) 983-1104

August 3-7

John Muir Academy, Verona

(608) 232-2868

June 22-26 at Williams Bay

July 27-31 at Verona

Northwoods Academy, Rhineland

(715) 356-6753

August 3-7, 1998

Sally Ride Academy, Milwaukee

(414) 352-6914

June 22-26 at Glendale

August 3-7 at Waukesha

Southwest Academy, Fennimore

(920) 785-9734

July 27-31

Washburn Academy, Onalaska

(608) 785-9734

July 27-31 at Holmen

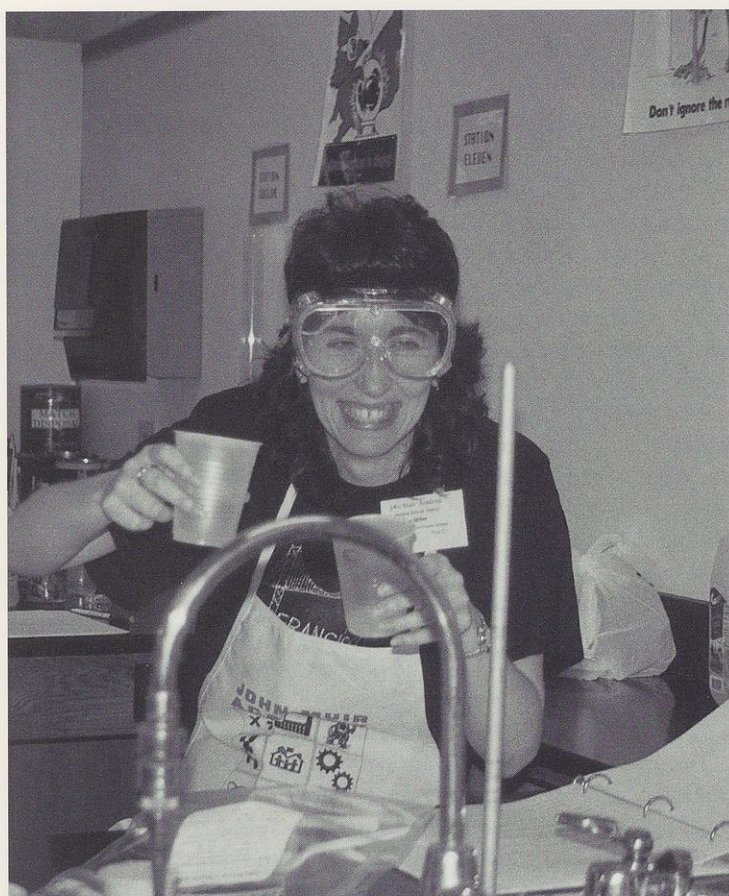
August 3-7 at Onalaska

Wisconsin River Valley Academy,

Wisconsin Rapids

(715) 422-6058

June 15-19



A teacher at John Muir Academy makes elephant toothpaste in the workshop Chemistry and Physics Activities for Elementary Kids.

What happens in a workshop? A third-grade teacher who attended WASDI's Southwest Academy in Fennimore described her experience:

Attending the Academy affords me the opportunity to get 'fired-up' to begin another school year. Where else could I get the chance to take an egg on a cruise, map the ocean floor, visit an iceberg, build a straw bridge, live in space, design a spinning top, and do consumer testing of five major toothpastes? . . . My third-graders will be challenged by fun and rewarding individual and group problem-solving experiences like the ones I've had here.

Teachers also tour local industries and participate in a seminar with business representatives to gain an understanding of the application of science, mathematics, and technology education in the workplace. One academy tour participant described the importance of connecting business and education:

It is great to get to the business world and especially to have the opportunity to discuss with business people the issues and con-

cerns common to us. I feel this aspect of the academy was very valuable.

In addition to the summer academies, WASDI also trains teachers at the Lead Teacher Institute, where leaders are changing the future together. So far, 180 lead teachers have been trained. An additional 60 outstanding teachers will be selected and trained this year. Lead teachers will gain an understanding of curriculum standards, staff development strategies, and leadership skills to bring about needed changes. They will serve as role models for their peers in the schools and communities where they teach. They will serve as the primary instructors in the summer academies. In addition, they will become leaders in their schools, districts, regions, and professional organizations.

A seventh-grade lead teacher enrolled in the Operation Physics Core Program said that WASDI fulfills her need to be a lifelong learner. Citing a constructivist approach; new presentation techniques; and information on standards, multiple intelligences, and alternative assessments, she believes that WASDI has changed her teaching strategies: "As I speak at three academies this summer, this knowledge will travel out to meet many students in various districts. I feel the effect will be far-reaching."

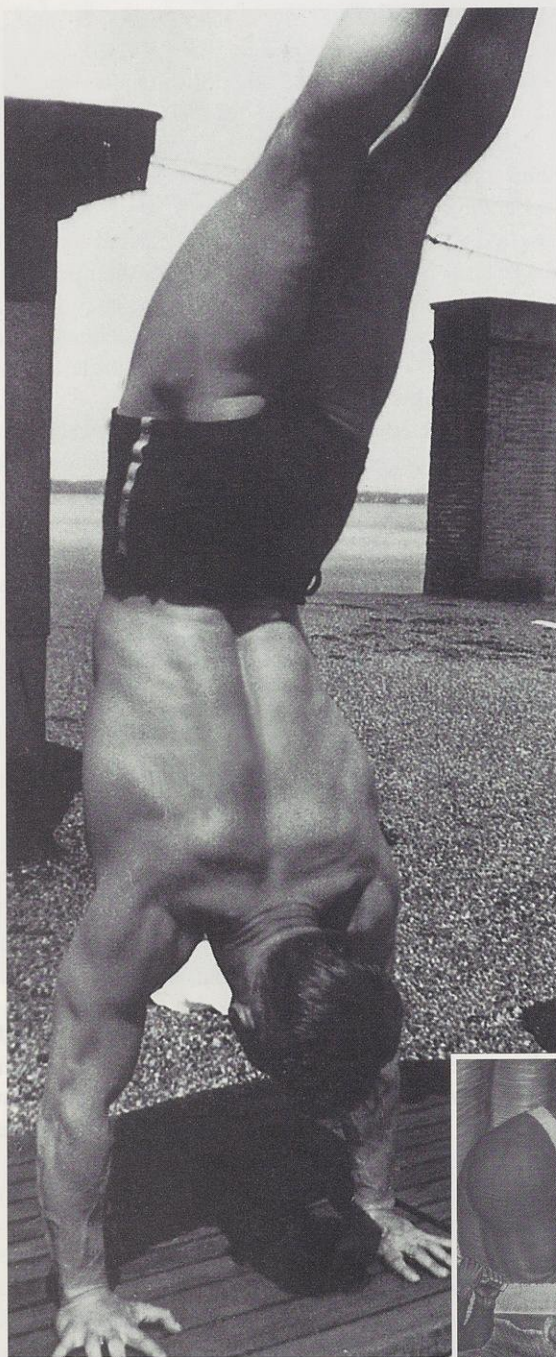
One K-5 science resource teacher involved as a lead teacher in WASDI's engineering program for children explained that he has expanded his children's engineering unit; helped his school's first- and second-multigrade classroom teachers develop their first engineering unit; presented workshops for both teachers and students; and worked with five elementary schools in a nearby district to help them develop a program that emulates his.



WASDI fulfills the Wisconsin Academy's vision of providing high-quality, research-based, professional learning experiences for educators. WASDI also meets the Wisconsin Academy's goal of encouraging creativity, interaction, and involvement of individuals in the sciences, arts, and letters.

The director of WASDI is Julie C. Stafford. Co-directors are Billie Earl Sparks, professor of mathematics at the University of Wisconsin-Eau Claire, and LeRoy R. Lee, executive director of the Wisconsin Academy. If you would like more information about the program, contact Julie Stafford at (715) 723-1181 or visit the WASDI Website. If you are interested in visiting the 1998 summer academies, contact the individual academies. ❧

Noelle Rydell is program coordinator for the WASDI project and a published poet.



Edward Walsh in Madison, 1935.

Detail from Paul Bunyan murals by James Watrous. Courtesy the Memorial Union Building Association, University of Wisconsin–Madison



To The Editor:

I read with great personal interest your wonderful article about the Paul Bunyan murals in the Winter issue of the *Wisconsin Academy Review*. The timing of the article for my family could not have been better.

My father, Edward Walsh, was a 1936 graduate of the University of Wisconsin. Over the years members of our family have talked about the Paul Bunyan murals based upon my father's stories of posing for the muscular profile for the artist, Professor Watrous. Although various family members have mentioned their desire to see the murals, the concept did not begin seriously until a discussion with my mother occurred during the Christmas holidays. What began as a nostalgia discussion ended with our stated desire to put a trip together to visit the campus and see the murals, assuming they were still in the Student Union.

In order to pursue this goal, I found the "Ask Bucky" site on the Internet (a referral service of the Campus Assistance Center) and sent an email to inquire about the murals. That really started the ball rolling! Not only did I find out that the murals were still in the Student Union, but that the *Wisconsin Academy Review* had just published an article about the murals and the artist.

The article by Professor Watrous was fascinating, and the photographs of some of the murals were beautiful. During the course of my "investigation" into the murals the past few weeks, I have had the pleasure and good fortune to speak with Professor Watrous about his efforts, the process of developing the murals, and about the university. A truly nice man and a very rewarding experience.

Thank you for the fine article and the fortuitous timing of this topic. We are looking forward to finding out even more about the murals when we visit the campus this summer, with my Mother, for the first time. The Winter issue of the *Review* will now be part of our family's memories.

Mark Walsh
Fairport, New York

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