

## Biology Department: Childhood to Maturity

by Loren Potter

Talk to Biology Seminar, Oct. 28, 1999, “The Potter Years,” at the awarding to Dr. Manuel Molles, Jr. of the Loren Potter Chair of Plant Ecology (now a \$253,000 trust fund).

I recommend you read *Pueblo on the Mesa* by Dorothy Hughes for the first 50 years. Hodgkin Hall was once a redbrick schoolhouse called “The University” in 1889—twenty-three years before statehood (1912). There was not even a public high school in the territory then. The second University of New Mexico President, Clarence Herrick, was “about equally thorough, in geology, botany, zoology, mammalogy, physiology, embryology, histology, and the metaphysical subjects of psychology, philosophy, ethics and religion.” He taught classes in the *field* whether botany or philosophy. What a man!

The UNM Biology Department was established in 1913-14.

By 1951, the Biology Department had moved into Castetter Hall. There was a faculty of seven: Chairman Castetter, Dittmer, Fleck, Hoff, Koster, Humm and Johnson plus Wright Langham as a Consulting Professor and two instructors, Ivey and Simms.

The first Ph.D. was granted in 1952.

In 1955, I came from North Dakota State University on an NSF grant to study the vegetation and pollen rain into the San Augustin Plains (where colleague and major professor Paul Sears of Oberlin had a deep core for pollen analysis to reconstruct climate and vegetation of the post-Pliocene. We needed knowledge of the surrounding vegetation and distances of pollen transport to interpret the core. During this first stay at UNM, I had a temporary office at a table in the basement among some of Dr. Findley’s supplies and barrels of dermestid beetles, which were busy cleaning mammal carcasses.

The Biology faculty in 1955:

Chairman—Dr. Castetter  
Plant Morphology—Dr. Dittmer  
Physiology—Dr. Eversole  
Invertebrate Zoologist—Dr. Hoff

Vertebrate Zoologist—Dr. Koster  
Mammalogist—Dr. Findley  
Human Physiologist—Dr. Fleck  
Bacteriologist—Dr. Johnson  
Plant Taxonomist—Dr. Jackson

We sought the cooperation of the Forest and Range Experiment Station, which was housed in Marron Hall, and the U.S. Forest Service Regional Office downtown because they had the best photogrammetry files and equipment for mapping vegetation. These contacts later led to cooperation with the Forest Service Research Office in Fort Collins to form the Eisenhower Consortium for Western Environmental Forestry Research (ECWEFR), a multi-discipline, multi-university research program of nine Southwestern and southern Rocky Mountain universities. The ECWEFR funded research from 1971-82 to address environmental problems associated with forestry. I served as Vice President of Research and President of the ECWEFR for 10 years.

In 1956-57, Dr. Castetter, who ruled the department with a tight fist and easily said “no,” was promoted to Academic Vice President. UNM appointed an Acting Chairman of Biology, while searching for a new Chairman. I was interviewed, favorably, but was considered “too young” for the position.

In 1957-58, another Acting Chairman was appointed and the search continued. At the culmination of this search, I was called by Dean Wynn and asked to accept the position of Chairman. Before accepting I said, “My goodness, I must have aged a lot in one year!”

I arrived at the University of New Mexico in the summer of 1958. That’s the year the infamous cowboy politician Bruce King started his state career in the legislature. There was a faculty of nine: Dr. William Martin replaced Art Jackson in Plant Taxonomy and Dr. Gene Rypka replaced Dr. Johnson in Bacteriology.

Perhaps I was qualified as chairman. Being the father of four daughters and with a wife, I had learned “to do as I was told”—*but* also to do it in such a way as to accomplish what I thought *should* be done. Being chairman of a small department came with several advantages:

- We knew each other well;

- I could easily and quickly get a feeling on issues;
- We had few committees and ran things efficiently;
- The Chairman had more control and influence on the direction of the department's progress—if willing to put in the time and effort to do it single-handedly; e.g., Findley's dermestid beetles were crawling loose all over Castetter Hall. In response, I spent a Saturday personally plastering the closet below the stairway to confine the beetles—problem solved.

A small department also came with disadvantages:

- A few quirks could have relatively high significance in a small total vote. Did I say “quirks” or “jerks”?
- The perspective of a small department was too narrow to represent all of biology;
- The faculty had to be occupied principally with *teaching* duties;
- Research was generally rather narrow in scope, of personal interest, and done on one's own time (or overtime). There was little reaching-out and cooperation beyond limited disciplinary borders;
- There were almost no nationally sponsored research programs, except that of Dr. James Findley;
- When I arrived, I found General Biology labs being taught by Graduate Assistants with little or no instruction, preparation, or assistance to do their job. I quickly obtained permission for the appointment of Head Teaching Assistants who had experience and teaching talent, people like Clyde Jones and Gene Fleharty, to train new G.A.s, provide guidance, organize lab supplies, equipment, etc.
- In a small department it is easy to have an attitude of “comfort” and satisfaction with the “status quo”—this does not lead to *growth* and *development*;
- Contacts out of the department were quite limited—mostly with the Southwest Rocky Mountain Division of AAAS (The American Association for the Advancement of Science). In contrast, today most faculty attend meetings in their own research specialities.

### Early 1960s Research

- (1) There was an interest in the possible relation of oxygen tension to altitudinal distribution of tree species. Bacteriologist Eugene Rypka knew Warburg respirometry. I chuckle with pleasure at getting a lab scientist to go with me in winter to the top of the old chairlift at the Santa Fe Ski Area, then with snowshoes on feet and skis on back to climb through snow to 12,000 feet, where we switched to skis and sampled tree species on the way down through the timber.
- (2) In the late 1950s and through the '60s, Dr. Martin Fleck's interest in radiation biology led to one of the initial NSF AEC Radiation Biology Institutes for both high school and college teachers and eventually to both summer and academic-year programs. I became the Director to relieve Dr. Fleck of administration. There were field trips to Los Alamos via old C-47 transport planes and some trips to

White Sands. Some of the participating teachers returned for advanced degrees. Dr. William Martin and I also had an NSF Summer Institute in Plant Taxonomy and Ecology at Lawrence Ranch near Taos.

- (3) We cooperated with Fred Wendorf (School of American Research, Santa Fe) in arranging for Mr. Rounds (millionaire owner of Pot Creek Logging Mill), who wanted to make a contribution to New Mexico science and learning, to fund restoration of the ruins of the Civil War fort at Ft. Burgwin (southwest of Taos) as a center for research, seminars, and education. Dr. Martin and I planned natural landscaping and I participated in some of the seminars.
- (4) With the support of the U.S. Forest Service Regional Office, I continued my interest in Range Management and re-evaluated a large number of 25-year-old Range Exclosure Study Plots to measure the effect of protection versus grazing on a large variety of southwestern vegetation types.

In the early '60s, large enrollments meant using every available general lab in Castetter Hall every day and evening including Saturday morning, but not Friday evening. The need for Graduate Assistants increased the graduate advisement load on graduate faculty. The number of M.S. degrees reached an all-time high in 1969.

### **The Building Addition**

In 1964-65, the faculty were crowded in Castetter Hall; we needed a plan for a new facility. We needed to convince NSF and HEW of the need and the promise of the department's *teaching* and *research* programs. We planned for doubling from 12 to 24 faculty in 10 years. There was no university architect at that time. We had to get faculty agreement on fields of teaching and research for each of 12 new hires, as required for part of the NSF proposal. It was up to the Chairman to draft a floor plan, to scale, for the addition. We were required to have a schematic down to linear feet of base and wall cabinets for the entire building and the renovation of Castetter Hall, and major-equipment lists and built-in temperature chambers. Can you imagine the disagreements on *fields of study*? Can you imagine the variation in requests for equipment? Some individual requests would have used up the entire budget. Several young

faculty (William Martin and William Johnson) helped the Chairman with hundreds of hours of detailed tabulations required for the proposal.

Departmental faculty varied in their reactions to the proposal: “We’ve tried it before; it won’t work.” “It’s too big, too grandiose.” “You’ll never get that much money.”

On the other hand: “Why can’t I have more?”

My answer was always, “We won’t know unless we try.”

I was especially thankful to the younger faculty who supported the effort.

When the process was complete, I carried hand-drawn plans mounted on cardboard to Washington D.C. for presentation. In 1965, we did *not* succeed. Some older doubting faculty had a chance to say, “*I told you so.*” Not used to defeat, I went to President Tom Popejoy (almost expecting to be fired). He said, “No problem, just try again.”

In 1965-66, I resubmitted and received a matching grant from HEW and NSF, supplemented by state land sales and bonds, for a total of 2.5 million dollars.

Question: Why no (or few) windows? Between 1945 and 1955, we had a serious drought, frequent spring winds, and severe dust storms. The campus was not landscaped, and most of the grounds were barren sand. Windows were a major source of dust and a problem for temperature control and lab cleanliness. The university appointed the architectural firm of Flatow, Moore and Bryan. Mr. Flatow was a pilot, so we flew around the Southwest to get ideas. Arizona State University had built a Biology building with no departmental input. They were just given a building, with a dark interior, colored pipes down to lab tables, etc. At ASU we learned ninety-five percent of what *not* to do. Colorado College had an excellent idea, which we copied, of a chase space with utilities between the inner load-bearing walls and the outer slab, non-bearing walls. Our walls were pre-cast with styrofoam insulation on the inside of the slab and color in the poured cement to prevent peeling, which is common to plastered, cement block walls. The slabs were 9' x 32' and, at eight tons, were slightly warped, so they did not fit at the corners. In July, the contractor spot-welded at the bottom and top of the corner panels and drove wooden wedges at

the level of the ceiling of the first floor to straighten uncured slabs. With summer afternoon showers, the wooden pegs imbibed moisture and swelled. The welds broke at the top with enough pressure to blow one slab out of the southwest corner, which crashed to the ground at 4:30 p.m., shaking the ground and even the old building at the opposite northeast corner; the falling eight ton slab just missed the construction shack and workmen. “Never underestimate the power of a *lever*, of *imbibition*, or a *woman*.”

Flatow’s major contribution was including the two-story greenhouse as part of the building, so some biology was apparent within the halls. We double waterproofed the floor, and used scoria (volcanic ash) to reduce the weight load. When I told Flatow that I wanted a pool and circulating water in the display area, he shook his head, assigned a mason and said, “Go ahead.” We used lengths of ceramic water lines for a scalloped border. The plants were mostly potted, so they could be removed for fumigation or insecticide spraying. We installed chairs in labs—secretarial-types with Naugahyde seats and backs and casters—to replace the hard, wooden chairs that caused a roar of noise as they were pushed across the cement floor when classes were over. We insisted on a covered walkway connecting Biology and Geology—symbolic of their important interactions.

The equipment budget included the *number* but not the *cost* of items to be purchased from NSF funds. So, when I found we could buy Herbarium cases cheaper by the boxcar load and, considering we would need more down the road, I wanted to place an order. When I discovered that the number in a boxcar exceeded that approved by NSF, I went to University of New Mexico President Tom Popejoy and presented my case. When I finished, he reached into a lower drawer of his desk, pulled out a requisition and signed it!!! Imagine today, the committees and administration time required to get approval for a request like that!

In 1966, the Biology Department was the first Arts and Sciences department to obtain an Administrative Assistant.

I would like to donate to the departmental archives: (1) my photographic record of the major steps in the construction of the Biology Addition. Max Flatow said that it is a unique pictorial building record; (2)

photographs of Biology Department Chairmen Castetter and Potter, 1928-1972 (44 years), and UNM Presidents Tom Popejoy and Ferrel Heady taken in 1967.

**Additional Cooperative Teaching and Research Activities:**

- (1) Contacts at the Radiation Biology Institutes led to my teaching high school and college teacher institutes offered by the U.S. AID in Ranchi and Varanasi, India, in 1965 and 1968.
- (2) Previous Consulting with Professor Wright Langham led to the development of the idea that atmospheric circulation would quickly carry nuclear fallout from Russian northern atomic testing into the Arctic. Cooperating with Dr. Wayne Hansen of Los Alamos, I studied the accumulation of Cesium 137 in the Arctic tundra, while Hansen measured the radioactive body load in the Inuit population of Anaktuvuk Pass resulting from the short food chain: tundra–caribou–Inuit. Men went around talking about their count—almost in pride—*not* foolish when one considers *their culture*, which is based entirely on caribou hunting. The best hunter and provider of caribou was the high man in the village, so a high count meant the best hunter and provider.
- (3) In 1970, UNM Biology was the leader, along with Dartmouth, UCLA, and the John Muir Institute, in developing the concepts and methods for multi-discipline research programs under NSF RANN (Research Applied to National Needs). The seven-year, Lake Powell Research Project, with 16-19 subprojects in anthropology, atmospheric science, biology, economics, geology, geochemistry, geophysics, hydrology, limnology, law, medicine, political science, and sociology, was the second largest research project in the U.S. It resulted in a series of in-house publications, hundreds of scientific articles, and a summary book, *Lake Powell: Virgin Flow to Dynamo*, by myself and Charles Drake in 1989. This led to one of my greatest professional disappointments, because it was soon out of print and couldn't be republished because the marketing agent of ARA, which monopolized all outlets on Lake Powell, wouldn't distribute it there, believing "People come to Lake Powell to drink, not to read!"

(4) Since the late 1960s, I have emphasized research on: (a) *forest fire ecology* of Southwest forest ecosystems; (b) reclamation of uranium and coal mine spoils; (c) riparian ecology in the Rocky Mountains and Southwest national parks; (d) expert witness for the Department of Justice on water rights cases.

Increased space and facilities allowed for Biology Department growth, expanded teaching program, extensive research efforts with increasing cooperation with many agencies and institutions—federal, state, Medical School, and Sandia Corporation, for example. The addition, which was planned for 24 faculty by 1977, was filled with 24 by 1972 and the overflow of new faculty moved into the Biology Annex, previously the School of Pharmacy. The activity and reputation of the Department was increased by hosting some national meetings, e.g., Directors of Radiation Biology, Nuclear Technical Institutes, the Southwest Division of the American Association for the Advancement of Science (AAAS), American Society of Mammalogy, and a Symposium on Physiological Systems in Semi-Arid Environments.

The last mentioned meeting coincided with a Danforth Foundation Review of the Biology Department's teaching and research programs. The review team recognized the need for teaching within the department to be as modern and thorough as possible but, because of limited state funding, they suggested that the Biology Department would be unable to excel in all specialties at the graduate level. They recommended that the principal expertise at the graduate level should maximize the unique environmental advantages of New Mexico. The sharp increase in ecological faculty, research programs, and M.S. and Ph.D. degrees in the late '60s and throughout the '70s, especially during Dr. Cliff Crawford's chairmanship, followed this guidance.

The advantage of our natural resources was used to attract good field scientists. For example, I remember well taking Dr. James Gosz to Sandia Crest and pointing out all of the advantages for a forest ecologist here in New Mexico.

I am certainly proud of the Biology Department: of its diverse growth, its expanded horizons and extensive cooperative research efforts in the service of many, for example, Drs. Jim Gosz, Terry Yates

and Cliff Dahm, at the Washington D.C. office of NSF providing invaluable contacts and increased reputation for UNM Biology, and the intra- and extra-departmental cooperation of the varied faculty in genetics, physiology, etc. These are true signs of maturity.

Time and my ignorance of recent events and science do not allow me to mention all deserving faculty and programs. For further details, I recommend that you read Dr. Duszynski's *History of the Department*.

So, I had better close, *but* not before sounding two alarm bells.

- (1) Never sell excellence of teaching short, because it cannot be measured as objectively as money or the number of research publications. We need the best of teaching skills, especially at lower undergraduate levels.
- (2) As an ecologist, I and many others, are concerned about the decrease in field courses providing “on the ground”—“in the hand”—experience as part of the educational process. The *computer* is *no* substitute! My students have confirmed that regular field trips and on-the-site education were the most valuable of their educational experiences. The ultimate was a 21-day field trip covering all major vegetational types and climates of the western U.S. combined with intense learning in the field. During the trip, lectures by Dr. Martin and myself were delivered to the vans via CB radios en route, with camping duties shared by the members of the class.

Dr. Manuel Molles' teaching, research, attitudes, and writing surely meet my high expectations, and I am *most* proud and most pleased that he will occupy the *Potter Chair of Plant Ecology*.

Amen, thank you, and I shall now ride off into the sunset. I am ready to retire from retirement.