UOG Memories: 33 years of Biology (and Counting)

By

Christopher S. Lobban, B.Sc. (Hons), Ph.D.

Legacy Series

University of Guam

Society of Professors Emeritus & Retired Scholars

2022

Christopher S. Lobban, B.Sc. (Hons), Ph.D.
Professor Emeritus of Biology

Brief personal and academic background

I grew up in Lytham-St. Annes, Lancashire, England, attending grammar school from age 8 until my parents emigrated to Canada when I was 15. In England, my interest in natural history ran to collecting butterflies and wildflowers, and dissecting mice and pigeons under the tutelage of my biology teacher, whom I consider my first career mentor. I recently named a new species (*Nitzschia carahii*) for him; I assumed he had passed by then, but I could not find out.

My family settled in Dartmouth, Nova Scotia, and I finished high school there before taking a B.Sc. degree at Dalhousie U., Halifax, majoring in biology. I had thought I might become a physician, but by the end of my sophomore year I had taken an animal diversity class that put me to sleep and a botany class that was unmemorable except that it propelled me to fill my one junior elective with a course in phycology – the study of algae – taught by a man who was really excited about seaweeds. I had never thought about algae to that point and haven't stopped thinking about them since.

Louis Hanic was also the first to introduce me to diatoms. For graduate school I went to the west coast of Canada, Simon Fraser U. and spent most of my time at Bamfield Marine Station studying giant kelp under Louis Druehl, earning a PhD in 1977. I have named new genera of diatoms for both my undergraduate and graduate mentors, *Hanicella* and *Druehlago*.

My first academic position was at the University of New Brunswick in Saint John, where a chance collaboration with natural products chemists led me back into diatoms, specifically the tube dwelling diatoms that grew in the Bay of Fundy as big as seaweeds. I spent a sabbatical in southern California, continuing to work on tube-dwelling diatoms, and there met my present wife, Dr. Maria Schefter.

But I didn't want to spend my entire career in a small industrial town with a slushy winter and a foggy summer, and after several years of searching I was offered a tenure-track position at the UOG Marine Lab (1988). It turned out that they never had any intention of giving me tenure but at the end of my contract I was accepted into a position in the Division of Natural Sciences, at that time part of the College of Arts and Sciences (1991). I worked there until retirement in 2015, and I am still active as an Emeritus Professor, focusing on research and occasionally teaching in summer and intersession. I joined SEPRS in 2016.

Recruitment

I was recruited to UOG through a phone interview in the middle of January, when the weather in Saint John made Guam seem very attractive. The diatoms I was studying flourished in March and I had to kick ice off the intertidal pools to access them. Tropical diatoms? Oh, yes! But most of my colleagues and friends in Saint John could not imagine such a move. They asked if we had been transferred, and if we were putting our stuff in storage till we came back! The idea of going half-way round the world with no intention of returning simply did not compute for them. But that spring during a skiing break to Washington State – and already committed to the move -- we met Jeanine Olsen, a former Marine Lab graduate under Roy Tsuda, who spoke highly of Guam and the Marine Lab. Haven't skied since.

What was Guam like then?

As I recall it now, it is hard to sort out now what about Guam in 1988 was Guam and what was 1988, and what was Guam and what was USA. I owned a RadioShack TRS-80 ("Trash 80") that had the operating system on one big floppy drive and your own files on another. Graphical User Interface had not reached the market. At the Marine Lab I started using IBM machines running DOS. There was no internet, not even email. And yet, I felt less isolated here than I did in Saint John, because there was a steady stream of scientific visitors, something that the small satellite campus of UNB in Saint John never enjoyed. Phone service was dodgy, especially in heavy rain, and house prices were going through the roof thanks to the Japanese economic bubble. Still we managed to buy a house after 6 months of searching. (The days of faculty housing on Dean's Circle were long gone, of course.) And we soon learned about typhoons. The campus was much smaller then, to be sure: the Post Office was in Building C, Buildings A and B were still in use, and the big newer buildings like CBPA, SOE, ALS and the Humanities cluster were still to come. It looked pretty shabby back then, if your idea of a college campus was ivy-covered brick walls. (Must admit that Simon Fraser and UNBSJ, being fairly new concrete campuses did not have the ivy and stone look of Dalhousie!) The Science and Fine Arts Buildings were there and already ageing.

Legacies

As I look back, I think I have been involved in three legacy projects at UOG: *Micronesica*, an environmental textbook, and the present diatom research. I was recruited as *Micronesica* editor in my first year at the Marine Lab, having by then coauthored a textbook and co-edited two books. It had been started by Ben Stone (Biology, CAS) in 1964 as a regional journal of natural science research and it had many exchange partners around the world who sent RFK Library their own regional journals in return. I continued as editor for 25 years before I was finally able to pass it on. There were years when I got way behind, but no one wanted to take it over and I was not willing to let it die on my watch. For much of that time it was a one-person operation with minimal subscriptions and accounting support from the college administrations, but perhaps because of that it survived a hostile administration that killed *Isla Journal*. There were several years where I went around businesses to get funding for the typesetting and printing. As publishing moved increasingly into the digital age subscribers and exchange partners became scarce and in 2012 we published our last print volume and went to the online-only, open-access model; this also meant that the editor was left doing the typesetting. Curt Fiedler has continued the job since 2014, the journal's 50th anniversary year. One of the highlights during my years as editor was working with Alan Davis to publish his large dictionary of Chuukese terms for (mostly) marine organisms, *Chuuk Lexicon* (1999). He handled all the typesetting in LaTex because of the unfamiliar spellings of the Chuukese words. The journal has had many other notable articles in biology, anthropology, agricultural and related scientific research in the region: an account in the first issue of how a typhoon changed the way of life of the people of Ulithi; numerous descriptions of new species and compilations of records; and we took over publication of the Bishop Museum's series *Insects of Micronesia*. I wrote two index supplements in the days before everything was searchable online.

When I was hired into Natural Sciences, part of my load was the Environmental Biology lecture and lab (BI100), and with it I inherited a US mainland textbook that had nothing about Pacific islands and only a mention of tropics (Amazon jungle). Its lead chapter, to illustrate

human interactions with wildlife, was about the demise of buffalo on the Great Plains. To give my students an inkling of buffalo and Great Plains, I rented *Dances with Wolves*, then fairly new and played a couple of clips in class. My wife decided to take the class, and this led to her becoming my education coach. We had only been married six years by then and I had not seen her educator side. The other thing she realized from her experience teaching reading, was that the textbook was at much too high a reading level: it was a typical mainland textbook assuming that first-year college students would read at Grade 13 level, but BI 100 was one of the courses open to students who had not passed the English placement test, i.e., Grade 9 (I think). Out of the struggles with that first semester teaching BI100 came the idea of writing supplementary materials about the islands that these students could read. Maria and I worked on it together and, as the supplementary materials grew over the next five years, we talked ourselves into going for a textbook to replace the stateside ones. I took a 6-month sabbatical and stayed in my office pouring content into a rough draft of the textbook. *Tropical Pacific Island Environments* took shape. I had already published an upper level textbook on seaweed biology, but I had a lot to learn about writing for BI100. Maria's role was to heavily edit what I wrote and gradually train me to write at a level our students could read. The following summer session, the rough draft got its first outing with a class of native Chamorro speakers who were teaching their language in the schools while earning teacher credentials. They were my most memorable BI100 class because even though they struggled to read the book, they put in the effort because it was about their island. In 1997 we published it under the imprint of UOG Press, which meant nothing more than a license to give the University credit and go out a get a loan to print. Fortunately, the loan officer was a UOG graduate who remembered the BI 100 course. In 2014 we published a thoroughly revised edition with Bess Press, adding two local, younger authors in the hope that they can keep the book up to date with future editions. There is still no other textbook for this course at UOG and GCC and it was recently adopted by Guam DOE, so we expect it to have a long life—longer than us!

Microscopy capacity and diatom research

To set the scene for the diatom project, I need to describe how the facilities to do it came about. In the 1990s the Division of Natural Sciences had a reputation as a glorified high school, mostly because of the lack of instrumentation – microscopes, pH meters, everything was old and dilapidated. None of the faculty were doing research, so there was no connection between teaching and research. The microscopes, that should have excited the first-year students with living specimens of creatures seen in the textbook, were so bad that the textbook pictures were way better. DNS had a few unsuccessful attempts to get a grant for new microscopes, but the situation began to change when we connected with two programs under the NIH National Institute of General Medical Sciences Minority Biomedical Research Support Programs, one for faculty research and one for student research and capacity building in the curriculum. Valerie Paul at UOGML took up the SCORE (research) program but made clear she would not also be PI for the student support (RISE) program. I got dragooned, and Maria, having just completed training in evaluation at U. Michigan, was asked to write the required evaluation components for both programs. We got the grants in 2001 and for the next ten years we kept them going. The RISE Program covered undergraduate research experiences including sending students to labs at "Research-1" universities on the US mainland, such as Johns Hopkins, UCSD and Baylor. But it also had funding for "capacity building" i.e., curriculum and infrastructure improvements. About this time Assessment was coming into university accountability and (kicking and screaming)

DNS began to examine its program and to use the new funding opportunities to upgrade the undergraduate science experience. Our students always did well at the mainland institutions and often came back with praise for the education they were getting, largely because it is hands-on from the start, whereas at large universities, introductory labs were often little more than tutorials or computer simulations of experiments. But because of their Congressional mandate, both programs had the goal of increasing the number of minority biomedical PhDs: MDs didn't count and PhDs in Ecology didn't count, so it left out many students and eventually we were cut off. But in 10 years, these grants had transformed the character of undergraduate education in the Division of Natural Sciences. Other opportunities came along and other faculty to lead them, so there are now several NIH and NSF programs supporting undergraduate research across the spectrum of STEM disciplines and there is the Research Corporation of UOG to help the sponsored programs with enthusiastic support. (In contrast, one administrator said to me, while signing off on a RISE grant application without reading it, "Why do we bother? It's only 8% indirect costs." How can you tell someone like that that we were doing it for the students?)

Among the infrastructure we accumulated through the RISE program was microscopy instrumentation, at first research level light microscopes, then a grant from USDOE Minority Science & Engineering Initiative Program (MSEIP) for a classroom set of 52 dissection and clinical microscopes, but eventually a scanning electron microscope as a supplement to the RISE Program with ARRA funds. By the time I reached 65, I was able to retire to the microscopy lab to pursue research on diatoms; I continue working and mentoring students in this field. The diatom project has become a legacy project because it is the only study of these algae in the tropical Pacific, and the only resident studies of diatoms in the tropics, so that the samples and preparations are now being curated as a Collection, with a capital C, under the GUAM Herbarium and the EPSCoR Biorepository Project. My goal, apart from continuing to collect and survey to seek out new life forms in inner space, is to catalog my images into a collections database so that once I'm gone others can still work on my samples, wherever they are doing tropical research. It's a massive job, but I need it to be able to mine my own data! I have named nearly 100 new species from coral reefs and have barely scratched the surface.

Photo 1: MSEIP-funded microscopy and IT tech

Photo 2: The MSEIP microscope assembly image shows me assembling the compound microscopes. Precy Baculod helped and it took us the whole Easter break to do it.

Photo 3: Microscopy lab House 28 Apr. 2011