

LIMNOLOGY NEWS

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Lake Mendota

Trout Lake Station
circa 1935

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Harriet Bell Merrill: Early Limnologist Recognized After 75 Years

Harriet Bell Merrill was associated with E. A. Birge for more than 20 years. Merrill graduated from the University of Wisconsin 100 years ago, she researched Cladocera for her master's thesis, and she went to South America twice, the second time specifically to collect Cladocera. Yet, Merrill was given little credit for her work.

"Birge had considered her letters, notebooks, and microscopical preparations important enough to have saved them all, but did not delineate her contributions in his later publications on the subject," notes Merrilyn Hartridge, Merrill's biographer and grandniece by marriage, who is herself a long-time resident of Madison.

That we know anything about Merrill and the work she did comes from a remarkable coincidence involving Merrilyn



Harriet Bell Merrill 1890, age 27 (Photo courtesy of State Historical Society of Wisconsin)

Hartridge and David Frey, a noted expert on Cladocera.

After Birge's death in 1950, Frey, who had been a student of Chancey Juday, had acquired Birge's materials on Cladocera. Among the materials, Frey found slides and notebooks on South American species, but he could not discern who had collected the specimens, nor, in many instances, where the specimens were from.

Birge's other notebooks and

letters had been turned over to E. S. Deevey at the University of Florida. Deevey was planning to deposit them in the archives at the library at Yale when a former student of Frey's had the letters diverted to Frey at Indiana University in 1986. It was after reading Merrill's letters to Birge — she had had an ongoing correspondence with Birge from 1890 to 1915 — that Frey realized it was Merrill who had made the South American collections in 1902-1903 and 1907-1909. Within a day of receiving the Birge materials, Frey got a letter from Hartridge asking him to assess the scientific importance of Merrill's work for the biography she is writing.

"By means of these notebooks all the slides in the Birge Collection have now been decoded as to place and date, making the collection valuable to science," says Frey. "Merrill never published anything about these collections, but her notes indicate the development of a very high level of understanding of the Cladocera. The notebooks include many records of first collections of particular species in South

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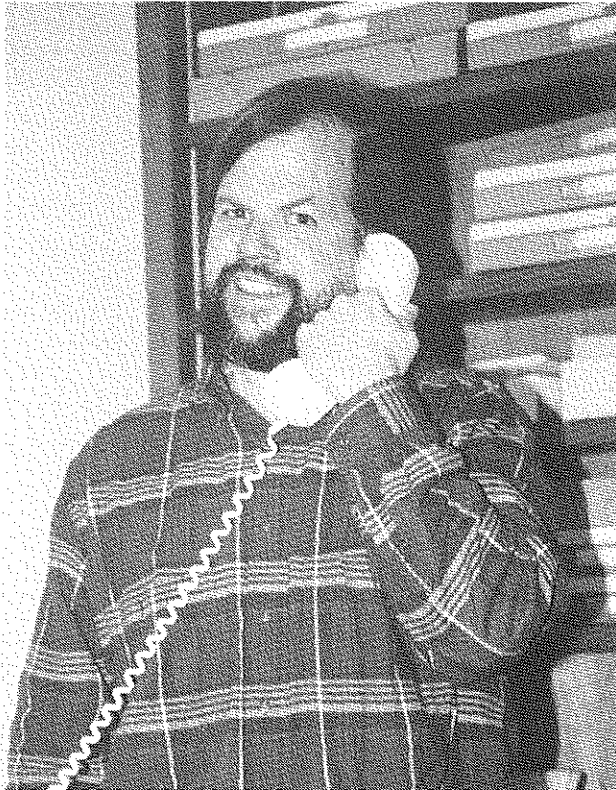
**Magnuson
Receives
Wisconsin Idea Award**

See back page

Events and Happenings

With the addition of **Stephen R. Carpenter**, the Laboratory of Limnology on Lake Mendota is now the campus home of Steve, Jim Kitchell, me and emeritus faculty member, Art Hasler. Steve is a tenure track associate professor in the Department of Zoology (50%) and the Bassett Research Professor for study of the Madison Lakes (50%). In February Steve presented the results of our Lake Mendota biomanipulation

earlier summer home on Cathedral Point on South Trout. Some of you certainly remember the holiday canoe races and the tugs of war in the waters below his rustic log summer house. A second important gift from **Eugene L. Grant** establishes the Dorothy Powers Grant and Eugene Lodewick Grant Scholarship Fund for support of graduate student research. This complements the Anna Grant Birge Memorial Scholar-



Stephen R. Carpenter

experiment to the Downtown Rotary Club of Madison; it is apparent that his addition is much welcomed in the Madison community. We thank the **Norman D. Bassett Foundation** and its Board, **Reed Coleman**, **Thomas Ragatz**, **Robert Taplick** and **F. Chandler Young**, for catalyzing this important event for the future of limnology on the Madison campus.

Our endowment continues to receive new support with a major gift from **Donald L. Halverson**. Don was Director of Residence Halls at the UW-Madison for 22 years and had his retirement home on North Trout Lake. In the early 1970s we rented his

ship Fund which Eugene Grant established in 1981 to provide summer graduate fellowships in limnology.

John C. Neess — Professor of Zoology and **Robert A. Ragotzkie** — Professor of Meteorology and Director of Wisconsin's Sea Grant Program retired this year. John has been teaching "Limnology — Conservation of Aquatic Resources" on Lake Mendota during several recent summers. Bob's last doctoral student, **Dale M. Robertson**, analyzed Lake Mendota ice cover as a climate indicator.

Congratulations to **Daniel W.**

Schneider (Ph.D. student) for receiving the L&S Dean's fellowship for 1989-90, to **Clyde W. Voigtlander** (Ph.D. 1971, Hasler) for accepting the science editorship for *Fisheries*, and to **Thomas E. Wissing** (Ph.D. 1969, Hasler) for expanding his commitment to the American Fisheries Society by working with Vic Kennedy as co-editor of *Transactions*. **Brett Johnson** (Ph.D. student), **Scot Stewart**, **Stephen Gilbert** and **Lars Rudstam** (postdoctoral researcher) received the award for the best paper presented by a student at the 1989 Midwest Fish and Wildlife Conference in Springfield, Ill. in December. The paper title was "Modeling Consumption of Planktivorous Fish by Stocked Gamefish: Forecasts and Observations."

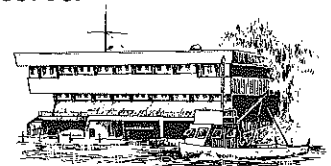
We learned last fall from **Herbert "Bertie" Allsopp** (M.S. 1949, Hasler) of the sudden death of **Waldo Johnson**. Wally received his doctorate in limnology from the UW-Madison in 1954 under Art Hasler. He made important contributions to fishery science, particularly in Thailand and in Canada where he is one of only three fishery scientists to have received the Order of Canada.

John J. Magnuson, Director
Center for Limnology
UW-Madison

LIMNOLOGY NEWS

University of Wisconsin-Madison

The University of Wisconsin-Madison Center for Limnology publishes *Limnology News* for its alumni and friends. Comments on the newsletter, articles and article ideas are welcome. Contact *Limnology News*, Center for Limnology, 680 N. Park St., University of Wisconsin, Madison, WI 53706.



George Gallepp, editor
Linda Holthaus, production
manager

Merrill continued from page 1

America and of the presence of species not yet described. . .

"The letters [from Merrill to Birge] indicate that contact between Birge and Merrill was probably going on since her master's thesis, and possibly since her bachelor's in 1890. She was potentially connected with Birge for 27 years, yet there is no mention of her anywhere."*

Born in 1863 in Stevens Point, Wisconsin, Merrill enrolled in the University of Wisconsin in 1888 and graduated *summa cum laude* in 1890.

"Hattibell Merrill was a pretty little woman who never weighed more than 100 pounds and who stood scarcely five feet tall from her manish boots to the top of her pompadour," says Hartridge. "In the spring, while most young ladies on campus were participating in saltate rites around maypoles on the hill, Hattibell chose to tromp about the lakes and fields wearing her familiar, sensible boots, her skirts hiked up, and a boater on her head. Her slight frame was frequently encumbered by an assemblage of camera and specimen-gathering paraphernalia."

According to the UW Faculty Listing of 1910, Merrill did graduate work at Cornell University, the University of Wisconsin, Woods Hole, and the University of Chicago, receiving her master's degree in 1893 from Chicago. She was an Honorary Fellow at the University of Chicago until 1896 and was Director of the Physiology and Biology Departments in Milwaukee's East Side High School from 1890 to 1894, and South Side High School from 1894 to 1899.

"She worked in an age when women could be dismissed from their jobs simply for marrying," says Hartridge.

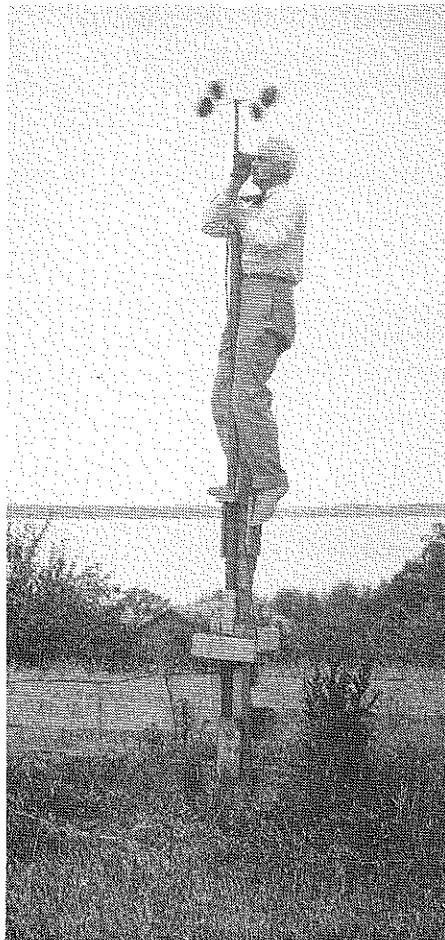
At Milwaukee Downer College, Merrill organized the science curriculum and taught general chemistry,

* Quotations from David Frey are from a manuscript he has prepared based on Merrill's letters to Birge and her notebooks.

organic chemistry, general biology, zoology, vertebrate and invertebrate anatomy, physiology, and psychology from 1897 to 1899. She was active in the Wisconsin Academy of Sciences, Arts, and Letters for which she served as vice-president. She was on the board of the UW Alumni Association and was a member of the Laurea Honor Society, and a scholar member of Kappa Alpha Theta.

"Merrill also directed an educational program for school children from the Milwaukee Public Museum where she was given an office on the second floor," says Hartridge. "She was not paid for her services and when she left to go on a scientific expedition, three men filled her shoes — for pay! The annual report as to how difficult they found the task, is amusing and revealing in light of the times."

In addition to her scientific pursuits, Merrill was also interested in



Birge at the Green Lake Meteorology Station, 1912 (Photo courtesy of the State Historical Society of Wisconsin)

UW management and politics. In 1902 she was an active advocate of Birge's election to the university presidency and even organized a petition for Birge in Madison. She wrote a letter to a Miss Northrup in Milwaukee asking her to organize a similar petition there.

In 1902 and again in 1907, Merrill went to South America. According to her journals, she had dreamed for years of making the expedition. During the 1907-1909 trip, she visited Brazil, Venezuela, Trinidad, British Guiana, and Curacao. The *Milwaukee Sentinel* published parts of her journals, which were filled with descriptions of travelling conditions, the cities and people she visited, and the countries' mines and industries. The Milwaukee Public Museum asked her to collect ethnographic artifacts.

"She made connections with consulates and universities throughout the continent," says Hartridge. "She traveled virtually alone, carrying along only the accouterments deemed essential to anticipated forays into the jungles. Miss Merrill's journals give us a descriptive account of how she survived rough seas, treacherous rivers, and high altitudes, as well as her observation of primitive tribes, wild animals, and menacing insects. As this intrepid little woman from the North tromped through steaming rain forests in men's boots photographing the rampant wild life, her exploits became legend along the river towns. . .

"In a culturally archaic society where women were permitted to travel only in the company of a father, brother, or husband, she was a conundrum. How the men folk dealt with this dilemma is revealed in the amusing anecdotes of her journals. To the botanists and zoologists Miss Merrill met en route, she was known as the 'courageous American woman.' The greatest danger lurking almost everywhere she set foot was the threat of malaria, cholera and the bubonic plague."

When she returned to the United States, Merrill's schedule was filled with speaking engagements in the

departments of commerce and science at Cornell University, the University of Chicago, and the University of Wisconsin, as well as teaching. She also continued work on the chydorids and macrothricids of which she identified more than 82 South American taxa, some of which were completely new to science. In 1910 Merrill returned to the University of Wisconsin as an assistant professor in zoology, hired to work up the results of her most recent South American expedition.

"In all she collected about 700 samples. . . The work involved in examining this number of samples and making detailed notes on them must have been tremendous," says Frey. "One can only admire the initiative and determination that motivated her to undertake such a monumental task. . .

"In spite of her closeness to Birge, she does not seem to have been led by him nor guided by him in any significant way in her development. The notes indicate that the work she did was completely inde-

pendent. The comments she makes about the species are those of a person working with the Cladocera intensively and forming her own opinions about them. Birge is not mentioned at all in these notebooks, and there is no suggestion that he was involved in any of the decisions. He obviously functioned at the periphery of this work.

"With determination Merrill became a beginning expert on the Cladocera. . . . She wrote up some sections of a report, which Birge considered 'probably worthless' (I don't agree), but she had an eye for morphological details and a sensitivity to the Cladocera as organisms that could have made her a real expert if her health and other circumstances had permitted her to develop just a bit more."

Frey also notes that, "Merrill had developed into a really respected scientist by the time she completed analysis of the samples collected on her second trip to South America. . . . She was a true pioneer in South American Cladocera and her contri-

bution would have had great impact on those in her field."

After returning to Wisconsin, Merrill developed continuing health problems. Despite her deteriorating health, however, she began work on her Ph.D. in 1914 with Charles Zeleny at the University of Illinois. According to Hartridge, Merrill's goal was to be independent in her choice of location and subject of teaching and, possibly, to head a women's college. Although she struggled to continue her research, Merrill's ill health soon interfered with her studies. There was intense correspondence between Merrill and Birge in the last two years of her life and her last letter to Birge was dated April 9, 1915, the day before she died of "myocarditis" at the age of 52.

Later, Stillman Wright (Ph.D. 1928), a student of Chancey Juday, used Merrill's South American collections and named a species of *Diaptomus* after her—*Merrilli*.

Annamarie Beckel
Center for Limnology
Trout Lake Station

Following Their Own Paths: *Women In UW Limnology 1900-1990*

Harriet Bell Merrill was the first woman involved in limnological research at the University of Wisconsin. Doris Ann Wright was probably the second.

"Little did I realize when I did some plankton counting for Professor Juday the spring semester of 1928 that it was practically the beginning of limnology in the United States," Wright says.

Wright had attended Southwestern College in Winfield, Kansas, for her undergraduate education and, in 1926, received her bachelor's degree in zoology with a minor in math.

"When I entered college I had no fixed idea about a major. At that time math was perhaps the most interest-

ing subject to me," recalls Wright. "Junior and senior years were filled with science courses: zoology, embryology, comparative anatomy, chemistry etc. The laboratory courses fascinated me. I have never tried to analyze why but perhaps it was searching for the unknown. . . ."

"Dr. William M. Goldsmith, head of the biology department urged his students to continue their education after graduation from Southwestern. He was responsible for more students going to graduate school than all the other professors combined."

With Goldsmith's encouragement, Wright started graduate work at the University of Missouri, but transferred to the University of Wisconsin from

which she graduated in 1928 with a master's degree in zoology. During the summer of 1929, Wright worked as a research technician counting Lake Erie plankton at the Stone Laboratory, Gibraltar Island, Put-in-Bay, Lake Erie.

"In the meantime I had received a call from Dr. Guyer, head of the Department of Zoology at the university [UW], asking if I would be interested in coming back to the university for fall semester as an assistant," Wright recalls. "I readily accepted as I was delighted to get back into my own field. Following the summer on Lake Erie I returned to Madison for the fall term 1929. In addition to my duties as lab assistant and two quiz ses-

sions a week, I found time to count plankton for Professor Juday a few hours each week.

"I feel honored that I had the privilege of knowing such distinguished scientists as Professor Juday and Dr. Birge. They were two completely different personalities. Dr. Birge gave the impression that the students and assistants were just people under foot. I did admire him for climbing the stairs to his office on the third floor while the rest of us took advantage of the elevator."

"I found Professor Juday a warm, quiet, thoughtful man who had an interest in his students and the people who worked for him. I was always fascinated by his desk. It was covered with several piles of assorted papers several inches thick. Whenever he was asked a question about some subject, he knew exactly in which pile to look and never failed to find it in that particular pile. We had a long enjoyable association with him for years after leaving the university."

In February 1930, Wright went to Ann Arbor to continue plankton research. There, she married Stillman Wright, whom she had met at Wisconsin. Doris Wright continued to work at the Stone Laboratory through the summer of 1930 and in Ann Arbor until 1932. After 1932, she devoted her energies to her family and to helping Stillman with his research. The Wrights spent five years in Brazil, where Stillman was studying zooplankton. In 1937, they went to Logan, Utah, where Stillman was employed by the U. S. Bureau of Fisheries.

"The summers of 1942, '43, '44, and '45 were spent in Yellowstone Park. The principal project was to remove a fin from trout about 1 1/4 inches long and to plant them in the parent stream to learn from later creel census if they came to the home stream to spawn," recalls Doris Wright. "The tools used were a petri dish, a very small artist's brush for turning the fish, and a pair of manicure scissors. It was tedious work and the hatchery was cold so it was

impossible to work more than two hours without a break. . . Stillman marked the first two days and then called for help. . . The job was temporary, pay was low, 56 1/4 cents per hour. . ." In 1943, the Wrights clipped more than 15,000 fish. According to Doris Wright, her career as a zoologist ended in 1945.

Ruby Bere was Chancey Juday's only female Ph.D. student. She received her doctorate in 1932, having conducted a three-part thesis: "The bacterial content of some Wisconsin lakes," "The effect of freezing on the number of bacteria in ice and water from Lake Mendota," and "Copepods parasitic on fish of the Trout Lake region, with descriptions of two new species." Where Ruby Bere went after she left the University of Wisconsin or whether

streams," says Edward Schneberger, a former student of Jewell's at Kansas State Agricultural College (now Kansas State University), where he received his master's degree. Schneberger (Ph.D. 1933) was later a student of Juday's at Wisconsin.

Jewell moved from Kansas State to Thornton College in Illinois. "Two things were wrong about her continuing her profession — her desire to study stream ecology — at that time it wasn't right, people weren't accepting those things in those days," says Schneberger, "and also women's lib hadn't come along yet so she had trouble finding employment being a woman."

It was Schneberger's suggestion that she come to northern Wisconsin to study freshwater sponges. Al-

Little did I realize when I did some plankton counting for Professor Juday the spring semester of 1928 that it was practically the beginning of limnology in the United States.

Doris Ann Wright

she continued her career in limnology remain mysteries.

Minna Jewell received her doctorate from the University of Illinois, but conducted a great deal of her freshwater sponge research at the University of Wisconsin Trout Lake Station in the 1930s and early 1940s. Although best known for her work on freshwater sponges, Jewell's research interests were broad. In addition to her research on sponges, she published papers on fishes from acid lakes, the blood of fish from acid and basic waters, aquatic biology of the prairie, groundwater, and vitamin requirements of goldfish and channel catfish.

"She was a student of Victor Shelford of Illinois, who was quite an ecologist of that day. She specialized in stream ecology with the idea of working on the effects of pollution on

though somewhat eccentric, Jewell was popular among the students and technicians.

"Dr. Jewell was always trying to help somebody; she always had somebody under her wing," recalls Schneberger. "Dr. Jewell had quite an influence on young people."

After Jewell retired from Thornton College, she taught in a girls' school in South America for several years. She continued publishing her research on freshwater sponges into the 1950s.

Bacteriologist Elizabeth McCoy received her bachelor's (1925), master's (1926), and doctorate (1929) from the University of Wisconsin, and became a member of the bacteriology faculty there in 1930. Her research interests were wide ranging (she had 47 Ph.D. and 110 M.S. students during her long career) and included

aquatic bacteria. Shortly before her death in 1978 she was working actively on the microbiology of lakes and streams, and on the actions of microorganisms in the treatment of sewage. Three of her students who worked on aquatic bacteria were Dorothy Kinkel, Mary Jansky, and Yvette Hardman Edmondson.

Yvette Hardman received her doctorate in bacteriology from the University of Wisconsin in 1940. In 1941, she married W. T. Edmondson whom she had met at UW. She had attended Bennington College in Vermont as an undergraduate and had majored in literature.

"I had to choose a trial major at Bennington. I didn't know what I wanted to do, but I thought literature would be a good base to work from," she says.

While a student at Bennington, she took a course in bacteriology from Mary Ingraham Bunting, who had received her master's (1932) and doctoral (1934) degrees in bacteriology from the University of Wisconsin. There was an aquarium at the end of the hall and Dr. Bunting suggested that she examine it and see what was there, stimulating a continuing interest in aquatic bacteria.

Yvette Edmondson never thought of herself as doing anything out of the ordinary in pursuing graduate degrees in science. "My parents brought me up to follow my interests," she says. "When your parents lead you to believe you can do what you want, you take that for granted."

In 1936, she went to the University of Minnesota to work on aquatic bacteria with A. T. Henrici, a well-known bacteriologist. After receiving her master's degree in 1938, she came to the University of

Wisconsin and worked with Elizabeth McCoy and Perry Wilson. Her doctoral thesis was on the influence of solid surfaces on lake bacteria.

When asked why she thought there were so few women in the sciences in the 1930s and 1940s, Yvette Edmondson responded, "The lack of women in the sciences was not visible from my point of view. My advisor was a woman and there were three other female graduate students in bacteriology."

In response to questions about women in limnology, Yvette Edmondson wrote, "To return to your emphasis on what women were doing, I still don't look at that as a primary concern. Both Polly Bunting and Elizabeth McCoy were excellent teachers, and I learned a lot from them; but the same is true of A. T. Henrici and W. A. Gortner [biochemistry] at Minnesota, both men. Role models, if that term has any meaning, depended not on their sex but on their ability."

"Conditions for women appear to have changed somewhat in that they are now given preference in employ-

ment, but I'm not convinced that that is necessarily to their benefit. All this, or course, has nothing to do with limnology as a discipline or with Wisconsin as a place, but is pretty general. Some of the students in limnology in the early days, and in some places today, are husky outdoors types in it for the lifestyle rather than for the intellectual content, and males in our species like other mammals do seem to be huskier than females."

While Yvette Edmondson was at Wisconsin, Juday had access to the federally funded WPA programs, which he sometimes used to support students. She was given a research assistantship to work on her thesis even though she was in a different department. "Juday was a nice, kind guy," she says. "He helped people in that way." While she was at the University of Wisconsin, she went up to Trout Lake for a week to work on the surface tension of lake waters. This was very early work in this area and had been suggested by Claude Zobell, a bacteriologist at Wisconsin.

After leaving Wisconsin, Yvette Edmondson taught at Bennington College for five years. From there, she went to the Woods Hole Oceanographic Institution for two years, where she conducted research on marine productivity. She then spent three years at Harvard studying anthocyanin biosynthesis in plants. The Edmondsons moved west to the University of Washington in 1949, where Yvette did a variety of things including consulting for Barnhart Reference Books. She was editor for *Limnology and Oceanography* for 19 years; she retired from that position in 1986 and now works on other editorial jobs.

Sarah Elizabeth



Doris Wright (on the right), Ruby Bere (center), and a friend, Jinny Small (left) at the UW-Madison, 1928

Jones Frey (Ph.D. 1947) was one of Arthur Hasler's first graduate students at the University of Wisconsin. Libby Frey had grown up on a 100-acre truck farm in southeastern Ohio and says that she never knew a time when she wasn't interested in biology.

"My grandfather was a naturalist," recalls Frey. "While an educator, he was a biologist in spirit and he fostered my early interest in plants and animals. . . My father was a lawyer and my mother ran the farm and four greenhouses. Both of them wanted their children to go to college and to follow their own inclinations as to profession."

Frey attended Hiram College near Cleveland for her undergraduate degree in biology (1941) and received her master's degree (1943) from Smith College in Northampton, Massachusetts, where she had been a teaching fellow. She then decided to go into ecology.

"I had a marvelous time at the University of Wisconsin, primarily because of the outstanding people there. In addition to Art Hasler, there was Aldo Leopold and Hasler's graduate students. Ted Walker, John Neess, Jay Andrews, David LeCren and John Bardach were all there while I was there.

UW was an intensely stimulating place . . .

"I have a great deal of respect for Art Hasler and enjoyed having

him as an advisor, but I worked as much with Aldo Leopold as with Art Hasler, who was out of the country a great deal, especially during the war. . . I worked most closely with John Neess. We worked together; he was my friend, as well as my assistant and advisor. We also enjoyed music together. While we were down at the lake lab, we listened to a lot of music together . . . I also had the great honor of knowing Juday and Birge. Birge was open and friendly; he used

to stop in and chat with me. He was in his 90's and he was great at recalling anecdotes. He was just learning to type at the age of 93, and we used to talk about that. Juday attended all the seminars, but he was no talker at all in comparison with Birge."

When asked about women in the sciences during the 1940s, Frey noted that there were many women graduate students in biology at the University of Wisconsin while she was there, partially because it was during the war. "We had loads of good female graduate students," says Frey. "There was quite a bunch in zoology. I never felt discriminated against. I was well-treated."

Libby Frey's doctoral thesis was concerned with the competition between macrophytes and plankton in small experimental ponds. While a graduate student, she also worked with Leopold on the phenology of Sauk and Dane Counties.

She left the University of Wisconsin in 1945 to teach at the Women's College at Duke University for three years, but returned to UW during two summers and completed her doctoral work in 1947. In 1948, she married David Frey, whom she had met in Madison, and moved to Chapel Hill

it difficult to hold down a job."

Libby Frey became interested in chydorid Cladocera because of her husband's intense interest in these groups. "It [interest in chydorid Cladocera] began in earnest in 1964 with a core from Pretty Lake in northern Indiana. In 1974, I started studying the seasonal population dynamics in five ponds in Monroe County [Indiana]. We have also been collecting all this time and have made more than 9000 collections from all over the world. These will eventually go to the National Museum in Washington."

"I just can't stay away from doing something," says Frey. "I inherited that from Leopold. I joined the Wilderness Society as soon as I met him. . . I consider Aldo Leopold to be the greatest person I ever knew. It was a fantastic experience to be associated with Leopold."

Hisako Ogawa Yokoyama (Ph.D. 1947) was also a student of Hasler's. Her thesis was on the origin, development, and seasonal variations in the blood cells of perch. After receiving her degree, she went to the University of Kansas Medical School and worked in the Department of Oncology as a research scientist. In 1952 Yokoyama moved to the Department of Pathology at the Northwestern

University Medical School where she conducted cancer and heart research. She became an assistant professor of pathology at Northwestern

My parents brought me up to follow my interests.

When your parents lead you to believe you can do what you want, you take that for granted.

Yvette Edmondson

where he was teaching and conducting research at the University of North Carolina. In 1950, the Freys moved to Indiana University in Bloomington.

"At that time no wife could have had a job in the same department as her husband," says Libby Frey. "But I was so busy with my family, I couldn't have done that anyway. . . I had four children in seven years. We also traveled a great deal — to Austria, England, Denmark, the Philippines. It was very enriching, but travel makes

in 1958. In 1962 she went to the Stanford University Medical School as a research associate in anatomy, but had to stop working in 1964 because of health reasons. Since then, she and her husband have established their own business.

Jaysharee Nataraj Sonnad (M.S. 1961) came to the University of Wisconsin from India in 1958 intending to go into fisheries biology.

"When I came, the women in education here were behind those in

India. Once women in India decide to become professionals, they are treated equally, they are not discriminated against. . . Women in India were politicians, lawyers, and engineers long before women in the United States.

"I had come from India specifically to do a professional degree. I had a teaching assistantship and I took it very seriously.

"When I was a student here, however, most people, including students and professors, thought women were in college to catch a nice man

— that was the attitude of many women too. They were there to marry a doctor or engineer, not because they were going to be the doctors and engineers themselves."

Sonnad was not disappointed in her advisor, Arthur Hasler, or in the limnology program. "I really enjoyed working in the limnology department, working with the people. Hasler sent me out in the field just like anyone else. The other students treated me like anyone else. I was thrown out to the vultures just like anyone else. . . Hasler was always very fair and loving. He was more like a father to me, not just a professor."

After leaving the limnology program, Sonnad worked three years in electron microscopy in the UW pathology department, where she published ten papers on the structure of muscles and lungs. From there she went to Michigan where she "had kids and stayed home a couple years." Sonnad returned to India in 1968.

"I found that I was a stranger in my own country. I felt more comfortable in the United States, so I came back."

Sonnad worked on various limnology projects in Robert Wetzel's lab at Michigan State University for 15 years. She had to quit that job and move to Seattle, however, when her daughter became ill. In Seattle, she worked two years as an adminis-

trator in a medical lab. Sonnad now works in a laboratory in Portland, using electron microscopy to study peripheral neuropathy.

"On the whole, I have struggled and survived, and now get paid well for what I do," says Sonnad. "The country has come a long way. Women have come a long way."

Mary Flach McNaught (M.S. 1964) came to the University of

very good experiences in limnology. . . I was treated as any other graduate student in limnology was. There was always help available, and I surely never thought of myself as the only female in the lab, but only another limnology student, there to uncover the secrets of Lake Mendota.

"In the '60s, I think there was the feeling that if you made it that far [into graduate school] you were serious, and you were taken seriously."

While still a graduate student at UW, Mary Flach (McNaught) married Don McNaught,

whom she had met at the Limnology Lab. After completing her graduate work, Mary McNaught stayed home to raise four children, but she has maintained her interest in limnology. Her eldest son is currently a graduate student in limnology at the University of Michigan.

"My youngest is off to college this year," says McNaught. "I would like to return to work in science, whether it be limnology or bacteriology, but after so many years away from the field, it would be a difficult road back, learning all the new technologies. Attitudes have changed. Twenty years ago not many women wanted to go into traditionally men's fields. The attitude now is that women can do anything."

With the changing attitudes of the the 1970s and 1980s the number of women in the sciences has grown. The limnology program at UW has been no exception. From 1920 to 1970, three women, Ruby Bere, Sarah Elizabeth Jones Frey, and Hisako Ogawa Yokoyama, received Ph.D. degrees in limnology at UW. In the 1970s and 1980s, three women, Elizabeth A. Colburn, Cynthia L. Cowden, and Weerawan Chulakasem, received doctoral degrees in the UW limnology program; ten received master's degrees, including Mary Lee Backstrand, Joan Patterson Baker, Maria Gonzalez, Dorothy M. Harrell, Myriam Ibarra, Lorna Petty

Attitudes have changed. Twenty years ago, not many women wanted to go into traditionally men's fields. The attitude now is that women can do anything.

Mary Flach McNaught

Wisconsin from Vassar and the Woods Hole Marine Biological Laboratory. "At Vassar I was influenced by two women, one in microbiology, the other, in mycology. They worked in the field and I liked being outdoors," says McNaught. "The summer after I graduated, I went to Woods Hole and worked on sea algae and really liked that a lot.

"I came to UW in 1959 to the department of bacteriology, where Elizabeth McCoy had gained eminence in her field. My professor at Vassar, Louise Potter, influenced my choice of UW for graduate work; she also did work on aquatic bacteria for many years at Flathead Lake, Montana, owing her interest [in bacteria] to her professor, Elizabeth McCoy."

McNaught switched from bacteriology to medical microbiology, but, because of personality conflicts, she wasn't comfortable in either department. She moved to George Fitzgerald's lab in water chemistry. From there she went to Hasler's lab, where she worked with visiting scientist Hans Luther from Helsinki. Her thesis was on the distribution and occurrence of filamentous algae in Lake Mendota.

"I ran into male chauvinists in both bacteriology and microbiology. I felt discrimination there, but I never felt any kind of discrimination in limnology. No hindrances were put in my way," explains McNaught. "I had

Harrell, Sharon Klinger-Kingsley, Cynthia Lunte, Sherry Steffel, and Katherine Webster. Three women, Melissa Weaver, Maria Gonzalez, and Ann McClain, are currently pursuing doctorates in limnology at the University of Wisconsin; two others, Patricia Howard and Kathleen McTigue, are pursuing master's degrees.

After reading a rough draft of this article, Mary McNaught made these observations.

"These early women in the field of aquatic biology seem to possess some common traits — the desire to learn and the determination to move on in their respective areas to fulfill this desire. Both this desire and determination were instilled in these women by parents and or teachers who believed one could do anything one wanted and urged them quietly

on to do it.

"I think Yvette Edmondson says it best in her interview," McNaught continues. "I, too, never thought I was 'doing anything out of the ordinary' and the 'lack of women in the sciences was not visible' to me along the way either, as many of my mentors were women. I enjoyed learning then, and I still do now, even though I did not choose active work in the field. I believed that I should devote the best of my time to raising a family and hopefully instilling in them this same desire to learn and achieve and be all that one can be — so far I think I have been successful — we, my husband and I, have been successful."

Annamarie Beckel
Center for Limnology
Trout Lake Station



Annamarie Beckel (Ph.D. 1982, University of Minnesota) has been working as a writer and researcher for the CFL since 1981. She is currently an Honorary Fellow. Beckel is the author (with Frank Egerton) of *Breaking New Waters: A Century of Limnology at the University of Wisconsin*, and her continuing interest in the history of limnology led to the articles on women in Wisconsin limnology.

UPDATE

One reason for this newsletter is to help you keep up-to-date with old friends. If you've written a new book, changed jobs, received an impressive award, or had a new species of arthropod named in your honor, we'd like to tell others of your good fortune. If you have information for the newsletter, send it to: Limnology News, Center for Limnology, UW-Madison, Madison, WI 53706.

Recent Degrees

Campbell, Beth

(M.S. 1989, Kitchell)

Beth conducted an experimental analysis of prey preference and size-dependent interactions between walleye and yellow perch. She is currently working on a Ph.D. at Univ. California-Davis.

Johnson, Barry

(Ph.D. 1989, Kitchell)

Barry's thesis developed a bioeconomic modeling approach using the Green Bay yellow perch fishery as a test case. He is currently working as a postdoc on the bioenergetics modeling project. He has been the primary organizer and lead instructor

for ten "technology transfer" workshops that train fishery scientists to use the generalized bioenergetics model developed and distributed through UW Sea Grant.

Moegenburg, Susan

(B.S. 1989, Magnuson)

Sue was the recipient of the Center's Chase Noland Scholarship in Limnology for undergraduate research which she conducted with Steve Carpenter on anti-predator adaptations in *Daphnia* at the Notre Dame lakes. She did two senior theses, the other was on algal control by *Daphnia* in Lake Mendota with Michael Vanni. Sue is applying to graduate schools for fall.

Robertson, Dale

(Ph.D. 1989, Ragotzkie and Magnuson)

Dale analyzed the long-term ice records and physical limnology of Lake Mendota as part of our long-term ecological research on north temperate lakes. He now has a postdoc at the Center for Water Research, University of Western Australia.

Schael, Denise

(B.S. 1989, Kitchell)

Denise did an undergraduate senior thesis on the role of gape limitation and trophic ontogeny in prey selection by larval drum and yellow perch in Lake Mendota. She intends to pursue her research interest in graduate studies.

Letters

Dear John,

Congratulations on an informative and very professional newsletter! I enjoy keeping up with the progress of the Center. Thanks for remembering me.

Jan Jastrzebski
[JJM's former secretary]
Greenbelt, Maryland

Dear John,

I greatly appreciated being placed on the mailing list of *Limnology News*.

At present I'm digging through a 50-year creel census record we started in Algonquin Park in 1936.

Fred Fry
University of Toronto

Note: Professor Fry died during summer 1989.

Dear colleague Dr. Magnuson,

I received the first issue of *Limnology News* and read it with great interest. Almost 30 years ago I spent some time in Madison studying the fresh water drum. My memories are still very vivid, and the letter activated them.

Hans Schneider
University of Bonn

Dear Ms Holthaus:

You asked if I might like to receive future copies of *Limnology News*. Apparently Dr. Stillman Wright made the suggestion. I certainly would, so please add my name to your list.

My first contact with Trout Lake came about 1932, and of the 14 names on the back page of your Spring 1987 News, 10 were very familiar to me.

My wife and I were acquainted with the Juday family. Their daughter was in Bette's class in the late '30s or early '40s. After Dr. Juday's death, I found half of his personal library in a New York bookshop about 1946, and bought it with borrowed money. It gave me a good start decades ago.

Raymond E. Johnson
Arlington, Va.

Dear George:

I appreciated getting issue number 2 of *Limnology News*. It is interesting to keep up with some of the current events at the UW. I get back to Wisconsin all too seldom, so this is a great way to maintain contact.

I will retire in June ['88] to devote more time to writing, AFS committee work, fishing, traveling, and reading, while completing some research and consulting projects and getting several graduate students graduated.

Bill Helm
Utah State University

Dear Prof. Magnuson,

Thanks for the *Limnology News*, which I found very interesting. At the beginning of my limnological work I was strongly influenced by the thinking of the Birge-Juday school.

Jaroslav Hrbacek
Prague, Czechoslovakia

Dear Ms Holthaus,

I thank you for sending the *Limnology News*. Art Hasler's article was especially interesting. I remember Art when he was Professor Juday's assistant at Trout Lake in the summer of 1934. Those were the years when we ate our meals with the lumberjacks at the Trout Lake State House.

Opening date for the laboratories was always on July 1. Prior to their opening in '34, Art and his wife Hanna made a quick round trip on motorcycle to Utah — an example of how tough and what strong backs they had in their youth.

I was a chemist on the two-member crew in the summers of '34 and '35. Our work was to determine the rate of photosynthesis in several of the northern lakes. The other member was a biologist — Somer in '34 and John Curtis in '35.

Martin Baum
Sun City, Ariz.

Dear Ms Holthaus:

I have reread the reviews on *Breaking New Waters* and am looking forward to the entire book. My introduction to plankton was from Juday when I was a graduate student at the University of Wisconsin and did some plankton counting for him. I also have very good memories of Dr. Birge. He climbed the stairs to the fourth floor and the students rode the elevators. I remember them both fondly.

I regret to inform you that my husband, Stillman Wright, died Feb. 19 [1989]. He had looked forward to the publication of the book since he had a great deal of correspondence and telephone conversations with Ms Becket.

Doris A. Wright
Chapel Hill, N.C.

Dear Editor,

Thank you for sending me *Limnology News* which was a pleasant surprise. It enabled me to catch up on the latest developments in the field at Wisconsin and also brought back many fond memories of the place I stayed for almost seven years, more than a decade ago. Professor Hasler was my advisor in the Water Resources Management program and I still keep in touch with him.

I am currently working for the U.S. Agency for International development in Bangkok. USAID is developing a new project on the management of natural resources and environment for sustainable development in Thailand. I have been assigned as one of the team members overseeing the project. It is certainly a good opportunity to draw upon the knowledge and experiences gained during the years at Madison.

Apichai Sunchindah
Bangkok, Thailand

DNR Receives L&S Centennial Award

C.D. "Buzz" Besadny, Secretary of the Wisconsin Department of Natural Resources received the first UW-Madison College of Letters and Science Centennial Award on June 6, 1989. The award recognizes 100 years of cooperation between the state and UW-Madison in protecting and managing Wisconsin's natural resources.

E. David Cronon, Dean of the college, presented the award to Besadny during a centennial celebration at the Center for Limnology's Trout Lake Station biological laboratory located in Boulder Junction.

UW-Madison Chancellor Donna E. Shalala also dedicated the new wing at the Trout Lake Station to commemorate the development of limnology and 100 years of limnological research. The new wing of the

research station was jointly financed by the National Science Foundation, UW-Madison, and private industry.

"This College of Letters and Science Centennial Award is designed to recognize the Wisconsin Idea and how we work with state management agencies, like the DNR, to promote the use and preservation of natural resources," Cronon said. "It's particularly fitting that Buzz Besadny received the award on behalf of the DNR since we have been involved in collaborative research on acid rain, long-term ecological changes, and fisheries research and management issues."

"The historic partnership between the University of Wisconsin and the state's Department of Natural Resources in the area of lake studies is a most vivid and successful example

of the Wisconsin Idea," Shalala said.

Cronon, who retired at the end of June, also received a special award from John Magnuson, director of the Center of Limnology, for supporting limnological activities.

"One hundred years ago E.A. Birge, the 'father of North American limnology,' was dean of the College of Letters and Science," Magnuson said. "Like Birge and the other Wisconsin pioneers of limnology, Cronon's efforts have helped assure that UW-Madison remains in the forefront of limnological research."

The celebration included scientific briefings on cooperative university and state research in northern Wisconsin and a meeting with education coordinators from the Lac du Flambeau Indian Reservation.



Photo by Payton Smith

State and University officials attended the College of Letters and Science centennial award presentation and dedication of the new wing at Trout Lake Station in Boulder Junction last summer. From left are John Magnuson, Director of the Center for Limnology; Arthur Hasler, Professor Emeritus; C.D. "Buzz" Besadny, Secretary of the Wisconsin Department of Natural Resources; E. David Cronon, former Dean of the College of Letters and Science; UW-Madison Chancellor Donna E. Shalala; James Addis, Department of Natural Resources; Donald W. Crawford, current Dean of the College of Letters and Science; Tom Frost and Jim Kitchell, Center for Limnology.

Magnuson Receives Wisconsin Idea Award

John J. Magnuson, Director of the Center for Limnology, and three other individuals received the Wisconsin Idea Award in Natural Resource Policy at a banquet in Madison on March 13, 1990.

The Center for Resource Policy Studies and Programs in the UW-Madison School of Natural Resources presents the awards each year to recognize individuals who have made significant contributions in improving communication and cooperation between the university and state government for the benefit of the people of Wisconsin.

Magnuson was selected because he has been a catalyst for many joint projects between the state and university. He was recognized for his efforts linking applied and basic research in unique experi-

ments benefiting both scientists and resource managers.

Magnuson and James T. Addis of the Wisconsin DNR, who also received the award this year, were honored in part for the Lake Mendota

Fisheries and Water Quality Project — a joint DNR and UW-Madison effort that emphasizes an innovative program of fisheries management to improve both sport fishing and water quality. The award also recognized many other cooperative programs between the Center for Limnology and the DNR, including past research on the effects of introduced crayfish on Wisconsin lakes and the current lake acidification study in Vilas County.

Others receiving the award include Addis, administrator of the Division of Resource Management at the Wisconsin DNR, Forest Stearns, an emeritus professor of botany and biological sciences at the UW-Milwaukee, and Stephen C. Smith, an emeritus professor of agricultural economics and former associate dean of the School of Natural Resources at the UW-Madison.



Photo by Roger Turner, courtesy of the Wisconsin State Journal

John J. Magnuson

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