Potpourri and lagniappe from a comparative theriogenologist

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“There is no security in life, only opportunity”.
- General Douglas MacArthur

“Our great fear is not that we are powerless, but that we are powerful beyond measure”.
- Nelson Mandela

Introduction

It is with sincere humility and a deep sense of appreciation that I accept this most prestigious award, the 2005 Dave E. Bartlett Award. I do this with the realization that many individuals have played important roles in my life and my career, have contributed to my success, and I also accept this award on their behalf.

It is not unusual to be away from my office for a couple of hours and return to see a blinking red button on my telephone signifying many incoming calls. It was no different a number of months ago. I was lumbering through these messages when I was struck by one from Dr. Charles Franz, Society for Theriogenology, Alabama. My first question was: are my dues not paid? I thought I did! In fact, I knew I did, since I have a very proficient and astute partner (my wife, Sonja) who handles all the business affairs of our enterprise. My second question was: am I being requested to serve on a committee? Either way, my impression was that it is fairly important to return this call as soon as possible. Surprised, overwhelmed, flattered, humbled, and ecstatic could best describe the sudden emotional rollercoaster on hearing that I was chosen to be the 22nd recipient of the Dave E. Bartlett Award! After all, I knew what this meant, and I have always recognized the prestigious nature of this award. It seemed even more special considering my “Minnesota connection”.

Almost immediately, I rushed home to tell Sonja the good news. After a huge congratulatory hug and kiss, she said: “You accepted it, didn’t you?” The obvious answer was “Yes”; but, I have to prepare a paper for presentation at the theriogenology meeting in August, and considering all we have to accomplish right now there does not seem to be much time for preparation”. “You can do it, and I will help”, she responded. These were familiar words, ones that have echoed throughout our relationship during the past 40 years. So, at this point, I would like to recognize her; truly, “the wind beneath my wings”.

The most difficult part of this presentation was choosing a topic and a proper title. Having the privilege of reading the presentations of the previous 21 recipients, I noticed that they all contained aspects of changes in society, in veterinary medicine, and forecasts for the future of theriogenology. In addition, they all gave some form of advice. The latter reminded me of the story I once heard about someone who wrote a biography of Socrates. It was very brief and consisted of three sentences: i) Socrates was an old Greek man; ii) he gave advice; iii) they killed him! Therefore, I will refrain from giving any advice, lest I am beset with the same fate!

I have decided to be personal. However, I once read that “people ignore what you say. They are only concerned with what you do.” Consequently, I have decided to present a few of my experiences and accomplishments encompassed in the journey which has led me here today to be the 22nd recipient of this most prestigious award. Also, I would like to briefly mention a few current issues/challenges which I think will influence the future direction of the SFT/ACT, and probably the entire veterinary profession.

With this in mind, I chose the title: “Potpourri and lagniappe from a comparative theriogenologist”. The definition of potpourri (po poo re’) is: a “mixture of dried petals of roses or other flowers with spices kept in a jar for their fragrance”. Although my experiences and accomplishments have not always been “roses”, I must admit that what I do certainly generates a special fragrance! The definition of lagniappe (lanyap’, lan’yap) is: something given with a purchase to a customer by way of compliment or for good measure”; “something additional”. My lagniappe will consist of a few issues which I think will have a dramatic impact on the future of SFT/ACT, and probably the entire veterinary profession. “Comparative”: I am multi-species oriented, and have used several “disciplines” in the whole arena of animal reproduction. “Theriogenologist”: I guess we are still trying to define what this is!!

Potpourri (“a mixture of “…..)

I was born in Trinidad, West Indies, youngest of eight children (six boys and 2 girls). My father was a Magistrate/Judge, and his brother was a Queens Counsel, one of the highest ranks in the British judicial system. They were both from an urban background. One of my aunts was involved in politics and held the position of Mayor on numerous occasions in the city in which we lived. She was also knighted as a member of the British Empire (O.B.E). My mother came from a pastoral heritage in which animals (mainly the horse) predominated, and I was raised in the city, minutes away from the Caribbean Sea, where palm and coconut trees abounded. From my earliest childhood I realized that education and the attainment of a professional career were important intrinsic values in our household.

The two most revered professions during my childhood were Medicine (human) and Law. Although the single most economic commodity was oil, the acquisition of professional careers in petroleum/chemical engineering was not as really sought as were those in Medicine and Law. Land-based agriculture was more popular than animal-based agriculture, and any interest in Veterinary Medicine was relatively low. It was a major surprise, and probably one of disappointment to everyone, when I made the choice to
pursue veterinary medicine as a professional career since it was expected that I would be either a Physician or a Lawyer. The circumstances and the reasons for making this decision are still somewhat vague. I did not have any role models in the veterinary profession, or any extensive experience in this area. I did have a cursory knowledge of what the profession demands, and what were some of the rewards of this profession.

“Boldness has genius, power and magic in it.”

-Goethe

Armed with a dream, and the commitment to make this dream a reality, I set off to Canada! This was a major step and challenge for me. Not only was it the first time I was away from home, but the environment (culturally and geographically) was different, and as I later discovered, the 8 months of winter were totally different than the corresponding 8 months in Trinidad!

Montreal was my first stop since I had friends there. I subsequently enrolled in Sir George Williams College to complete a bachelor’s degree in biology to be competitive for admission to the veterinary program at the Ontario Veterinary College (OVC) in Guelph, which was under the administration of the University of Toronto. The following year I was admitted to the 5-year DVM program at OVC. Almost all of the entering students had just completed high school, and it was also their first time away from home.

My long-range goal was to become a food animal veterinarian. The program at OVC was very demanding and highly competitive. There was no room for error! In fact, only 42 of the initial group (80) graduated in five years; some did not! The areas of strength of the OVC program at that time were Small Animal Surgery, Radiology, Large Animal Medicine, and Pathology. The program in Animal Reproduction was marginal. Prominent faculty at OVC included James Archibald (SAS), Al Cawley (Radiology), Doug Blood (LAM), Kenneth Jubb, and Tom Holland (Pathology). These individuals had a pronounced influence on my life at Guelph. They were not only mentors, but were role models, the exceptional qualities of whom I have strived to emulate.

However, as I perceived a serious deficit in my knowledge, diagnostic and therapeutic techniques in animal reproduction, and since I knew that this would be an important area of my future practice, I accepted another major challenge. During the summer between the 4th and 5th years of the program, I read Steve Roberts’s textbook from cover to cover! You may call this impossible, but I call it labor-intensive! In addition, I read Ray Zemjanis’s textbook. However, it was not all work that summer. I was fortunate to meet a wonderful young lady, who later became my fiancé’ as I completed the DVM degree at OVC. Within eight months of my return to Trinidad, we were married in Jamaica, and one gestation length later, we were blessed with the birth of our first child, Michael!

My first job was on the island of Tobago. I was the only veterinarian on an island of approximately 60,000 people and 250,000 animals (cattle, horses, swine sheep, goats, horses, dogs and cats). The economy of Tobago was centered primarily on agriculture. There were many ex-patriots from Great Britain who were avid dog owners.
Thoroughbred racing was seasonal, and provided both entertainment and a substantial economic boost. It was a general practice, and I had ample opportunities to use my limited knowledge of animal reproduction.

Although general practice was stimulating and rewarding, I felt the need to continue my education in the field of animal reproduction. Therefore, I began the process of searching for graduate programs in animal reproduction. To my dismay, these programs were centered primarily in departments of Animal Science. However, to my delight, I discovered the program in Veterinary Obstetrics and Gynecology at the University of Minnesota, St. Paul, Minnesota, directed by Dr. Raimunds Zemjanis. It was not very long after applying that Ray Zemjanis informed me of my acceptance to his program. Although I knew very little about Minnesota and that graduate program, I felt as if I had a deep personal relationship with Ray Zemjanis. After all, his textbook occupied most of my leisure time during the summer between my 4th and 5th years at OVC!

“Do the thing you fear and the death of fear is certain”.  
- Ralph Waldo Emerson

Armed with a dream, a 1½-year-old son, and a 6-month pregnant wife, we embarked on the journey to the land of 10,000 lakes! The stakes were higher now, and so was the commitment. Three months after arriving in St. Paul (December), we were blessed with the arrival of our first daughter, Cheryl, after a weekend-long blizzard!

To say that the “Minnesota experience” was a “culture shock” is a grave understatement. It was totally different to all we had experienced. The winters were long, cold, challenging, and seemed to get worse every year! The 1½ months of summer were hot and humid. It became obvious that this was not Trinidad or Tobago, nor was it Guelph, Ontario! It was an environment characterized by extremes of temperature and hoards of mosquitoes in the summer.

However, I knew the quality of the program and the outstanding education in animal reproduction it would offer. It was there for me to take advantage of; all I needed to do was study! I literally spent every waking moment trying to assimilate, and retain, the vast amount of information available to me. I was fortunate to have Sonja, who did everything else, and I am forever grateful for this. Many times she was both “Mom and Dad”.

The program was excellent, and Ray Zemjanis was a superb mentor. His enthusiasm, knowledge and desire to help students accomplish their goals were complemented by similar attributes of the faculty in his department (Richard Schultz and Melvyn Fahning). Other prominent faculty members who guided and mentored me were Ed Graham (Reproductive Physiologist), Alvin Weber (Veterinary Anatomist), and Harold Kurtz (Veterinary Pathologist). With the help of all these individuals, I obtained a vast knowledge of animal reproduction, reproductive physiology, veterinary anatomy, and veterinary pathology.
Upon completion of my PhD program, I was fortunate to be offered a tenure-track position in the Department of Veterinary Obstetrics and Gynecology. My responsibilities included teaching, clinics, and research. I was now a full-fledged member of the “Minnesota family”. At that time, there were approximately 30 dairy farms on a reproductive health program which were used for clinical teaching of DVM students. During his weekly visit to these farms, Ray observed that some of these herds were experiencing a high rate of early embryonic death. Concurrently, occasional abortions were observed, and the virus causing bovine viral diarrhea (BVDV) was considered a likely suspect. However, this virus had not previously been associated with early embryonic death in cattle. Furthermore, many cows possessed humoral antibodies, either from previous infection and/or vaccination.

This was my first major research project as a faculty member, and with funding from the Minnesota Agricultural Experimental Station, I began to investigate the role of BVDV as a causative agent of early embryonic death in cattle. After approximately three years of research, we concluded that BVDV is a cause of early embryonic death in cattle. However, this information was not readily accepted since most cows were vaccinated for this disease, and were assumed to be protected.

We proposed that intrauterine entry of this virus (bull or infected semen) could “by-pass” this humoral antibody protection and cause early embryonic death. Nevertheless, the question of whether it was a lack of fertilization or early embryonic death, or the source of the virus had to be resolved. Later research by Howard Whitmore suggested that experimentally-infected bulls could intermittently shed this virus in semen.

Soon thereafter, research by other investigators identified the condition of BVDV persistently-infected cattle. Using PCR and immunohistochemistry, BVDV was identified in the oviducts and uterus of these cattle. Therefore, there appeared to be both intrauterine and hematogenous routes of infection. It is interesting to note that recent work from Europe showed that post-insemination inter-estrual intervals of persistently-infected cattle were longer, which suggested that it is probably early embryonic death rather than fertilization failure. Ray Zemjanis was right again!

As the years elapsed, the Minnesota scene was changing! Mel Fahning was leaving to operate a commercial bovine embryo transfer program in Wisconsin, and Dick Schultz would soon follow him in this enterprise. In addition, Ray Zemjanis was planning a sabbatical leave of absence. Everything seemed to be happening at the same time. After much thought and anxiety, I decided to accept a position as an embryologist/reproductive physiologist in a commercial bovine embryo transfer enterprise in Dixon, Tennessee.

Armed with a dream, two children, a cat, and a non-pregnant wife, we headed south to the volunteer State of Tennessee! Our stay in Nashville was short-lived. Although the position was lucrative, it lacked the opportunity for me to continue my academic development. I was missing academia! The end of our stay in Nashville was punctuated by a most exciting and rewarding event: the birth of our second daughter, Laurie. Little did we know that this would not be our last connection with Nashville.
Fourteen years later, we returned to Nashville when Cheryl began her medical education at Vanderbilt University; ironically, we returned to Nashville eight years later when Laurie began her medical education at Vanderbilt.

At the time we decided to leave Nashville, there were numerous new veterinary colleges/schools being built, and many faculty positions were available. I chose Louisiana State University (LSU) because that State resembled much of the Caribbean in terms of culture, climate and cuisine. Also, during my interview I met Robert Godke, a reproductive physiologist in the department of Animal Science, and recognized the tremendous opportunity for collaborative research. He had excellent research facilities and many graduate students, most of whom were pre-veterinary students.

Armed with a dream, 3 children (including a 9-week old baby), a cat, and a postpartum wife, we headed further south to “Bayou country”. Our stay in Baton Rouge was very fulfilling, and we vowed that this would be our last move! I was promoted to Full Professor, and developed a research and graduate program. I continued research on BVDV as a cause of early embryonic death, and we showed that this virus could infect preimplantation bovine embryos. In collaboration with Bob Godke and his graduate students, I expanded my research interests to include canine embryo transfer, the effect of non-steroidal anti-inflammatory drugs (PBZ) on reproduction in the mare, and noninfectious bovine infertility.

Some interesting findings were: i) induced corpora lutea in the bitch have a reduced functional lifespan; ii) PBZ did not affect the estrous cycle of the mare; iii) there appeared to be a selective, and less severe luteolytic process in the CL of the cow at the time of parturition compared to the end of the estrous cycle; this selective process seemed to involve primarily small luteal cells, which were the first to undergo luteolysis.

A few years later, Gavin Richardson and Bill Braun joined me at LSU, and we proceeded to expand the program in theriogenology. This was a most exciting time in my academic career. In addition, I was appointed Assistant Department Head, with the express purpose of developing a graduate program in our department. This whetted my appetite for administration.

Shortly thereafter, I was offered the position of Assistant Dean for Clinical Services & Chief of Staff of the teaching hospital at the CVM, University of Florida. I was also offered the position of Director of the College of Veterinary Medicine’s Minority Program. So, armed with a dream, 3 children and a non-pregnant wife, we set out for the Sunshine State of Florida to become a member of the “Florida family”. It is now my 21st year in Florida, and I doubt we will move again, but who knows? It has been a very productive life so far, although it began with the untimely death of our son, Michael. However, the dream and the commitment were strengthened by tremendous family support.

But, it was not all administration. Every administrator was required to be scholarly. This was not difficult for me since this theme had been an integral part of my
lifestyle. The question was time! Nevertheless, Rolf Larsen and I obtained some internal funding and initiated a project investigating the effect of PBZ on the concentration of seminal prostaglandin F2α (PGF2α) in stallions. This showed that PBZ reduced the concentration of seminal PGF2α. This is similar to what is seen in humans, and there is some suggestion that it may be associated with human infertility. So very enthusiastically, we began to seek further funding, even at the level of the NIH. We were not successful, and the interest began to wane.

Approximately four years later, the infrastructure of the College departments was reorganized, and I became a “born-again” faculty member of the Department of Large Animal Clinical Sciences (LACS). Around the same time, the Theriogenology Service contracted with a large (3,000 milking cows) dairy herd to initiate a herd health program, and I participated in the reproduction component of this program. It was almost like the days in Minnesota, except there were more cows!

Over the next 13 years, several research projects in bovine reproductive physiology were conducted in this dairy herd. These results provided thesis/dissertation information for numerous graduate students, and for over 30 refereed publications. All the Theriogenology Residents during this period of time participated in this program, and all were co-authors on these publications.

“A mind once stretched by a new idea never returns to its original dimensions”.
-forgotten source

I still continue to conduct the CVM’s Minority Program (now called Multicultural Affairs Program), and participate in similar programs at the national, local, and university levels. I have chaired the national committee of Multicultural Affairs in the Association of American Veterinary Medical Colleges (AAVMC), and I have received the 7th Iverson Bell Award from the AAVMC in recognition of my distinguished leadership and significant contribution to the advancement of minorities in veterinary medicine. Presently, I serve as Associate Chair and Graduate Coordinator for our departmental graduate program. A recent milestone was the holding of our first research emphasis day which showcased our graduate students and their mentors, and provided invaluable exposure to our graduate program.

The dream continues, although much of it has become reality. Indeed, it has been a mixture (“a potpourri”) saturated with commitment, passion, focus, and a desire for excellence. I once read that “opportunity is a matter of choice, not a matter of chance”. Only time will tell if I made the right choice.

Lagniappe (“something additional”…..)

I wish to begin with a brief discussion of a topic which, in my opinion, presents a major challenge for both the ACT and the entire profession of veterinary medicine. This concerns the pool of students who will be applying for admission to our veterinary colleges/schools in the future. The importance of this becomes obvious when one realizes
that this pool of students represents our future pool of Residents for our training programs.

Recent information shows that within the next decade, the demographics of graduating high school students will be entirely different from the present students. They will come from diverse backgrounds with diverse cultures. They will have different learning styles, and an unparalleled sense of cultural competency and plurism. They will represent a major shift in ethnicity and race, will be extremely computer-literate, will probably have taken courses by distance learning during their undergraduate program, and will have had different experiences in their life.

Some, or even most, of these students will have minimal experience with animals (except dogs, cats; maybe?), since animals may not have enjoyed any importance in their cultures. They will have a decided view on animal welfare, and will have high expectations from the veterinary profession. In addition, they will have many different options to pursue a career in the health-related professions.

Another variable in this equation is the recently proposed legislative bill which will reward veterinary colleges/schools for admitting students who will eventually enter public practice (academia/research, food safety, epidemiology, governmental agencies {CDC, USDA, Health Departments}, pursue the MPH degree, and be involved in programs to combat bioterrorism, agro-terrorism, and (re)emerging infectious diseases. Therefore, not only will they be “different”, but they will enter veterinary college/school very focused, and with pre-determined goals.

What does this mean to us? It means that we will have to adjust; we will have to change! We will have to be sensitive to this issue, change our attitudes, even change the ways we operate! We have to advertise, promote ourselves, and let it be known that what we do is of utmost value to society. Simply changing our name and what we call ourselves could be an ineffective solution. “A rose by any other name is still a rose”. If we do not change, these students will seek and enter other health-related professions. The net effect is obvious. What will the overall effect on our membership in both the SFT and ACT?

My next remarks concern our Residency Programs. In my opinion, research (scholarly or scientific investigation or inquiry) and graduate education (the knowledge or skill obtained or developed by a learning process) should be major components of our Residency programs. I realize that there will be limitations to the level to which these facets can be incorporated in our programs, but I also realize that the programs in which these are major facets will probably attract our veterinary graduates. Presently, many programs offer the opportunity for Residents to spend time in specialty practices in their area of interest. Would it not be equally beneficial for our Residents to spend time in prominent research laboratories? I think that this simple approach could provide an excellent education in research. We should expect our Residents to generate new knowledge, not just be users of the old. After all, they are our future!
“Read an hour every day in your chosen field. This works out to about one book per week, 50 books per year, and will guarantee your success”.

- Brian Tracy

Over the years, we have debated the need for species certification. As I look around the country, it is evident that few of our Residency Programs encompass theriogenology of all domestic animals. In many instances, they are species-specific. In fact, many job opportunities seem to be species-specific. Maybe, the time has come for species certification. While there are many approaches to its implementation, one simple way would be to have an additional comprehensive examination for each species. This examination could be administered sometime after the present general examination. Obviously, only candidates who successfully completed the general examination would be eligible to sit the species-specific examination. There are many precedents in other disciplines which can serve as a template for theriogenology.

“You can never solve a problem with the same kind of thinking that created the problem in the first place”.

- Albert Einstein

As I conclude, I want to thank all my colleagues, especially those who nominated me for this award. I applaud their efforts and the convincing manner with which they presented me to the selection committee.

I thank my parents, who laid the foundation for my every undertaking.

I thank Sonja; my wife, beloved companion, friend, advisor, and “sounding board” for the past 41 years. She gave me the opportunity to create and nurture three wonderful children (Michael, Cheryl and Laurie). She remained at home to care for the family while I spent long hours completing my graduate program. She was, and is, always there for us. Her unselfish nature, superb thinking skills and extreme patience have really made our lives complete. I could go on for hours on this topic!!

I thank Raimunds (Ray) Zemjanis, who gave me the opportunity to become a member of the “Minnesota family”. His guidance and mentorship have been influential contributors to my academic and professional careers. He developed in me a sense of academic independence, academic inquiry and critical thinking: attributes which were integral components of his own character. Over the years I have tried to emulate his professional integrity, honesty, his meticulousness for details, and his profound base of knowledge. Have I succeeded? I think being here today to receive this most prestigious award could be interpreted as some success in this regard. I wish he were here today to be part of this auspicious occasion. I know the joy, satisfaction, and sense of accomplishment he would feel on this occasion.

Finally, I want to thank the Good Lord, for not only giving me the talent, but the opportunity and the wisdom to use my talent wisely to make a contribution to veterinary medicine and to society. God bless!!