Personal Recollections of Frederick C. Leonard

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Anyone with an interest in meteorites either as a collector or researcher knows the name, Frederick Charles Leonard (1896 - 1960). Leonard was an academically trained astrophysicist, receiving his Ph.D. in astronomy from the University of California at Berkeley in 1921. As a promising young astrophysicist, there was not the slightest hint that he held any interest in meteorites. Yet, meteoritics was to totally consume him in his future. Ten years after he accepted a teaching appointment in the Mathematics Department at UCLA he would organize UCLA's Department of Astronomy. Leonard's exceptional organizational skills would come to bear two years later by founding The Society for Research on Meteorites, the first name of the Meteoritical Society. In 1933 he would become its first president and would carry the task of Editor of the Society's journal for the next 25 years. As a former student of Frederick C. Leonard, I would like to share some remembrances of this extraordinary man.

I was delighted when, as a result of my recently published book, *Rocks from Space*, Dr. Alan Rubin invited me to come to UCLA to see the Leonard Collection of meteorites. The last time I had seen the collection was 35 years earlier when I was a student of meteoritics under the watchful eye of Dr. Frederick C. Leonard. In my book I had made many personal references to Leonard which were not lost on Dr. Rubin or Dr. John Wasson. These two "next generation" meteoriticists were waiting for me in the fourth story hallway of the Geophysics Building when I arrived. Their friendly informal greeting placed me at ease immediately and almost at once our conversation turned to Leonard. Wasson in particular was curious and intrigued by my association with Leonard. Neither had ever met the man. Wasson confessed that he knew little about him, even though the Leonard collection was housed on this very floor. Everyone in the Meteoritical Society certainly knew Leonard as its founder. The Society's Leonard Medal, given to outstanding meteorite researchers, is a constant reminder of his presence. Dr. Ursula Marvin's masterful paper on the history of the Meteoritical Society published in *Meteoritics* (1993) was loaded with references to Leonard in the early days of the Society. But, as Wasson related, the human part of Leonard was missing.

Who was Frederick C. Leonard, the man? As one who knew Leonard personally, studied under him, was his teaching assistant, traveling companion, music teacher to his then young sons, I had known Leonard beyond his role as a professor of astronomy. I immediately felt a need, almost a duty, to write down my impressions of Frederick Leonard for the history books. Such an article would of necessity be personal in nature, and would reveal a personality rather different from the stereotype many have imagined. Our curiosity is aroused when we read biographies of historic figures. We know what they did publicly and professionally, but what they were like as human beings in private often alludes us. Wasson had heard from many that Leonard was a memorable professor, but he could find nothing in the scientific literature nor in the annals of UCLA that seemed to qualify him to occupy the highest meteoritical pedestal.

I spent a delightful afternoon studying the collection. As Rubin pulled out meteorite after meteorite, I was like a kid in a candy shop, savoring the shape and form and unique internal structure of each. Already I had broken the rules that had constrained the collection in Leonard's day. Look, but don't touch. To Leonard, the meteorite collection was something sacred, almost spiritual. But now the Leonard collection was that in name only. This was not Leonard's collection. It had grown far beyond those limits. After an exhausting couple of hours I took my leave of that magical place, but leaving with me was a determination to record the personality of the Meteoritical Society's founder as accurately as my memory would allow.

H. H. Nininger captured the essence of Leonard admirably in his autobiography, *Find a Falling Star*, during the recovery of the Goose Lake meteorite:

Leonard had shed most of his academic dignity by this time. When we came in sight of the big iron the pudgy little professor ran on ahead, placing his hands lovingly on the great meteorite, bent and kissed it. Then he lifted his hands skyward and turned to face us. "This is the greatest day in meteoric astronomy!"

I first met Leonard as a student in his Astronomy 4 class in the Fall, 1957. He was then 61 years old. There he was behind the rostrum, dressed in a gray double-breasted suit with a neat bow tie. This attire was one of his trademarks. He was short, most of his students towered over him with his rotund physique and rounded facial features. He immediately reminded me of a "pudgy little professor" straight out of some
fictional ivy-covered university tucked away in a Heidelberg-like mythical

town. (I used to refer to him as my Heidelberg professor, secretly, of course). He exuded an aura of great dignity and authority. The demands he placed on his students fit the picture of a nineteenth century European science professor. Attention to detail and a fetish for accuracy, especially in the written word, was another of his trademarks. This was especially true when he defined scientific terms in meteoritics. I still remember his definition of a meteorite which we had to commit to memory and regurgitate without error at exam time:

"A meteorite is a body of subplanetary mass that is either in space or has come therefrom, is falling or has fallen onto the Earth or some other astronomical body and still retains its essential cosmic character."

One word out of place would earn you a minus five points! Those who wish a display of Leonard's fetish for the written word in meteoritics need only read the lead article in Contributions of the Society for Research on Meteorites issued January, 1938. This trait, though laborious to his students, was also rather endearing. He was so "old fashioned" that he was a constant source of amusement to his students, who often mimicked him playfully.

In 1959, as his teaching assistant, I wrote my first article entitled, "The Barringer Meteorite Crater", intended for publication in the Griffith Observer, a popular magazine of the Griffith Observatory. Leonard offered to read what I thought was the final proof. It wasn't. He thoroughly dissected the work. My neatly prepared text fell under the knife of the master editor. The article that resulted was so far removed from the original that Leonard, with an amused twinkle in his eye, claimed co-authorship and brazenly signed the article above my name.

Leonard did not prosper in the Mathematics Department at UCLA. Mathematics was definitely not his first love. Early in his career he discovered his passion for meteorites and apparently demonstrated this openly to his colleagues. They were less than enthusiastic about this esoteric subject and met his enthusiasm with the comment:

"...in private one may have a mistress, Frederick, but when in public he had better be seen with his wife."

Leonard's interest in meteorites was shared by few if any at UCLA at this time. It is no wonder that he longed for his own Department of Astronomy where the freedom to explore this passion would, he thought, be undaunted. In this he was never rewarded. He formed the Department of Astron-omy in 1932 but remained isolated and alone in meteoritics, a rocky island in a sea of

astrophysicists. He was misunderstood and unappreciated by his colleagues throughout his academic career.

Perhaps it was this isolation that made Leonard especially fond of those rare students who showed an aptitude for and love of meteorites. There were three of us in the Department of Astronomy who were allowed to get close to him, to sit at the feet of the master, so to speak. I was one of the fortunate three. Ronald N. Hartman and Ronald A. Oriti were the others. To this day, we all still retain a passion for meteorites inspired by FCL.

Leonard would watch over us on a daily basis. I would be walking by his office on my way to class when, with some gravity in his voice, he would command, "Dick! Come into my office and close the door behind you!" I would enter reluctantly, waiting for God knows what, but his demeanor would immediately change. With that ever present twinkle in his eye he would query, "What's on your alleged mind today, Dick?" Funny, but I never did figure out just what he meant by "alleged" mind until long after he passed away. He was a father figure to me at those times. He'd want to know which of us was dating a Miss Godecker and insisted on keeping abreast of the latest developments in our social lives, what there was of it.

Leonard was a very sensitive human being. He always seemed to be aware of the daily trials of his three "prize" students. Like most students, I needed to earn my college education, so I managed four different part time jobs to pay my way. One was teaching piano. Among my half-dozen students were the Leonard boys, Roderick and Frederick. I would give lessons at their home on a weekly basis, and Leonard would usually arrive home while the lessons were in progress. Afterward he would often invite me to stay for dinner (he knew I didn't eat regularly in those days). It was on one of those occasions that Leonard introduced me to the wonderful world of dry sherry, taken like medicine just prior to dinner. I still follow that ritual today.

At one of these welcome dinners, Rhoda Leonard related a story that soon topped my growing list of Leonard memories. Leonard had earned his doctorate in 1921 and within the year accepted a position teaching Astronomy and Mathematics in the Mathematics Department at UCLA. (There was no astronomy
department at the time). Leonard was very proud of his doctorate, which he displayed at every opportunity. He had a rubber stamp made with his name and title boldly displayed, thus: "Frederick C. Leonard, Ph.D." It seemed that every piece of paper that crossed his desk became subject to the rubber stamp in lieu of his signature. His students quickly became aware of FCL's proudest

possession. The rubber stamp occupied a prominent place in his desk drawer and he was often seen retrieving it for stamping student paperwork that required his signature. One evening some unidentified students(?) entered his unlocked office, found the rubber stamp and, with a sharp knife, skillfully removed the "Ph.D." The next morning when Leonard arrived at his office and began his duties, he reached for his stamp and discovered the heinous deed. With a red face and great agitation he quickly rounded his desk and stepped out into the foyer where the department secretary and several of his colleagues heard him cry:

"Someone got into my drawers last night while I was sleeping and cut off my Ph.D.!"

The perpetrator was never found. Eventually a new stamp was made and it became resident in a now locked desk drawer. Only those closest to him, namely his assistants, were given the privilege of using this second generation stamp but with the provision that it be returned to its proper place.

Leonard as a teacher of astronomy was a phenomenon not easily forgotten. He was a tough grader. An "A" required that all papers receive a minimum of 95%. He was meticulous to the point of being pedantic. His teaching assistants were trained in the art of grading papers, Leonard style. All "Ts" were crossed, all "Is" dotted. A perfect paper was just that, perfect in all respects. Good English and grammar held equal weight with the science. It is curious that although he was trained in mathematics, he personally disliked it. He tended to avoid using all but the most essential mathematical manipulations and would often make derogatory comments when confronted with equations with unmanageable exponents such as Planck's black body equation. (One wonders what Leonard would say about modern scientific calculators). He was an astronomer in credentials only. In the beginning, he taught lower and upper division elementary astronomy courses and was the only one who taught Astronomy 4, Spherical Astronomy. He taught Astronomy 102, an upper division course in Stellar Astronomy, but was relieved of that responsibility when the young George Abell, brimming with enthusiasm, joined the staff in 1957.

Leonard lost touch with the rapidly growing field of astrophysics. He remained a 1930s classical astronomer. He tended to be rigid in his beliefs, something many of us suffer from as we age. He could not believe the rumor that soon an artificial satellite would be launched into Earth orbit. When Sputnik was successfully launched (we could clearly see it at dusk passing over the observatory domes on the campus) still Leonard could not see the future. He could never accept the idea of human beings in orbit. He died nearly a year

before Yuri Gagarin's orbital flight. He could not know that the space program would help to raise meteoritics to a legitimate science.

...to be continued.