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My biological father and my scientific great-grandfather: growing up with Gunny

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I first came to know Gunny at my birth on the morning of August 24, 1947. That event was not particularly unusual or noteworthy since there were already three children from my father's marriage to my mother, Merle Lamont Gunsalus (Gene, Glen, and Ann). In hindsight, my birth was most special as it provided me with a fraternal twin brother, Richard, who was my compatriot in the childhood duties of growing up and, on a few occasions, in some less than completely honorable deeds. There would be another two children to follow in Gunny's second marriage to Carol Faust Gunsalus (Tina and Kris). This rounded out the Gunsalus Clan, or F-1's, as Gunny fondly referred to us. Together, we children experienced the world according to Gunny, a rich and sometimes turbulent process that instilled a viewpoint and an approach that was, at times, exhilarating and, at other times, difficult, as it often went against our own agenda and feelings. However, I digress to recount some of my experiences as a preteen member of the Gunsalus Clan and the larger "Gunsali Super-Family" in Urbana.

Besides the immediate members of the Gunsalus clan was the aforementioned extended Gunsali Super-Family. This interesting mix of "town and gown" townspeople consisted of assorted faculty members of the Biochemistry Department of the University of Illinois, a cross section of the campus undergraduate, graduate, and postgraduate students, an interesting assemblage of neighborhood musicians, artists, academics, restaurateurs, others not as easily categorized, and visiting scientists that were continually passing through Urbana.

From the perspective of a young household member, these individuals provided an exposure to diverse ideas and viewpoints. Many summer afternoons at the Race Street house found an informal collection of neighbors and Super-Family members on the screened back porch discussing some aspect of life, ranging from science and art to the local politics of the university. These included the Frauenfelders, Debruners, dePasqualis, Woostmans, Managos, Hastings, Statdmans, Bert Vallee, Sho Sato, Martha Erlanger, and many others. The South Race Street house neighbors included the coach of the university gymnastics team and the musically oriented Zernner and Thomas families.

As a preteen in the Gunny household, I was amazed by the number of visiting scientists continually passing through Urbana either on the way to or coming from some nearby scientific event. Herein, I learned the distinction of the term "nearby" as applied to the local A&P grocery store, versus what was called a "nearby" meeting that might range from somewhere upstate like Chicago or New York. In hindsight, I realize that once a foreign scientist reached as far as New York or Washington, DC, Urbana was considered to be within realistic travel distance because it was on the same page of the USA map.

By the 1950's Gunny's preferred mode of travel in and out of Urbana was by Ozark Airlines via the U of I Willard Airport. One particularly fond memory from childhood was the nearly weekly trip to the airport to "check-in" or "reclaim" Gunny. After we arrived at the airport, a quick inquiry at the Ozark desk would reveal if the plane was on time. Such a trip would allow us to explore the hangars and airport environs while we waited. Since the Ozark DC-3 pilots flew by visual flight rules in those days, a seemingly large fraction of the Gunny "reclaim" trips ended in a delayed bus trip from Decatur or Bloomington to Urbana due to overcast skies. At the airport, we would patiently scan the skies for any break in the clouds that would permit the plane to descend and land. The sound of the approaching twin

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DC-3 engines somewhere above the clouds would indicate its imminent arrival. If they began buzzing in a circle, the wait began. If the engine sounds then proceeded to gradually disappear into the distance, we could then concede that Gunny was going to be home late by bus.

Gunny's alternative mode of travel was the Illinois Central Railroad. The City of New Orleans, plus many additional trains, stopped in Urbana on the various routes between Chicago, New Orleans, and more distant destinations. However, for some reason, this mode of travel never seemed to be very high on Gunny's list of options. In contrast, trains were the preferred mode of travel for many of the visiting scientists, especially those from Europe. It was much easier to guess that a trip to the train station meant the arrival of a foreign traveler.

Trips with Gunny to the Champaign IC-station on Front Street were always eagerly anticipated and valued. It afforded us the opportunity to flatten pennies, an activity that always caused some hesitation since it necessitated standing on the railroad tracks with a train approaching. However, the subsequent wait for the train to finally appear seemed endless. When it finally stopped, a cheerful foreign visitor would emerge, followed by a rapid exchange of greetings. Within the next several minutes, the discourse often evolved into a rapid exchange of recent developments in each person's area of research. By this time, we children were lost in the wait for the train to depart so we could retrieve the flattened coins (often still warm).

We children were proud of the fact that our father was a scientist [1,2]. He exposed us to a continual stream of interesting people with their accents and stories from around the world. This extended Gunsali Super-Family of friends and colleagues seemed perfectly natural. I am sure it had a far-reaching influence on my subsequent view of the world (at least as scientists live). One notable example was the Manago branch of the clan from France. Even if I did not always manage to interpret their heavy French accents, the love and excitement of life beamed through to all.

My early recollections of summer visits to Urbana were marked by the excitement of the annual Fourth of July parade on Green Street in Urbana followed by the evening fireworks display in the Illini Memorial Football Stadium. Transit to or from these events was usually accompanied by a side trip to the lab in Noyes Hall and, in later years, to the new Roger Adams Labs across the street. This allowed Gunny to "check up" on the day's progress at the laboratory. What were the outcomes of the planned experiments? What did the preliminary data suggest? The excitement of science in action was easily sensed. However, from the perspective of the "untrained" observer waiting for transit to the primary trip destination, the mentor/student discussions often went on for far too long.

One of the fortunate aspects of these side trips to campus was the option to inspect the lab. Rich and I would check out the assembled array of test tubes, flasks, distillation units, descending chromatography tanks, triple-beam balances, the Warburg, and the knobs on the Beckman DU. Many smaller items seemed to be arranged in random order on the benches where the pipettes were usually perched about half way over the edge. I was never sure why something so fragile was continually treated in this fashion, as I would never get away with a similar action in the kitchen at home. A subsequent inspection of the lab drawers usually revealed some new and interesting item of glassware that would then require a detailed explanation from Gunny regarding its purpose. When strange odors emanated from the lab benches and fume hoods, it was the automatic warning that we not explore too closely. I especially admired the large glass paper chromatography chambers in the hoods where we inspected the location of the descending solvent front. The Warburg apparatus, when in gyration mode, was often the scene of animated discussions as the data were periodically collected and plotted in live time action. Even though Richard and I did not understand much of the mentor/student scientific banter, it was somehow exciting for young boys 9–12 years old because it was clear that the adults were for the most part happy and enjoying themselves in their endeavors. The lab was a fascinating environs!

Richard and I often served as golf caddies for Gunny and his cohorts as they discussed Biochemistry Department matters at the U of I golf course. This allowed us the opportunity to search for and collect lost golf balls, which was much more fun than pulling the big heavy golf bags around and listening to the golfers talk (i.e., L. Hagar, J. Clark, R. Smith, and A. Manago). Likewise, our assigned task in the autumn was to walk the cornfield rows to flush pheasants up for Gunny and his hunter friends. Rich and I eagerly did this, as it also allowed us to search for "Indian corn," which we hauled home by the bushel. During these outings, I also acquired a large collection of prairie agates.

Some things I learned about Gunny he never told me when I was young. Gunny was an Eagle Scout as a youth in Brookings, South Dakota. He worked several summers as a lifeguard on the Big Sioux River nearby Volga about 7 miles west of Brookings. Many years later, I attended the Brookings Monday Rotary Club Meeting as the local high school rep. A Rotary member later approached me and asked me if I knew an Irwin C. Gunsalus? I said I did. He related that Irwin had saved his life and several others from drowning in the Big Sioux in the summers of the mid-1920s. Many years later, Gunny related stories of his youth, including seeing Native Americans wandering on the prairie and

asking for handouts. This was the sad ending of a nomadic era on the Great Plains. Gunny also described his experiences of watching and sometimes helping his father cut the virgin Dakota prairie sod by steam tractor in order to plant flax. These stories drove home the point that my worldly existence was and is based mostly on the European wave of immigration to the New World. For much of South Dakota, the influx was a little over 100 years ago.

Experiments that I recall helping Gunny with are mostly related to his research with *Pseudomonas*. The exception was the proud demonstration to some of his visiting university cohorts that vinegar added to bicarbonate generates excessive bubbles. Gunny would compliment me on being able to maintain a controlled chemical reaction and I got the point. This demonstration later garnered mock surprise among Gunny's students at the weekly lab seminar on screened back porch at the Race Street house. Richard and I were assigned the task of setting up for the evening talks by arranging chairs and transporting the heavy blackboard from the furnace room. I was unable to understand the language of the ensuing talks and usually fell asleep. However, the bold blackboard drawings lived into the next day when we returned the various items to the furnace room until the next week. Other notable experiments included digging a deep hole in the back lot of the Race Street house that established that the local water table was at minus 4 feet. More serious endeavors included volunteer work in the biochemistry department stock room and preparing bacterial culture media. It was very difficult work to fill the petri dishes from the large Erlenmeyer flasks and keep everything sterile.

One memorable summer project was the camphor-plant farm project. My limited understanding of the situation was that Gunny needed substrates for his new microbial research project at the university. He had purchased an empty lot behind the house that for many years was maintained as a lawn play area, so as not to upset the neighbors. In one stroke, Gunny rented a tractor and plowed the lot from edge to edge. All available family members were recruited to bust dirt clods and plant *Mentha spicata* for their aroma compounds. Somewhat later, I recall trips to the Roger Adams Lab to evaluate the progress of extracting plant tissues for the intended experimental needs. Thereafter, I lost track of the activities except for the multitude of camphor-containing petri plates. A solution of camphor was smeared on the dish lid, since it was not water-soluble. Diffusion of the substrate to the mineral medium below supported growth of the microbes. Many years later in my introductory biochemistry class at college, I learned the reaction mechanism of camphor ring cleavage by the *Pseudomonas putida* P-450 hydroxylase. Now that offered a really interesting view of a project that went from the very beginnings of the exploratory phase and on through to the molecular and atomic description of the reactions over the next 15 years! How else might it happen with Gunny?

References

[1] N. Ornsten, S.G. Sligar (Eds.), Experiences in Biochemical Perception, Academic Press, New York, 1982.
[2] I.C. Gunsalus, Learning, Annu. Rev. Microbiol. 38 (1984) XIII–XLIII.