Creating the Future
~for our Clients, Patients, Students and Profession

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What is the role of a theriogenologist in the future? Who are we? Who do we want to be? What do others want of us? Is our specialty on the verge of an incredible new venture, part of a discipline that will be addressing the very questions of creating and manipulating life itself? Or is our specialty one that has seen its best days and no longer serves the needs of clients and patients, of industries and non-profit agencies, or of students and professors? Is it possible that we have a role to play in creating the answers to these very questions? Or should we just wait and see what happens?

I remember the first day of my master's degree program at the University of Minnesota. When introduced as the new graduate student in theriogenology, I wondered if I had made some huge mistake during the application process. I had no idea what "theriogenology" meant. I knew that my advisor had accepted me as a graduate student to study causes of canine infertility. I knew that he believed I possessed potential as a student and future specialist, and part of this potential was my experience as a practicing veterinarian and practice owner. But I had no idea what a theriogenologist was or did, and now I was about to become one! Although he had no funding for what I was about to create, and I had a limited knowledge about the profession I was about to enter … much of the joy of my future work was in the journey, and I believe that there are many more journeys to consider in our future.

Throughout my journey, some mental paradigms shifted. I learned that treating canine infertility was not the only unsolved problem. My advisor suggested that another graduate student and I gather reproductive tracts from dogs that had been killed at Twin Cities' animal care and control facilities. Our goal was to determine the incidence of anatomical/developmental anomalies in the reproductive tracts of female and male dogs that could potentially result in infertility. After receiving approval from the rendering facility where the dead dogs were kept, we made an appointment to begin our work. I'm not sure I had thought much about what we would encounter at the facility, but my comfortable mental paradigm must have told me the dogs would have all died from old age or as the result of a fatal disease or severe injury. Instead, we literally found barrels and barrels of young dead dogs … those that should be healthy and alive. Many of the dogs were very identifiable breeds, seemingly bred for a purpose. I remember that my fellow-graduate student and I did not talk much while we went about our work of examining the reproductive tracts. I also remember that after we finished, we both felt a need to stop for coffee before returning to the University of Minnesota campus. Our need to stop was not for caffeine, but to merely talk and share feelings about what we had observed. Both of us were deeply troubled by what we had observed … that hundreds of dogs in just one small metropolitan area seemed to have died (i.e., been euthanized) due

to some horrific “disease” --- one we had not been taught about in veterinary school or during our graduate program. I believe it was that day that defined my beginning and ongoing commitment to address pet overpopulation in the United States. In my quest, I have found many collaborators and partners who share my mission and passion…. many of whom are theriogenologists.

I am extremely proud of the American College of Theriogenologists (ACT) and the active role taken in addressing this social issue. While other organizations were arguing about why they should care about pet overpopulation, the ACT was recruiting researchers to present preliminary information on the safety of prepuberal gonadectomy (early spay/neuter). When deemed safe, the ACT endorsed the procedure … thereby allowing animal care and control facilities throughout the United States to neuter puppies and kittens prior to adoption without criticism. In addition, numerous theriogenologists began to speak and write about the ethical and economical issues surrounding pet overpopulation. Curricula including discussions on pet overpopulation were developed in many colleges as a result of these discussions and publications. The National Council on Pet Population and Policy was established when theriogenologists and others called for more data. Common ground among many individuals and organizations was created to address a problem that cried for our profession’s participation. Just as pediatricians were becoming involved in societal problems of both treating and preventing child abuse, so were veterinarians becoming involved in addressing the societal problems of relinquishment, abandonment and euthanasia of millions of healthy companion animals. Theriogenologists were attempting to create a better future for both their clients and their patients. For if veterinarians better understood the risk factors surrounding relinquishment, then we might be able to develop intervention strategies for promoting and securing the human-animal bond. If the bond was secured, the veterinary profession could realize added economic gain. It has been estimated that our profession loses $2 billion/year in revenue when dogs and cats are not retained in their homes due to “pet overpopulation”. As our specialty helped to create collaborations, dialogue and debate, research and action plans, continued public support and respect … we created a better future for our clients and our patients. In doing so, we may have created a better future for ourselves.

Some very challenging questions are now being asked by theriogenologists. Can we compete with lay people who purport a knowledge in “our” discipline? Should we market and outreach to future clients? If so, what/how do we market? What are our goals and objectives? Who are our future partners? Can we possibly discuss educational, ethical and economical issues in the same breath? Can we ensure a productive, challenging, rewarding, and glorious future to young people considering the specialty of theriogenology? How do we effectively train these theriogenologists of the future? Can we follow, travel alongside or lead, whichever is appropriate, if it means we are creating the best future for our clients, patients, students and profession? More than our concern over whether our clients know what the word “theriogenology” means in its entirety, *do we know what it means?*

I would like you to consider how the following future theriogenologists might be mentored:

First, there is John … an incredibly bright young veterinarian who wants to become a theriogenologist. His lifelong love is the dairy industry. He meets with a possible mentor and is told the following: the likelihood of obtaining the skills you need to manage large commercial dairies from a residency/graduate program in theriogenology is limited. In fact, you might be better off to obtain a master's in business administration. The type of client you desire to serve in the future is highly educated, and may possess more information about bovine reproduction than you do. You will need training in public relations, animal rights/welfare, and marketing. The members of your professional team will include investment bankers, regulators, nutritionists, agricultural engineers, economists, and dairy science researchers. Your expertise in internal medicine will not be highly sought as many cows will not require in-depth diagnostic procedures for their care. Your expertise in animal reproduction may be important only if associated with economic efficiencies. As a theriogenologist, you may be sought for repetitive technical skills or procurement of controlled drugs, not necessarily for your knowledge in reproductive physiology. The business savvy you lack could be potentially devastating. Additionally, you will not have the time to study for all your deficiencies because you will have to become a reproductive expert in many species (including dogs and cats) if you ever want to pass the national specialty examination. Current opportunities for academic appointments in solely your specialty are limited. The potential gain in income resulting from your residency/graduate program could be minimal.

Second, there is Jane … an incredibly bright young veterinarian who wants to become a theriogenologist. Her goal is to someday manage a large breeding colony for a service dog school, thereby providing excellent dogs to disabled people. She will need to be knowledgeable in canine genetics, especially as it relates to temperament. She is told by a future academic advisor that animal behavior is not something taught or researched at the university. Population genetics is not a well-developed discipline in small animal theriogenology, although even Jane knows its importance for improving the temperament and health in a dog colony. Jane has no training in human-services disciplines (e.g., social work, psychology), yet needs to learn about the physical and emotional needs of disabled Americans, so that she can work to develop the ideal service dog. Although Jane's future advisor is willing to accept her as a student, the advisor is not knowledgeable about seeking funding for work at non-profit organizations. Additionally, Jane needs tremendous expertise in internal medicine, since the value of reproducing dogs without heritable diseases requires considerable ability in detecting any disorder that could result in diminishing the longevity of a working team. Although studying and practicing internal medicine would be highly desirable for Jane, she will not have time. The current residency program in theriogenology at the university requires a 6 month large animal rotation.

Third, there is George …. an older, experienced veterinarian who is convinced that many reproductive disorders in humans and animals are the result of environmental toxicants

and wants to develop prevention strategies. Part of his quest is personal … a granddaughter who entered puberty at age 9 and a wife who developed breast cancer even though she had no familial history for the disease. George has also observed more animals in his practice with "acquired" infertility, but he cannot identify an etiology. George is also active in an environmental advocacy group and has read reports about reproductive maladies in frogs and fish. He is told by a future mentor that he would likely need coursework in epidemiology, toxicology and pathology. He is also informed that funding for such work is unlikely since many of the potential toxicants are widely-used chemicals and lobbying efforts to prevent such research funding are immense. In addition to his admirable goals, George also needs a job that will ensure a decent level of income for his eventual retirement. His mentor is unsure how to tailor a program that meets George's goals and also ensures future employment. In fact, the mentor isn't even sure what researchers are working in the area of toxicology.

What do all these students have in common, and what do their stories require of the American College of Theriogenologists and the Society for Theriogenology? Each student has a goal that could clearly help create our future to meet the needs of future clients and animal patients. Each program requires creativity and design, and the use of professionals from disciplines other than veterinary medicine. Each mentor is struggling to help create a good future. Do these three future students present a hopeless situation? Or, have they just asked us to consider planning a glorious future in helping clients, patients, industries, governments, advocacy groups, non-profits, and much more? Do we abide by our existing constitution or the emerging marketplace?

With a bit of guidance and a lot of encouragement and collaboration, theriogenologists of the future will use the skills of the past to enter new doors in the future. We will define the core knowledge in animal reproduction that is essential. Comparable knowledge among species will continue to be very important, but must be efficiently taught. To save endangered species, we may need to learn from domesticated ones. To study population genetics in service dogs, we may need to consult with epidemiologists and population geneticists who study cattle. To provide the expertise needed to play a vital role for a corporate dairy farm, we may need to consult with business academics and professionals. To eliminate pet overpopulation, we may need to work with animal care and control facilities in novel ways. To be progressive educators, we may to consider non-traditional designs and programs. We will be true to our veterinary oath .. protecting both people and animals. We will embrace animal welfare in every aspect of our work and teaching, for this is the essence of our profession and existence.

To feed the world and produce novel drugs, we will need to discuss and debate new technologies. The teachers for the best and brightest theriogenologists will be veterinarians, but also lay people and those from other professions. Our goal will be to create a future, not to restrict knowledge based on historical models. Because of the future we will build, students will clamor to participate with us as we dream and create.

We will seek expert partners wherever we can find them. We will always consider our goal: *To create a better future for our clients, patients, students and profession.*

We will acknowledge the diverse abilities of many. College and board certification were not timely or essential to Bill Gates when creating new computer technologies for the world. By improving sanitation, plumbers may have increased the average lifespan of humans more than physicians. Dog trainers may be saving the lives of more dogs by addressing inappropriate behaviors than veterinarians who perform complicated surgical and medical procedures. When partnerships are forged to meet our goal, theriogenologists will consider each and every technology, each and every specialist (academic or not), each and every possibility for progress, each and every discussion and debate.

We must consider potential innovations and how they might change how we do business. For example, how would the veterinary profession change with an accurate rapid milk test for diagnosing pregnancy? With a completely safe implant that prevents reproductive function in both male and female dogs for 12 months? With technology whereby sexed semen is used to produce a desired gender of offspring from selected mares? With a genetic marker that predicts those dogs with temperaments best suited for search-and-rescue? With an oral bate containing a sterilant for controlling reproduction in feral cats, populations of wildlife, or zoo animals?

What do we do? Throw up our hands and see what happens? Consider ourselves as specialists in flux and chaos? Or … do we understand that we possess incredible tools for designing a most remarkable future?! Just think about the opportunities: designing safe methods for contraception or sterilization of animals without surgery, sexing semen to reduce the number of unwanted animals born, using genetic markers to reduce health/temperament problems and optimize productivity, working with industry to manufacture without menacing, looking toward a future of prevention as well as treatment, creating community teams of lay and professional people to address societal issues, educating not only students but also politicians and regulators, considering the needs of countries and cultures beyond our own, embracing comparative knowledge across species while also acquiring the specific tools needed for an individual species, and never fearing the debate we will have … knowing that debate and healthy discussion often lead to new wisdoms and paradigms. As my mother once told me, sometimes it is necessary to make a mess before you can clean and organize a cupboard.

Let's create! The talent we have in the American College of Theriogenologists and the Society for Theriogenology is wide and diverse and terrific. Let's build a field so green and lush, that students will flock to receive our excellent mentorship. That clients will know there are no boundaries to our abilities. That industries will seek partnerships with theriogenologists. That journalists and senators will call us when needing sound bites or sound advice. I thank you for this prestigious award. I wish you a very pleasant and joyous future. Now … go forth and procreate! That is what we should be able to do best!