American Association of Avian Pathologists
Biographies of Professionals in Poultry Health

John A. Smith

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The Life of John A. Smith DVM, MS, MAM
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I was born at Emory University Hospital in Decatur, GA on January 19, 1951 to John Edwin and Ruby Hazel Andrews Smith, and grew up in Tucker, GA, a small town on what was then the fringes of suburban Atlanta. I was the older of two children, my sister Laura being 3 years younger. Both of my parents were native Georgians for many generations back. Dad was a draftsman for a construction company in Atlanta and typified the "greatest generation"—disciplined, responsible, honest, frugal, and hardworking. Growing up during the Great Depression and serving in the 10th US Army

Air Corps in India in World War II made a deep impression on him, and he did his best to pass on those values. My current colleagues I'm sure will agree that at least the frugal part took hold! The public schools of DeKalb County, GA during the 1950's and 60's were apparently reasonably competent, and I seem to have received a decent education. Mother and Dad valued education and I was encouraged in my studies, graduating as the salutatorian of the Tucker High School Class of 1969. I scored well on the standardized tests of the day and was admitted to the University of Georgia (UGA) as a National Merit Scholar in the Honors Program, receiving my DVM Magna Cum Laude in 1975. Dad's younger brother was the first in the extended family to attend college, and I was the second.

I knew that I wanted to be a veterinarian by about the 10th grade, and several factors influenced that decision. As with most in our profession, I had a great affinity for animals, particularly dogs, likely inherited from my paternal grandfather who was a significant figure in my childhood. We lived on my grandfather's small hobby farm of about 32 acres in Tucker, and besides the continual presence of one or more dogs, he kept a small flock of layers (Rhode Island Reds as I recall), had a neighbor plow the gardens with a mule (I recall being terrified of the mule as a small child), and raised a pig each year, so I had at least peripheral exposure to farm animals. Another factor was the launch of Sputnik in 1957, just as I was entering elementary school. A great concern arose that "the Russians were beating us", and science and technology became a priority in American education for a time, similar to the emphasis on STEM today. So, I was heavily exposed to courses in physics, chemistry, biology, and mathematics from algebra

through geometry, trigonometry, and calculus, and I found the realm of science highly interesting and comforting in that it dealt in certainties. I recall that my geometry teacher, Mrs. Francis Ramsey, had a great influence on me; the structured and methodical methods of the subject, using theorems to construct proofs of one's answers, made a lasting impression. Many other high school teachers, notably an English teacher, Mr. H. Burton Trimble, nurtured a love of reading and learning.

Curiously, another significant influence was the explosive growth of the Atlanta area. Those who know Atlanta today may find this difficult to believe, but prior to World War II DeKalb County was still agricultural. One can discern the plowed furrows in the background of the county seal, and I recall visiting a local dairy while in elementary school. Next door to our hobby farm was another 30-acre hobby farm, and another across the road. I spent the summers of my youth in the fields, woods, and vegetable garden with my dog, and my biggest extracurricular activity was the Boy Scouts, where my love of the outdoors, hiking, camping, and the like was further whetted. After the war, in the early part of my childhood, agriculture was being crowded out, and the small farms were first returning to pine trees and then succumbing to development. The pace and extent of the changes in metropolitan Atlanta in the 1950's-1970's still astound me today. When our area likewise fell to development, I was devastated, and resolved to seek a profession in which I could employ my love of science, animals, and the outdoors, but in a rural area, and preferably in a profession that would be valued and contribute to the community. Veterinary medicine seemed the obvious answer, and my plan was to be a rural mixed animal practitioner. Poultry was never on the horizon at that point. Once I

was old enough for legal employment, I sought a position as kennel help with the local veterinarian, Dr. Charles R. Rigdon. Dr. Rigdon and his colleague Dr. Jesse Hardy took me under their wings and encouraged my interest, but with a good dose of reality as well. Dr. Rigdon was very active in organized veterinary medicine, and in addition to numerous offices with the local and state associations, was President of AVMA in 1984-85. Early in my time at UGA, Dr. Rigdon introduced me to Dr. Lester M. Crawford, who was an assistant dean at the UGA veterinary school at the time. Dr. Crawford guided me in my course selections and I'm sure was a factor in my relatively early admission to veterinary school after two fairly intensive years of undergraduate studies. Dr. Crawford was later director of the FDA Center for Veterinary Medicine, administrator of the USDA FSIS, and briefly Commissioner of the FDA under President George W. Bush. I remember receiving instruction in virology from Dr. Phil Lukert of Infectious Bursal Disease fame, and in those days we still had a mandatory poultry disease course, which was taught by Drs. Dick Davis and Kenny Page. Still, poultry as a career option never entered my mind!

I continued to work for Dr. Rigdon summers and holidays, and between that, some small scholarships, a little help from my folks, and a very frugal lifestyle (including dorm living and dining hall meals), I managed to keep my head above water. I did not have an automobile until veterinary school, but had a small motorcycle that I rode everywhere. I think my exposure to the elements is responsible for my recollection of Athens being the rainiest place this side of the Amazon. My schooling occurred during the Vietnam era, and in 1970 I received my draft number of 188, near the middle. Young men as high as

number 195 got called up in the 1969 lottery, and in 1970 the call up reached number 125, so it was a bit concerning. My backup plan was Air Force ROTC, and if I didn't get into vet school, I wanted to be a pilot. Fortunately, I was accepted into veterinary school. I decided to sign up for an Army early commissioning program, in which the time in school counted as time in service, one was not subject to being called up, and upon graduation one's service would be in your area of training. I figured I wasn't as likely to get shot at in the Veterinary Corps. By the time I graduated, the Army had started paying a small stipend, which kept me out of debt as well, and Vietnam was pretty much over. I owed the Army 2 years, and immediately after graduation went to Fort Sam Houston in San Antonio for training. In spite of having grown up in Georgia, San Antonio in July was one of the hottest places I have ever been! I received an AVMA recognition for finishing at the top of the training class, and my reward from the Army was assignment to Fort Sill, OK, with my actual station at a Naval Air Station in Grand Prairie, TX, for food inspection duties in the Dallas-Fort Worth area. While I don't regret my service, when my tour was up I was ready to move on. The only companion animal work I ever did was some weekend moonlighting in Dallas while I was in the army, for Drs. Alton F. Hopkins, Jr. and Gary Harrell; interestingly, Dr. Hopkins became AVMA President in 1986-87. Perhaps my brush with two AVMA presidents contributed to my desire to be active in organized veterinary medicine.

Upon completing my tour of duty in 1977, I intended to pursue my rural mixed-animal practice plan, but I felt I needed a "tune-up", especially in large animal medicine, about which I felt less than competent. I applied for an internship in large animal medicine at

Auburn, with the idea that if I was not successful, I would look for work. Amazingly I was accepted. Upon arrival, I was handed a set of keys and was pointed to a truck with about four senior veterinary students, with instructions to go attend to a sick cow. A bit of a rude awakening, and with a few stumbles along the way, but overall a profitable experience. I still pull for the Auburn Tigers except when they play the Georgia Bulldogs. Two senior veterinary students I encountered while at Auburn were Dr. Marshall Putnam, now head of poultry technical services at Ceva, and Dr. Jon Schaeffer, now head of technical services at Zoetis. I stayed an extra year at Auburn to start a master's degree program in large animal medicine and surgery. I became interested in internal medicine, which was not available at Auburn then, and upon investigation encountered a classmate from UGA, Dr. Tom Divers, who was back at UGA as a new assistant professor in large animal internal medicine, and who encouraged me to investigate their program. I transferred back to UGA to begin a residency in large animal internal medicine in 1979. This decision was pivotal for two reasons. First, my major professor and residency advisor, Dr. Lisle W. George, was the most astute clinician I have ever encountered. He taught me the art of clinical differential diagnosis, which has served me well ever since, even into my poultry career. He was also the finest clinical teacher I have ever seen, and his clinical teaching techniques also stood me in good stead not only for the remainder of my academic career in ruminant medicine, but also into my industrial career in poultry medicine as well, interacting with managers, flock supervisors, and growers. I completed a master's degree in medical microbiology and became a diplomate of the American College of Veterinary Internal Medicine, large animal. Some of the senior veterinary students who came through the clinic during my

residency included Drs. John R. Glisson, Leonard Fussell, Gary Warfield, and James Dawe. The other and much more important pivotal event associated with the residency was that during the second year of the residency I met a beautiful senior veterinary student, Emily Meriwether, who became my wife at the conclusion of the residency in 1982 and has been my rock of support ever since.

I had job offers at Auburn and Virginia Polytechnic Institute; the VPI College of Veterinary Medicine was a brand new school at that point. One of the people who interviewed me at VPI and encouraged me to come help build the new clinical program from the ground up was Dr. Charles Domermuth. I chose to return to Auburn, mainly due to familiarity and the fact that as a newly-minted assistant professor, I felt I was not quite ready to help build a brand new program from scratch. I had been at Auburn about 18 months when I received an offer from Colorado State University and decided to make the leap. We enjoyed life in Fort Collins, once we became accustomed to the long, bitter winters. I received tenure and promotion to associate professor at CSU, but had become dissatisfied with the academic lifestyle and was beginning to think that perhaps a change was due. I had decided by then that I did not want the responsibility and headaches of running a business and had ruled out private practice, and considered technical service in large animal medicine. Around this same time, CSU had started sponsoring a career night for the veterinary students, to introduce them to the many career opportunities available to veterinarians beyond clinical companion animal medicine. Veterinarians from a variety of career options, such as civil service, the military, pharmaceutical and biological industries, etc. were invited to come speak and serve as a resource. There was literally no

one to speak about poultry, so, being probably the lone representative from Georgia in the building, I was asked to just investigate the poultry business and report my findings on job opportunities, salaries, etc., and if possible find a speaker. I contacted some of my former students who I knew had gone into poultry medicine, and my findings were eye-opening even to me. It turns out that poultry medicine was an interesting and varied career, and the compensation was excellent. The more I pondered it, the more I thought the poultry industry sounded like a good fit for me. After discussing the possibility further with the people at PDRC, I applied to UGA for the Master of Avian Medicine program, was accepted, and gave up a tenured associate professorship to return to graduate school at the age of 38. It was a bit of a scary move, and I have been asked if I ever had any regrets. My ready answer is, "Yes! I should have done it sooner!" I subsequently became a diplomate of the American College of Poultry Veterinarians.

One of the students in my last class at CSU was Dr. Kurt Dobson. Kurt and I moved to Athens and completed the MAM together, along with Dr. John McCarty and Dr. Patty Dunn. It was a great group and we remain fast friends today. We had an amazing faculty: Drs. Stan Kleven, Dick Davis, Kenny Page, George "Buck" Rowland, Pedro Villegas, John Glisson, and others. We also received lectures from experts at the Southeast Poultry Research Laboratory such as Dr. Charles Beard, Max Brugh, and Jack King and others at the Russell Research Center. These government laboratories were affectionately referred to as "across the street" as they are literally across College Station Road from PDRC, and the collaboration was very collegial and fruitful. I was and remain highly impressed with the job that the faculty at PDRC has done over the years

producing a practitioner immediately ready to be of valuable service to the poultry industry.

During my large animal medicine residency at UGA I met Dr. R. Gregory Stewart. Greg was completing his Ph.D. in mycotoxicology in the UGA Department of Poultry Science under Dr. Roger Wyatt, and we had some graduate biochemistry classes together—a bonding experience akin to boot camp! Greg was admitted to the College of Veterinary Medicine after completing his Ph.D. and I would occasionally see him in the large animal clinic during my last year of residency. We maintained casual contact during my academic years, while he was at Arbor Acres, Intercontinental Biologics (subsequently Intervet and now Merck), and finally PDRC. When I arrived at PDRC for the MAM program, Greg was departing to become the first corporate veterinarian at Fieldale Farms, a family-owned broiler integrator in northeastern Georgia. He said "I've got a job for you when you finish up here," and it turned out that he actually did. I joined Fieldale on April 1, 1991, and I have always said that the April Fools' joke was on them! Greg departed about a year after my arrival, and I was the Fieldale corporate veterinarian until the end of 2015, at which time I partially retired and turned over the reins to Dr. Sarah Tilley, while remaining associated with Fieldale on a part-time advisory basis until the end of 2018, almost 28 years.

The corporate veterinarian practices true population medicine, with responsibility for the entire health program of huge populations of birds. Each phase of a broiler integration—pullets, breeders, hatchery, grow-out, live haul and processing—presents a different set of

challenges, a different set of ground rules, and a different set of knowledge, skills, and tools to employ, all of which I found interesting and challenging, in a good way. The emphasis is on prevention as opposed to treatment (treatment being essentially a salvage operation), and on economic return on investment. The corporate veterinarian's role is to prevent disease to the extent possible and to resolve emerging issues as rapidly and efficiently as possible, all with the goal of minimizing losses and maximizing economic efficiency.

I found corporate poultry medicine to be intensely interesting and very fulfilling. When one has designed and implemented and is responsible for monitoring an entire population health program, the sense of ownership and responsibility is very real. When "your" program results in a healthy population with few disease problems and excellent performance (good livability, low condemnations, good feed conversion, etc.), there is a deep sense of satisfaction in a job well done and in the realization that you have used your knowledge and skills to protect human and animal health, advocate for the welfare of the birds, and assist in a very real way in the production of wholesome protein and the provision of a good income for your fellow employees and the farmers who work with your company. Disease events that occur on your watch, on your program, are an unwelcome event, but they do occur, and may be due to several possible factors. The factor you don't want to see is a weakness in the design of your program (the interventions used or their timing), which hopefully is a rare event and is rapidly corrected when detected. Another is a fault in the implementation of the program, which is fairly common and engages one's skills in educating and motivating your managers,

employees, and growers. Finally, there can be a change in the existing pathogen, the emergence (or importation) of a new pathogen, or a change in the amount of challenge; these are is also surprisingly common and frequently represent a very intellectually challenging puzzle to solve. Solution of these events, and especially the elucidation of a change in a pathogen and resolution of the issue, is also intensely gratifying. The ability to employ your knowledge, training, powers of observation, and skills to solve a complex disease issue, and the unique and powerful ability in the poultry industry to precisely measure that outcome from an economic standpoint, is a source of huge satisfaction. The broiler industry measures every input and outcome, frequently to the hundredth of a cent per pound. You can see in very clear terms the outcomes and impacts of your decisions and actions.

For me, corporate practice was like living in a huge, real-world research laboratory in which I either identified or was presented with a problem; investigated and characterized the problem; developed and instituted a population-based solution utilizing the latest scientific information, often with the direct assistance of the leading academic experts on that particular issue; and accurately measured the outcomes in a huge number of replications (flocks) to a fraction of a cent, all without having to write up a grant proposal beforehand, acquire funding, or publish the findings afterwards, unless I just wanted to! I can state confidently that, over the years, I made my employer and our growers a significant amount of money (in losses prevented and efficiency preserved), prevented a lot of disease and suffering in our birds, brought a lot of protein to market that otherwise would have been lost, and received tremendous intellectual stimulation and personal

satisfaction in the bargain. There is rarely a dull moment. Even when things are going well, you are casting about for ways to make it even better or more efficient or to achieve the same outcome with less expense. There are always new products and approaches brought to you by a sales representative or picked up in a journal or scientific meeting that need to be tested and evaluated for return on investment. In spite of my allusion to a distaste for publishing, this real-world laboratory and the automatic, extensive record-keeping system allied with it provided lots of fodder for numerous presentations at meetings and even a few publications in both industry and scientific journals.

Another fascinating part of the job is the complex interaction of genetics, diet, management and disease. The amazing genetic progress possible with the short generation interval in broilers requires constant adjustment on the part of managers, nutritionists, and veterinarians. The responses of the latest edition of a breed to environmental conditions, nutrients, vaccines, pathogens, and so forth can vary tremendously, and recognition of these constant changes is part of the ongoing process of altering all of those programs to meet the needs of the bird you have today. Nutrient profiles, brooding temperatures, lighting programs, vaccine virulence and timing, and numerous other parameters may interact differently with a new breed and require recognition of the precise effect and adjustment on an ongoing basis. Diet and management have huge roles in their own right, not only on economic performance but clearly on disease susceptibility and outcomes. This creates a delicate balancing act for the veterinarian, who needs to be cognizant of those issues and diplomatically point out deficiencies when they have been thoroughly documented, while keeping in mind that

your primary role is disease prevention and control. One memorable example occurred very early after my arrival at Fieldale. The vast majority of our broiler farms had trough drinkers. Dr. Stewart had already initiated a campaign to replace them with enclosed nipple drinking systems. This move was met with considerable resistance, due to the cost involved and also to the fact that the early nipple systems did restrict water intake and reduce growth rates. There was reluctance on the part of our managers and growers to believe that the open drinkers had any deleterious effects; they had been used successfully since the inception of the industry. Dr. Stewart persisted, and a commonly used scheme of establishing a separate grower contract with higher pay for those who installed the nipple drinkers was implemented to encourage adoption and offset the cost, with a planned deadline that would require installation of nipple drinkers to continue growing chickens. The effect on bird health and performance on individual farms was immediate and dramatic, especially for infectious problems such as air sacculitis, cellulitis, and septicemia. Since the changeover was gradual over a prolonged period, it would be difficult to assign a precise value to the entire company, but the overall impact on our performance parameters was undeniable and emphasized the profound impact a single management procedure could have on health. Dr. Stewart and I advocated for the change on every farm visit. The change in bird health was so dramatic that almost all of the growers recognized it as well, and I had more than one comment to me, “Doc, I wish I had listened to you sooner about those nipple drinkers.” Tunnel ventilation and evaporative cooling systems presented another clear example. Every summer, one of the live production secretaries was assigned the additional task of keeping a log book of heat mortalities phoned in by the flock supervisors, to keep marketing appraised of the broiler

supply for slaughter each week. After tunnel ventilation and evaporative cooling were implemented by a similar scheme, that task and the log book disappeared; summer heat losses were a thing of the past. Numerous other examples could be cited, such as dual feed bins, computer controllers, static pressure vent controllers, circulation fans, litter treatments, and so forth.

Working with large populations of birds, in an important and visible industry, with large sums of money at stake gives one the ability to utilize the latest technology, and provides access to the leading experts on any given subject. Several examples of disease incursions and changes in pathogens and the tools available will illustrate this point. Infectious Bronchitis Virus (IBV) was probably my main nemesis over the years, and the source of numerous stories, but Infectious Bursal Disease Virus (IBD) and attendant problems with gangrenous dermatitis; Inclusion Body Hepatitis (IBH); Infectious Laryngotracheitis Virus (LT); reovirus (both the classical tenosynovitis strains as well as strains associated with enteropathy, stunting, and poor performance); and coccidiosis and necrotic enteritis were other frequent challenges that seemed to evolve over the years.

When I first arrived at Fieldale, the Arkansas serotype of Infectious Bronchitis Virus (IBV) was not recognized to occur in Georgia, and the vaccine was not permitted in the state. We were having respiratory disease and air sacculitis issues on our typical Mass-Conn program, which gradually intensified over my first year or so. PCR was not yet on the scene, and isolation and identification of respiratory pathogens, especially IBV, was more difficult than I had expected. I began on ongoing slaughter-age serology program

made possible by the relatively cheap, rapid in-house ELISA system, which allowed me to test large numbers of birds and flocks on an ongoing basis. I continued this program through my 27 years at Fieldale and found it to be an extremely useful tool. This program suggested that the issue in 1991 was IBV. Adjustment in the brand, timing, and dose of the IBV program produced no results. We performed numerous HI tests, and the results were literally shouting "Arkansas", with extremely high Ark titers in the face of vaccination for Mass/Conn. (This was probably the only instance in which I found IBV HI to be very beneficial, and it was later supplanted by the "new" PCR techniques.) Dr. Birch McMurray at Seaboard Farms was finding similar results, and we jointly approached the state vet at the time, Dr. John Cobb. Dr. Cobb was fearful of the impact of the Arkansas vaccine, and would not approve the vaccine on the basis of HI; we had to isolate and type the virus, which as mentioned was a bigger hurdle than one would expect in the days before PCR. Dr. Louise Dufour (now Dufour-Zavala) was a technical service veterinarian at Select Laboratories (now BI) and was helping me investigate the problem. She pointed me to Dr. Syed Naqi at Cornell, who had one of the only FA tests for several serotypes of IBV available at the time. I got samples to Dr. Naqi, who was able to demonstrate the Arkansas serotype with FA, Dr. Cobb approved the vaccine, and we implemented it ASAP. This was in the late summer of 1992. The response was one of the most dramatic population health responses I have ever witnessed; with the arrival of the first vaccinated flocks at the plant, the problem ceased overnight, and it got even better with the second cycle, even though winter was coming on by then, which I attribute to herd immunity and the suppression of challenge in the population as a whole

due to that herd immunity. This was the first of many experiences I had over the years with personal access to the latest technology and to the leading experts in the field.

The Arkansas-DPI vaccine, though a savior when needed, is not without its issues. As soon as we implemented it, we noted more clinical reaction to the B1-Mass-Ark DPI vaccination compared to the B1-Mass-Conn. We eventually began to have air sacculitis issues again, and this time our faithful processing age serology problem was suggesting the possibility of both Newcastle Disease Virus (NDV) and IBV, as both diseases were demonstrating gradually increasing average titers at processing. PCR was now available, using restriction fragment length polymorphism (RFLP), at Dr. Mark Jackwood's lab at PDRC, and the main isolations from numerous submitted cases were Ark DPI (i.e., vaccine) and occasionally lentogenic NDV, probably our B-1 vaccine. We again tried various adjustments to the brand, dose, timing, and administration of our B1-Mass-Ark program, as well as careful investigation of IBD, to no avail, and eventually decided to take the leap and pull the Ark DPI vaccine from the program, during the summer of 1996. There was initially a slight favorable response, including a marked decrease in the vaccine reaction, but by the second cycle without Ark vaccine, and with fall coming on, the situation rapidly became a major train wreck, with horrendous condemnations. I remember thinking at the time that if I were the owner of the company, I would fire that ignorant veterinarian! Interestingly, as soon as the Ark DPI was pulled (and coincident with the short-lived favorable response and decreased vaccine reaction), the NDV titers at processing declined precipitously, to negligible levels. I developed the hypothesis, in retrospect, that the Ark DPI vaccine was even more adept at interfering with the B1

Newcastle vaccine than other IBV serotypes such as Mass or Conn, and that interference was creating rolling NDV reactions, which were a major part of the disease issues as well as the elevated titers at processing. Dr. Jackwood also began to identify an Arkansas variant termed GA-93 in these Ark-unvaccinated flocks, which probably contributed as well by challenging our Ark DPI vaccine protection. Returning to the B1-Mass-Ark DPI program got things back to a dull roar, and some innovative changes like split vaccination with the B1 and IBV fractions led to some improvements. The eventual solution was the new C2 NDV vaccine from Intervet (now Merck), and eventually other new NDV vaccines, including the vectored HVT-NDV constructs gave relief to this interference issue. Again, the access to recent technology and academic experts were key.

In the winter of 2006-07, we had a case of devastating mortality and flushing in a flock near Lavonia, GA. The affected houses went from normal on a Thursday to literally ankle-deep mud throughout the house with thousands of mortalities per day by Monday. (These always happen on a weekend!!) Affected birds had remarkably swollen kidneys full of urates. The grower was a bit of a local character, and I initially thought that some offended neighbor had actually maliciously poisoned the flock, the signs were so sudden and severe. However, serology and histopathology on kidneys suggested nephropathogenic IBV, and by now PCR with sequencing was available and Dr. Holly Sellers at PDRC identified a new IBV termed GA-07. We had probably a dozen or so additional cases over the next 18 months, initially in the same area but eventually more widespread. Fortunately, each succeeding case was milder than the previous ones, and that virus eventually disappeared, which is frequently the history with emerging IBV

variants. Unfortunately, my luck didn't hold. In the fall of 2007, while GA-07 was still gradually dying down, we began to have air sacculitis surprises at the plant. Flocks with no known mortality or clinical signs would unexpectedly have severe air sacculitis condemnation. I soon learned to look for dyspneic, panting birds and post those birds. If a significant number of those suspects with just dyspnea had air sacculitis, one could expect an issue at the plant. We began to work up those cases, and again with the help of PCR and sequencing, Dr. Sellers began to repeatedly isolate a new IBV, unrelated to either Ark or GA-07, which she termed GA-08. Curiously, the first isolation and identification of GA-08 was from the same farm in Lavonia where I first saw GA-07, and occurred in about December of 2007. (We named it GA-08 because GA-07 was already taken! And, fortunately, they didn't get named Fieldale 07 or Smith 08!) Unlike GA-07, GA-08 didn't go away, and by March 2008 we were having significant issues, and adjustments to existing vaccination programs had no effect. A colleague, Dr. Mark Dekich, pointed out to me that there is a provision in 9 CFR that allows a veterinarian, in the course of a state-licensed private practice, to manufacture vaccines for use solely in that practice, without being subject to federal licensure. A similar exemption applies to the owner of an animal. Since Fieldale was my practice, and since we owned the animals, it was clear that we could legally make our own vaccine. I was reluctant, but I approached the owners and broached the subject. They said, "How much?" I had no idea, but I said, "Over $750,000", probably in hopes that would discourage them. However, when you condemn a bird in the processing plant, you have lost the entire cost—chicks, feed, grower pay, catch, and haul. If the issue slows down the plant, the losses are exponentially worse. The owners did not hesitate; they said "Do it." I had to

obtain permission of the state veterinarian, which we did, again with the assistance of Dr. Louise Dufour-Zavala, who by now was head of the Georgia Poultry Laboratory network and poultry advisor to the state vet. I had the distinct honor and pleasure of working with Drs. Hiram Lasher and Vergil Davis to build a small vaccine manufacturing facility in an old box warehouse—basically a clean room inside an outer shell. The final cost was probably closer to $1,000,000. As we were designing and building the lab over the course of the summer and fall of 2008, the cases continued and Dr. Sellers was passing the virus in eggs and testing for attenuation about every 10 passes. The lab was ready for occupancy in December 2008, and Dr. Sellers had a sufficiently attenuated and tested seed about the same time. The time from the first identification to manufacturing a vaccine was about a year—pretty remarkable! We made the first small batch between Christmas 2008 and New Year's Day 2009, and tested it in January 2009. It appeared safe, but supplies were limited. We made vaccine as quickly as we could and gradually ramped up vaccination, and the problem gradually disappeared and did not return. That seed was the basis for one of the commercially available products that eventually became available, as the GA-08 virus eventually spread regionally. Again, the access to technology, the opportunity to work with a leading poultry virologist and with one of the great figures in the poultry vaccine world, and the ability to solve a significant population health problem was extremely gratifying.

We had another emergence of a new IBV in 2013, GA-13, and made another vaccine and solved that issue. GA-13 appears to be only a sporadic isolation now, no commercial

vaccine was ever made, and it does not appear to be a significant problem. Suffice it to say, the lab paid for itself many times over.

An entirely novel viral enteropathy, unfortunately termed "Runting-Stunting Syndrome (RSS)" was yet another example of an emerging disease in which I was heavily involved at an early stage, and in which we as an industry called upon both existing and new technology, as well as experts in the field, to attempt to find solutions. Numerous colleagues collaborated with a number of imminent virologists and pathologists, including Drs. Holly Sellers and Guillermo Zavala at PDRC, Drs. Jack and Sandy Rosenberger and Milos Markis at AviServe LLC, and Dr. Fred Hoerr at Auburn to seek answers. While some reoviruses and astroviruses were associated with the problem, and numerous management changes were investigated to ameliorate the problems associated with the severe flushing and stunting, no definitive answer was ever developed and the problem eventually subsided on its own. This is a familiar problem with these viral enteropathies, which seem to come and go and remain a bit of a "black box" to this day. Later, the classical reoviral tenosynovitis, which up until then had appeared to be very stable, began to mutate and escape our heretofore highly successful maternal vaccination programs, and many of these same experts again came to our aid and helped us to identify variants and construct effective autogenous killed vaccines to meet the challenge.

Numerous other examples of changing or emerging diseases and the use of cutting edge technology and the help of colleagues and leading academic experts could be cited. One of the most exciting and effective initiatives to date has been the HVT-vectored vaccines

for Infectious Bursal Disease, NDV, and Infectious Laryngotracheitis Virus, all of which have made measureable improvements in our management of these diseases.

Other, more political issues also arise and are the one fly in the ointment. A prime example is reportable diseases and the trade repercussions thereof. In 1996 I was the President of the Association of Veterinarians in Broiler Production (AVBP) and therefore chair of the National Chicken Council (at that time the National Broiler Council) Poultry Health Committee, when the trade dust-ups with the Russians occurred over LT and Reovirus among other things. I became heavily involved as an industry representative in those discussions. While I must admit that the experience was interesting, it was also quite frustrating. Similarly, I was finishing a term as the Vice Chair, and beginning my term as the Chair, of the Committee on Transmissible Diseases of Poultry of the United States Animal Health Association at the time of the Virginia AI outbreak, and was swept up in the development of the response to that problem, which eventually became the basis of the NPIP AI program. And, there is even a bright spot here; I have found that our colleagues in the federal and state governments are usually concerned, sympathetic, and ready to help as much as they can. Most of them have been really great to work with. The one political issue that has caused me the most concern and heartburn is the "no antibiotics ever" (NAE) movement. Our company was a leader in this, beginning production in 1999 and going 100% NAE in 2010, and it is purely a marketing ploy. Responsible antibiotic use is one thing, and attention to judicious use was long overdue, but banning antibiotics completely to obtain a marketing advantage is not only unwise but unethical. We made it work, and it was an interesting scientific and practical

challenge. But banning my access to highly effective and innocuous products like ionophores because the public is too ignorant to understand is unconscionable. I did learn a lot about coccidiosis, necrotic enteritis, and gut health through that experience, and got a lot of invitations to speak at meetings and write articles.

During my poultry career I was quite active in organized veterinary medicine; it just seemed like the right thing to do. Veterinary medicine is a small profession and poultry medicine is a tiny part of the veterinary field, and we need to work together to advance and protect our profession. I actively supported and participated in AAAP, AVMA, US Poultry and Egg Association (USPEA), the United States Animal Health Association (USAHA), the National Chicken Council (NCC), the National Poultry Improvement Plan (NPIP), and the Association of Veterinarians in Broiler Production (AVBP). In AAAP, I served on the Awards Committee for 7 years and chaired it for 4 years; the Scientific Program Committee for 6 years, chairing it for 3; the Research Priorities Committee for 3 years, where I was the first chair for all 3 years; and I have been on the Avian Diseases Advisory Board since 2003. I was on the Board of Directors as President Elect, President, and Past President from 2016-2019, and chaired the Nominations committee for a year. I was pleased and honored to be recognized for my contributions to AAAP with the Lasher-Bottorff Award in 2006, the Special Service Award in 2016, and induction into the Hall of Honor in 2017. I suppose one major mark I made on AAAP was in spearheading a total revamping of the Constitution and Bylaws in 2018-19, which was sorely overdue.

As the AAAP Scientific Program Committee chair, I served on the AVMA Convention Management and Program Committee for 3 years. Prior to that I had been the NCC representative to the AVMA Animal Agriculture Liaison Committee for 6 years, chairing that committee for a year. That was an interesting committee, with representatives from all the major commodity groups, even including aquaculture, and we had many interesting and sometimes intense discussion. At US Poultry and Egg I was frequently involved in the planning committees for their various educational programs, and I served on the Foundation Research Advisory Committee (FRAC) for 16 years, chairing it for 9 years. The FRAC reviews all of the applications for research grants and recommends the grants to approve to the Foundation Board, a tough but important job. USPEA is a great organization, and their research funding and educational programs are a very valuable asset to the industry. I was honored to be recognized by USPEA with one of the first Lamplighter Awards for industry service in 2004 and the Workhorse of the Year in 2017. I became involved in USAHA via the Association of Veterinarians in Broiler Production. The AVBP realized that we needed to make our voices heard with the regulators and that USAHA is the place to do that. As a result of that involvement I somehow allowed Dr. Stan Kleven and Dr. Bob Eckroade talk me into being Dr. Eckroade's Vice Chair for the Committee on Transmissible Diseases of Poultry for 5 years, followed by 5 years as the Chair. My luck, the big Virginia AI outbreak of 2002 was toward the end of my term as Vice Chair, and our Committee became heavily involved in the initial development of the plan that eventually became the NPIP AI control plan. USAHA is indeed the place to interact with state and federal regulators. You actually get to know a lot of them, which can come in handy when something like an AI outbreak occurs in your neighborhood!

My involvement with NCC was mainly on the Poultry Health Committee, where I was chair for a year (as AVBP President) and became involved in the initial iterations of the NCC Broiler Welfare plans. I participated in a number of NPIP Biannual meetings as a representative for Georgia, and found those meetings and that process to be quite interesting and effective. So, over the years, I was a regular attendee and fairly frequent presenter at AAAP, USPEA, USAHA, AVBP, WPDC, and the National Meeting on Poultry Health and Processing ("The Condemns").

AAAP has evolved considerably over my years of participation, always for the better. The decision initiated by Dr. Chuck Hofacre to hire BK Management Services as our association managers was a major stroke of genius, and Bob and Janece Bevans-Kerr have had a huge role in taking AAAP to the next level. Our journal has remained strong, our educational materials and scientific programs are better than ever, our member engagement and the functioning of our committees is as robust as I have ever seen it, and the support of our Foundation and the scholarship and mentorship programs it provides for the next generation have reached new heights. Our industries and AAAP face ever mounting challenges, but I am confident that AAAP is now up to that challenge.

Being in such close proximity to Athens, and being active in the industry, we hosted lots of interns and externs. I owe a lot to my teachers and mentors, and I can never repay them; the way we all do that is to "pay it forward" by mentoring those that follow us, and it is a very gratifying experience. You get to know a lot of great young colleagues at the start of their careers, and those relationships last to retirement and beyond. One of the

best things about our profession is the people. I truly believe that veterinarians as a group are great people, and poultry vets are some of the best. Some of my best friends are my professional colleagues, and I have truly enjoyed seeing them at meetings and collaborating in our organizations to solve problems and advance the profession and the industry. I owe much of my success not only to my family, teachers, and mentors, but to my veterinary colleagues, including other production vets, tech service vets, laboratory vets and personnel, and my many friends in academia and research. It's a great profession, a great industry, and it's been a great ride.

The sponsors of this project have asked us to reflect on, what we might have done differently. I already mentioned that I should have gotten into poultry sooner, although I don't regret my academic career, and I certainly learned things in that phase that benefited me later. I think that there is a need to expose students in pre-vet and early in their veterinary training to other facets of the profession besides companion animal medicine, which seems to be the primary focus now more than ever. It is important to their future success and to our society that veterinarians be involved more in the production of animal products and in public health. While it has been nice to be employed at the executive management level in a company, I think the poultry industry could definitely benefit from utilizing many more veterinarians, including at a more hands-on level in the field. I think in retrospect if I could have done something differently, I would have pushed for (an) additional veterinarian(s) in our relatively small company (3.2 million head a week being "relatively small") to get more trained eyes in

the field, including my own. I think the value is there, and I believe we should have many more veterinarians working for broiler, turkey, and egg production companies.

We're also often asked for parting wisdom/advice/warnings. This industry and our profession is changing rapidly, but then it always has, just in different ways. Our role as diagnosticians and problem solvers will always be needed, but the increasingly better tools and knowledge are making that role easier and more efficient. What is taking up the resulting slack, if you will, seems to be political issues and consumer demands and concerns—animal welfare, drug and antibiotic use, environmental impact, and so on. Our successors need to be better prepared than we were to address these issues. Another big concern I see among our successors is stress and work-life balance. Those issues are undoubtedly important and need more attention. However, I see our profession as a calling, not just a job or a means to an end. If you are on a mission to accomplish useful and important things, and not just trying to put in the hours for a check, stress and dissatisfaction should be much less of an issue. I hope our heirs and successors will continue to take pride in a job well done and derive the intense personal satisfaction that I have from solving problems, husbanding animal resources, preventing animal disease and suffering, and being an important part of providing food to a hungry world. Be diligent, use the scientific method, keep your eyes on the goal, and be critical of poorly founded claims and assertions.

In retirement, I still enjoy my beekeeping hobby, though it has gotten more difficult with the advent of the varroa mite (appropriately named *Varroa destructor*) and the viral

diseases it vectors. The biology of the social insects is absolutely fascinating and still keeps me engaged in the hobby, but I fear that a lot of my closer colleagues have learned not to ask me how the bees are doing, for fear of receiving a 30-minute lecture on the latest problem. I also acquired my own hobby farm several years ago (clearly a calling from my youth) and I enjoy mostly playing with my tractor; so far the only produce of the efforts is some endophyte-positive fescue hay with a healthy dose of thistle, bull nettle, dog fennel, and Johnson grass. My pup also loves riding in the truck and going to the farm. Living in the rural South and both being veterinarians, we have generally taken in whatever shows up; at the peak we had 10 cats and 6 dogs. As I write this, the tally is only 2 dogs (an old hound and the pup) and 6 cats. I am the chief feeder, litter-box-cleaner, and provider of health services. After years of trying to find time just to read journals, USDA notices, emails, etc., I have resumed my love of reading and I am trying to read classic novels that I should have read and never did. I have to admit however that *Moby Dick* was a pretty tough slog, and Faulkner is getting tougher with each succeeding book! Finally, home maintenance and improvement projects take a good bit of time. I've heard retired guys say "I don't know how I had time to work!" and it's true. I suppose a lot of things that needed to be done just didn't. Probably the best part of retirement is being on your own schedule and (mostly) doing what you want when you want!

This profession gave me a good lifelong income, intense satisfaction in a job that I felt was important, a feeling of pride and accomplishment, and some of the best friends and

colleagues in the world. Who could ask for more? I hope you all can find similar satisfaction and fulfillment.

Biography solicited by the Committee on the History of Avian Medicine, American Association of Avian Pathologists.

Additional biographical materials may be available from the AAAP Historical Archives located at Iowa State University. Contact information is as follows:

Special Collections Dept. & University Archives
403 Parks Library
Iowa State University
Ames, IA 50011-2140