

## CHAPTER 44

### The Catherwood Amazon River Survey: Non-scientific Memories from a Distant Past

In 2010, my granddaughter Laura Cairns Chambers joined the Peace Corps and is working in an 11,000-foot high Peruvian village not far from the village of Tingo Maria, which was where the river survey team from the Academy of Natural Sciences (ANS) began studies about 1953 of the Amazon River. The team consisted of Dr. Ruth Patrick, leader; Ms. Josephine Henry, photographer; Mr. Charles Chaplin, representative of the Catherwood Foundation, which funded the study; Ms. Yvonne Swabey, chemist/bacteriologist; Dr. Matthew Hohn, algologist; Dr. Frederick Aldrich, invertebrate zoologist; Dr. Selwyn Roback, entomologist; and me, protozoologist. Because we had a substantial amount of scientific equipment, the firm of Thomas Cook was employed to make travel arrangements and cope with customs. Drs. Patrick and Hohn carried out a preliminary survey to select study sites and make estimates of time required. Although I had seen a substantial portion of the Pacific Ocean during World War II, I had never visited South America, nor had other survey team members.

We departed Philadelphia, PA, in a Constellation, a four-engine propeller plane. (In the 1980s, I flew into the Philadelphia airport and saw the tiny, original airport – what a shock!) We changed to another Constellation in Miami, FL, and flew directly to Lima, Peru, where we spent a day or two at a hotel run by a Swiss family. An old, unpressurized DC3 took us through the mountains into a tiny airport near Tingo Maria. My left ear has always been sensitive to changes in air pressure. The plane steward gave Fred Aldrich and me instructions on how to “pop” our ears.

In the early 1950s, a road — a narrow, unpaved path through the Andes — from Lima to Tingo Maria was open. Matt Hohn rode from Lima in a truck with most of the field equipment. Hohn described a scary trip — steep drop offs with no guard rails and no places to stop the vehicle for a rest. The traffic was designated as going from Lima to Tingo Maria one day and from Tingo Maria to Lima the next day.

Tingo Maria was ideal for a base camp — it had an agricultural experiment station, modest housing, and a dining facility for visitors. However, the local people did not speak Spanish – they spoke Quechua. .

While in Tingo Maria, we heard of a man who was paying superb prices for bananas. He turned out to be Theodosius Grygorovych Dobzhansky, the famous geneticist, who was collecting wild *Drosophila* for his research. He was accompanied by a young geneticist from the University of Sao Paulo in Brazil. I had met Dr. Dobzhansky when he gave a seminar at ANS in 1947. Our paths crossed again in 1961 at Rocky Mountain Biological Laboratory in Gothic, CO, where I was teaching and Dr. Dobzhansky was collecting more wild *Drosophila*. He gave our daughter Karen, a student at the laboratory at the time, a ride behind him on his horse. She still has the picture, which she treasures.

We were fortunate that Dr. Dobzhansky had arrived at Tingo Maria shortly before our departure for Iquitos, Peru, and was able to join the survey team for a farewell dinner, consisting of roast monkey (so I was told), heart of palm, and a number of other heavily spiced dishes. I could not eat the monkey, but the heart of palm was delicious. Dr. Dobzhansky was fluent in the local language, at least by my standards, since he conversed freely with the local people.

During the stay at Tingo Maria, the village had a party for the survey team. Even though we had no common language, we all enjoyed it very much and got along well. The mayor gave a welcoming speech and Dr. Patrick expressed thanks for the celebration, each of which was translated. The high spot of the evening for me was a quartet of musicians, consisting of an Andean harp, which served as a drum (the wooden part) and two Andean flutes. Dr. Patrick bought the harp (which had a personal name) and took it back to Philadelphia. A harpist there told her it had a different harmonic scale than the local harps.

I remember very little of the area because we were all focused on the scientific study that most other things got little attention. I faintly remember the room I shared with Sam Roback in the building we slept in and the building we used as a laboratory.

Many members of the team found exciting new species in the Amazon headwaters near Tingo Maria. Frequent cries of exaltation could be heard. The many new species explain the long lag time (13 years) between collection of specimens and publication of the monograph (Patrick et al. 1966). The freshwater protozoans I studied have a cosmopolitan distribution — Charles Darwin had called attention to this characteristic many years before. The basic taxonomic keys I used were in German and French and were based on specimens collected in Europe. Since protozoans are perishable, the analyses had to be done then and there. I missed the excitement of the other team members of finding new species, but I was comforted that I could work anywhere

in the world on freshwater protozoans. Before leaving the area, I made two extra copies of all my identifications and sent them to two sites in the United States. My identifications had to be congruent in time and place with those of other team members.

When our work was finished in the Tingo Maria area, Fred Aldrich and I volunteered to fly to Iquitos with the equipment. We had to stay overnight in the village of Tarapota, while the others flew to Lima to take a direct flight to Iquitos early the next day. Fred and I stayed in a small cabin near the “airport.” That night I had an appendicitis attack and Fred came down with malaria. My recollections of events were and are dim or nonexistent. Fred found the radio operator, who raised Quito, Ecuador, and managed to converse, in German, with a former Luftwaffe pilot who promised to pick us up as soon as possible and take us to Iquitos, which had a hospital. When we arrived, Fred immediately got in touch with Dr. Patrick, who tracked down the best surgeon. I had my appendix removed almost at once.

I remained in Hospital Santa Rosa for about five days in a small room that was in a row with other rooms and opened to the outdoors. Usually, the family took care of the patient, including meals. Since I had no family there, a young woman was employed to care for me. She had probably been recommended by the surgeon because she was competent. We communicated mostly by “sign language.” Appendectomies in those days, especially in that part of Peru, were no small matter — for example, the incision was not small. However, I was young and healthy and able to go to the hotel after five days.

I never saw any of the sampling areas when the team was working in the Iquitos area, but a number of samples from each sampling area were brought to my hotel room. The room had a stable table for my microscope and chairs to hold my taxonomic books. I actually only missed doing identifications from one sampling area, so not much evidence was lost because of my appendectomy. I was still fairly weak, so sitting in the hotel room and reading taxonomic keys in German, French, and English was about all I could manage.

When time to leave for home came, I was pronounced fit for travel by the surgeon, but was advised to fly to the coast of Brazil (Beleng) and from there to the United States. Dr. Patrick kindly offered to accompany me in case I suffered a relapse. We flew from Iquitos, Peru, to Manaus, Brazil, in a Catalina — a welcome sight because it could land on either water or land, and, in those days, deforestation of the Amazon forest was minimal. At the old Brazilian “rubber capital” of Manaus, we were met by a German limnologist who knew Dr. Patrick and who escorted us to our hotel. He gave us a tour of his laboratory (impressive, especially after where we had been) and we viewed the famous Opera House. The flight to Beleng (near the mouth of the Amazon River) was uneventful.

I cannot recall any hotel in Beleng, so we must have simply transferred to a flight to the United States. By then, I was beginning to suffer from *Salmonella newporti* — probably from contaminated food or drink. I recall not wanting to leave the restroom when the plane landed. The next day, I saw my family physician for diagnosis, and the entire family was placed in quarantine for eight weeks. Daily stool samples had to be collected from each family member during the entire period. This time, at the very least, was an ordeal for Jeannie.

During my absence from home on the Amazon survey, Jeannie had to take our oldest daughter Karen to Bryn Mawr Hospital with mononucleosis. When she returned home, she had mail from me. The first letter she opened started with “I can now sit up in the hospital bed.” An earlier letter had not yet arrived, and Jeannie did not know the reason for my being in the hospital in South America. Fortunately, my delayed letter and one from Dr. Patrick arrived the next day to explain matters more fully.

Was this trip worthwhile from either a professional or a personal viewpoint? From a professional viewpoint, it did provide evidence that the structure of freshwater aquatic communities in South America was similar to communities in North America (e.g., the Savannah River), although most of the species (e.g., except protozoans) were dramatically different. Research of any kind is a high risk endeavor, and one never knows how it will turn out until a significant amount of time, and usually money, has been expended. My view of scientific research is that the journey is fascinating, although the final destination is obscure. As has often been said, most research starts with the comment “Now that’s funny!”

From a personal standpoint, the first thing I did after returning to Pennsylvania was substantially increase the amount of term life insurance on me. If anything happened on a field trip, I wanted to be confident that Jeannie had the money she would need for herself and the children.

Finally, I gave serious consideration to the type of research I would be doing when I was 50 or 60 years old. Above all, I wanted to explore new areas, such as protozoan colonization dynamics, ecotoxicology, rapid biological information systems, and ecological restoration. The unifying theme would focus on: what places ecosystems in disequilibrium and how can equilibrium be restored? This approach would require many more disciplines than were available at the Academy of Natural Sciences. However, I did not know if I could find a university that would be interested in a faculty member who carried out research in one or more areas. First, I needed to be better established professionally. This objective was no hardship since both Jeannie’s and my families lived in the Philadelphia area, and we loved our 100+ year-old gatehouse and the huge trees around it.

The Lower Merion Township schools were superb, and I could drive from Gladwynne to ANS on the newly constructed Schuylkill Expressway in 20 minutes. The family thrived where we were, and I managed to initiate some of the new research and acquire more teaching experience in preparation for the research I envisioned. In retrospect, the Amazon survey had effects on me both personally and professionally – far beyond the short time spent on it.

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