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Review

Lessons learned from a novel calcium-channel protagonist and person



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ABSTRACT

A long time ago (circa 1976), David C. Triggle was Chair of the Department of Biochemical Pharmacology at S.U.N.Y. Buffalo where he led the faculty and staff in the education and mentoring of countless pharmacy and graduate students who passed through the hallowed halls of the University. Trained as a chemist, David spent his days synthesizing new and improved calcium channel blockers in a cramped, makeshift organic chemistry lab while a lab full of aspiring pharmacologists measured their effects on contractile responses of various smooth muscle preparations. I was a graduate student fortunate enough to land in David's laboratory, and thanks to him, I successfully navigated out with a Ph.D. in hand. That being said, his influence was less through his role as thesis advisor and more by the example he set in his simple, everyday life in Buffalo, N.Y: his love for – and dedication to – his family, his concern for the environment and his health, his perseverance in that tiny organic chemistry closet, his command of the English language, his unbridled honesty and cynicism, and his quiet pursuit of excellence. This article chronicles student life during that particular time period and provides a glimpse into David's unique personality and lifestyle that made him a role model to me and others. Interwoven is my own circuitous career path both before and after leaving S.U.N.Y. Buffalo that culminated in a productive career at the opposite end of the drug development process from where it all started in pharmacology.

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1. Introduction

Although this article does not meet the traditional standards for a 'Festschrift', i.e., *scholarly* contribution to the field, I am honored to add to this collection celebrating the life of David C. Triggle. Other pieces in this special issue will detail David's illustrious career and his many accomplishments as a chemist, pharmacologist, writer, teacher and ethicist. This tribute focuses on less tangible qualities that do not typically hit the accolade button, the simple manner by which he conducted himself in everyday life.

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When these qualities are viewed in the context of his remarkable achievements as a scientist, thinker and educator, the portrait is transformed into one of a rare and remarkable human being.

2. Time period: 1976–1982; location: Buffalo, New York

I arrived in Buffalo in August of 1976, eager to begin graduate studies in the Department of Biochemical Pharmacology (BCP, for short) in the Pharmacy School at S.U.N.Y. Buffalo where David (Dr. Triggle) was Department Chair. It would be more apt to say that I returned to Buffalo having been born and raised there. I had traveled eastward across the state to attend college in Albany, N.Y., and after graduating with a chemistry degree, quickly traveled as far west as possible with hopes of landing a lucrative job making chemicals, I suppose. Actually, I did not have a plan (or a resume); I

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was just thrilled to have fulfilled the obligation that was due my parents and to have made it out of college. After arriving with a dime in my pocket, it turned out to be a very interesting and challenging year in San Francisco. Midway through a series of minimum and sub-minimum wage jobs I began pondering, "Is there something more I can do with my chemistry degree?" It was the 70s, the economy was lackluster and as fall turned into winter, I reluctantly found myself considering returning to school, combing university catalogs at the library for a subject that had the potential to hold my interest long enough to complete a program and that might have more practical applications in the workforce than chemistry. One field called 'pharmacology' caught my attention and I applied to several programs across the country and was admitted to one at S.U.N.Y. Buffalo. I debated with myself a long time about whether to return to school and to Buffalo, but in the end, the unpleasant 9-5 job I held blending barium suspensions for a malevolent radiologist wore me down. Not to mention that the acceptance came with a N.Y. State-sponsored fellowship that included a waiver of tuition (something ridiculous at the time, like \$600 per semester) along with a small stipend (\$300 per month) that was sufficient, with careful planning, to support life in Buffalo.

With David at the helm, I, along with about nine others, arrived on campus ready to take on the brave new world of BCP, completely ignorant (perhaps I speak only of myself) of what we had gotten ourselves into. Our class was unusually large that year (was there a shortage of biochemical pharmacologists in N.Y. State?). There were also three or four veteran graduate students who became unintentional beacons in the tunnel, serving as a constant reminder of the long and winding road ahead. Completing the motley crew that had become our new reality show was the faculty of six or seven, some tenured professors, some not. The first two years consisted mainly of coursework in pharmacology, physiology, biochemistry, pharmaceutics, chemotherapy, and a light dabbling in the research laboratory of our choosing. By the end of the second year, after passing the dreaded preliminary exam, our class had been whittled down to five and my two female comrades had taken their leave with masters degrees. It was time to settle on a laboratory in which to conduct the Ph.D. thesis work, I confidently chose to work with a non-tenured faculty member who was a brilliant lecturer and whose CNS research captured my interest. Most of my classmates wisely chose to work in David's lab, stringing up various smooth muscle preparations and recording their twitches and contractions in response to compounds procured or made by David. Given that CNS work deals with the output of a complex interplay across the synapses and gray matter, live animals were required and it was the white mouse that became my research subject and partner in crime for years to come.

It being Buffalo and a university after all, it was not 'all work and no play.' In our spare time, there were many social activities, the B. Y.O.B. (bring your own beer) get-togethers with fellow students from neighboring departments, picnics, potlucks, parties, and ski trips that helped us to survive the educational experience, not to mention the long winters and occasional blizzard. In the summers, brief as they were, there was the co-ed softball league for which graduate students and significant others were recruited, and the BCP Department hosted the creatively, yet not-so-aptly named team, 'The Lethal Doses.'

The picture of graduate student life would not be complete without mentioning the simple, low-tech era in which we labored; we had none of the following: computers, internet, email, cell phones, voice mail message or television recorders (not even VHS tapes), microwaves, digital cameras or digital anything for that matter, video games (there may have been an arcade version of Pac-Man), yet alone webcasts, streaming, Tweeting, Facebook, going viral, etc. Our social media was restricted to face-to-face

interactions and sometimes - a phone call. To review published literature reports, one had to physically go to the library, locate the journal and the extraordinarily large and heavy volume of interest, haul it off the shelf, and possibly make a photocopy if it turned out to be sufficiently relevant (usually it was not), in order to read the details of the elegant research studies that had preceded our own. Also, typing reports required the assistance of someone who actually knew how to type, or required the purchase of much 'white-out' (this is the paint-like material that comes in a tiny container with a brush and allows you to erase 'typos' to avoid having to retype the whole page on a new piece of paper). It may be difficult to imagine, but due to the pre-laptop age, there was no PowerPoint. This is noteworthy because making illustrations for presentations or written documents required the services of a living, flesh and blood artist to whom you would explain what you were trying to show with your data and who would magically transform it into a thing of beauty on a photographic slide, but costing some money and taking several weeks because there was only one artist illustrating for the whole building of researchers. Our presentations were restricted to using these slides with a 'carousel projector' that rarely managed to successfully fulfill its duties, either jamming or losing its light source mid-presentation; and the hand drawings or photocopies projected with an 'overhead projector' that also suffered from light source failures.

3. Portrait of David C. Triggle, Ph.D.: my accidental role model

Given that the whole graduate school experience was like walking into another dimension. I do not remember the first time I met David. There probably was a reception with beer (it was Buffalo after all) and snacks to welcome the incoming graduate students, allowing us to meet the faculty and our fellow students, newly entering and old-timers. The first recollection I have of David is listening to his lecture series in the year-long, basic pharmacology class that was required of us all. The faculty split the course lectures based on their research interests and David provided the introduction to pharmacology, lecturing with a British accent on the basics of the autonomic and sympathetic nervous systems, drug-receptor interactions, the various categories of agonists and antagonists, dose-response curves, and all that. He likely entered the lecture hall nonchalantly with rumpled hair (a common theme even through today, I surmise from photos) and spectacles, looking much like the absent-minded professor that he was not. His lecture would have been spectacular in its simplicity and clarity, mesmerizing us all with the world of pharmacology that he knew and loved so much. The lecture was always impressively organized, with illustrations (overhead projector) when needed, and just enough humor and sarcasm to give you some insight into the man behind the podium.

On a typical non-winter day, David would ride to campus on his bicycle, and when not lecturing, would spend most of the day in his office where he would read and write, likely considering the next calcium interfacing molecule to synthesize, with brief and frequent forays into his organic chemistry lab (a closet-like room that was overflowing with glassware and fuming vessels percolating away) to check on his creations, occasionally meandering to the biological laboratory where his graduate students were busy dissecting or monitoring their experiments in the organ baths. I was not aware of what he was synthesizing in the chemistry lab, but by this point in history, he had become focused on the different classes of calcium channel antagonists, their tissue specificities and was likely deciphering structure-activity relationships and designing new molecules with different properties. David investigated the actions of compounds from at least one pharmaceutical sponsor and he also synthesized new ones to be tested on smooth muscle preparations by his students who performed the endless

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