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Fifty years with feathered food animals



Dr. Arnold S. Rosenwald

As I was about to reduce the length of these “Reflections,” I received a copy of the *JAVMA* with an ad in it for a publication titled “The US Market for Food Animal Veterinary Medical Services” by J. Karl Wise. The notice indicated that the publication had 200 pages and 82 tables about beef, dairy, swine, and sheep markets. There was nothing about poultry or poultry products, yet food products derived from animals with feathers equal or exceed in value (and value does have something to do with economics) that of sheep and goats, certainly, and swine and other individual species covered. I find it difficult to fathom why many veterinarians and some major veterinary organizations, including veterinary colleges, seem to ignore the importance of poultry veterinary medicine and of poultry as human food. Very few poultry practitioners are considered by their fellow veterinarians to be practitioners, yet many poultry veterinarians who serve as managers, consultants, and diagnosticians are in practice in a very real sense. This is also true of poultry disease researchers.

Historically, the first case of vitamin deficiency in animals fed natural feedstuffs was recorded and reported by a poultry research veterinarian. Patterns for improved production of biologics and improved testing and regulatory procedures for veterinary biologics were set by the 1938 requirement that live viruses must be produced only in chicken embryos (fertile incubated eggs), which was made on the basis of research and problem solving by veterinarians in academic and industrial poultry practice; standards were improved through the preparation and publication (1956 to 1959 by the National Academy of Sciences, National Research Council, NAS/NRC Publication No. 705, revised as NRC Publication No. 1038 in 1963 and again in 1968) of “Methods for the Examination of Poultry Biologics.”

Why this type of activity is any less practice than individual animal treatment or feedlot practice or dairy (herd) practice, I don’t know; the individual animal value is less, but the aggregate value of the herd or flock is greater than any individual animal treated in the normal course of food animal medicine. Poultry practice set the pattern for the role of herd animal medicine in today’s production of animal food for human beings.

Which brings up a question: What is a veterinary practitioner and what differentiates practitioners from nonpracticing veterinarians? Is it the differing clientele, skills, and workplaces, or is it simply a different concept of veterinary medicine? Diagnosticians, consultants, research workers, extension veterinarians, and industrial veterinarians all practice, in different ways, the art and science of veterinary medicine—even as do small (companion) animal, dairy, feedlot, and poultry practitioners.

Early years in poultry veterinary medicine

In 1946, I accepted a job as the first extension poultry veter-

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inarian at the University of California, working 4 years at Berkeley (UCB), and from 1950 (2 years after the veterinary school opened) until retirement in 1977 at Davis (UCD). It was my good fortune to initiate the extension poultry disease program under the guidance of one of the premier extension workers of all time, Mr. W. E. "Bill" Newlon. It took a while to understand the purposes of extension: to seek the truth, to develop needed information, and to interpret research findings for the greatest benefit for all.

When I had graduated from Kansas State University in 1936, lack of capital and nerve guided me into the realm of red meat inspection—for the experience but not for a long-term career. Less than a year later, a chance to return to the West came as an opening at Oregon State University (OSU) as a poultry veterinarian.

When someone asks, "How did you happen to get into poultry?" the answer was and is that there was a job and a challenge. At that time (1937), jobs were not plentiful and so I went west. Oregon State had an outstanding scientist, Dr. W. T. Johnson, doing poultry work; he was making the fundamental discoveries basic for the control of poultry coccidiosis in the West, while Dr. E. E. Tyzzer made pioneer discoveries at Harvard. Dr. Johnson also developed an effective fowl pox vaccination plan, operated the diagnostic laboratory, and initiated an outstanding program of pullorum disease control before there was a National Poultry Improvement Plan.

Dr. Johnson had come from the Western Washington Experiment Station to head up the poultry disease work at OSU in 1925. In the period before his death in December 1937, he had established the principles of infection, self-limitation, differentiation of species, and immunity in the recognized species of coccidia, and described 2 new ones, *Eimeria praecox* and *E. necatrix*. Using crude but effective techniques, and with no micromanipulators, he fed single cell cultures to susceptible chickens; he used his hands, his eyes, and, primarily, his mind. He determined that fowl pox, a viral disease, could be effectively prevented by "stick" vaccination, using a single needle dipped in a suspension of dried pox scabs. Through the work of Dr. Johnson and others in the Pacific Northwest, pullorum infection was eliminated from the breeding flocks of the region. The blood-testing fees and the sale of pox vaccine financed much of the poultry disease research before World War II.

Within a month of arriving in Corvallis, I was working 10 or more hours a day trying to learn and getting in and out of trouble, as when I declared some breeder chickens "infected with pullorum disease." Attempts to isolate the causative organism failed and a subsequent serologic test determined that the original test was wrong. The flock in question had been completely "closed" for over 10 years, with no infected chickens on the farm. My epizootiologic experience was meager too! The lessons I learned were to be cautious, carefully interpret findings, and depend on flock history as a guide to find correct answers. I learned the value of the phrase "I don't know," and, to an extent I suppose because of the association with Drs. Johnson, B. T. Simms, and J. N. Shaw, and all of OSU, I developed the feelings so aptly expressed by the British physicist, Sir Oliver Lodge, "Because you call a thing by name, you are not to suppose that you understand it."

Dr. Johnson died, at a very early age, less than 9 months after I arrived at OSU. His position was not filled for over 6 months, and so I read, asked questions of the other veterinarians at OSU, wrote letters inquiring about poultry diseases, learned from peers, clients, and poultrymen, and came to recognize erysipelas as a major turkey problem. I had great opportunities to meet many independent and innovative individuals in the poultry business, to see the devel-

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opment of a number of outstanding White Leghorn chicken strains, and to recognize that turkey growers are a different kind of people from those who manage egg-laying chickens. I learned enough to be able, with the guidance of others, to carry on until Dr. E. M. Dickinson came back to Corvallis to lead the poultry program.

I became involved in organized veterinary medicine, joining the AVMA and the Poultry Science Association. In 1940, I attended my first AVMA convention, presenting our findings on erysipelas. The meeting in Washington, DC was chaired by the late, great Dr. Erwin Jungherr, considered by many to be severely authoritarian. At my first professional presentation I could hardly get words out of my mouth; I often remember that Dr. Jungherr reached over, poured a glass of water, handed it to me, and started me on track!

Changes in the poultry industry and poultry veterinary medicine

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When I left Corvallis in 1942 for the army, commercial broiler production was in its infancy, and coccidiostats were just being developed. The major poultry enterprises were table egg and broad-breasted bronze turkey production. After World War II, the meat chicken business increased greatly, and productivity and size of laying flocks grew along with the development of highly specialized, sophisticated chicken and turkey breeding programs.

The poultry industry is one of the leading food production industries in all of animal agriculture, and poultry and poultry products worldwide have great importance. The US consumption of meat per capita changed between 1930 and 1985 (USDA, June 1985). Consumption of beef increased from 42 lb per capita to about 100 lb in 1978, but slumped to 72 lb in 1985. Pork increased from about 57 lb per capita in 1930 to a high of about 72 lb in 1972, then varied down to about 59 lb in 1985. Broiler-fryer and turkey consumption meantime has soared from about 16 lb per capita in 1930 to 67 lb in 1985 and is still climbing. When you also consider that the national consumption of eggs (though it has decreased in the past decade) is more than 25 lb of “egg meat” per person, the importance of poultry in human food production is inescapable!

During 5 plus years at OSU, through the challenges I faced in problem-solving investigations, teaching, and all of the stimulating contacts with scientists, poultrymen, and other veterinarians, the importance of poultry veterinary medicine became very apparent. Just as I had made my decision to study veterinary medicine, my plan to stick with poultry veterinary medicine was based on pride of accomplishment, challenges, and the firm belief that in some small way I could make a contribution. My feeling has been to “wear proudly” my profession and the branch of medicine that I practice, the organizations to which I belong, and the people with whom I work.

Poultry veterinary extension program begins at UCD

As a graduate of UCD, as well as being the first Extension Avian Veterinarian for UC, I had the pride of an alumnus and the naivete of someone starting a new job from scratch. With these incentives, it was possible to establish a program based on some of the things I learned at Oregon, while in military service (as a veterinarian attached to a Signal Pigeon company and a member of the Chemical Warfare Service stationed at Fort Detrick), and especially from working with many kinds of people who were and are very generous with their help and freely shared their knowledge and experience. The job was challenging, gave me an opportunity to learn much about California, California’s poultry industry, and the people who make it tick, and took me away from the family a consid-

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erable part of the time. To all—my wife and daughters, my co-workers at the University, and the people whom I served—I owe a lot for their tolerance and support.

In the early fifties, avian disease research at the University of California was in trouble. Dr. W. R. "Bill" Hinshaw left for Fort Detrick just before the beginning of the decade, Dr. J. R. "Jerry" Beach died suddenly, and the poultry industry, faced with severe respiratory disease problems, expanded greatly. But a small group, sharing work and ideas, managed to assist the industry to make real progress. It was easy to recognize that no 2 operations were alike, that each ranch was different, and that it's no sin to say "I don't know." But it is wrong to indicate that you really don't care. California's poultrymen were, and still are, innovative and sophisticated; they offered great support for research and extension programs aimed at defining and solving problems. Thus, a different but effective program of research and extension was built.

As the years passed and ranches became larger, the need for communication between professionals and between those of us on the West Coast with those elsewhere in the world also increased. In 1951, the Western Poultry Disease Conference (WPDC) was set up by a small group comprising a private poultry practitioner, 2 diagnosticians, university staff members, the State Department of Agriculture poultry disease specialist, and the extension poultry pathologist. For the first few years, the group met for half a day at UCD with the California Veterinary Medical Association and then expanded to a full day to discuss regional poultry health problems. There were representatives from most western states and, on some occasions, visitors from other areas or from outside the United States. When the California Veterinary Medical Association changed its meeting time and place, WPDC continued to meet at UCD in February or March. Over the years, the conference has grown to one of international stature. From 1967 through 1982, annual poultry health symposia to educate and stimulate poultrymen were held immediately after the WPDC as an Agricultural (Cooperative) Extension function. Two WPDC meetings, in 1980 and 1986, have been held jointly with the Asociacion Nacional de Especialistas en Ciencias Avicolas, a Mexican national group of avian disease specialists, and since 1976, all WPDC sessions have been simultaneously translated from English to Spanish.

The association with Mexican and other Latin American veterinarians has been a rewarding experience—I've learned a great deal (but not the ability to speak Spanish) and I believe have helped some of the poultry disease efforts.

Avian Diseases is founded

In 1957, two related but separate events occurred. A small group of scientists in the Northeast had long before discussed the possibility of an avian disease journal. Under the guidance of Dr. P. P. Levine of Cornell University as editor, and an editorial board, and with the backing of the *Cornell Veterinarian* as publisher, *Avian Diseases* was launched. Volume 1, No. 1 was published May 1957. Currently, it is recognized worldwide as one of the leading specialty poultry disease journals.

In the same year, at the Cleveland meeting of the AVMA, a hardy group, which included some of the founders of *Avian Diseases*, established a specialty organization for poultry veterinarians and their co-workers, the American Association of Avian Pathologists (AAAP). The history of that organization has been recorded in a special publication issued at the 30th annual (1988) meeting of the AAAP held, as all of their meetings have been, in conjunction with the AVMA convention. In 1961, the AAAP assumed publication of *Avian Diseases* and the marriage has continued to thrive.

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People are important

My career has been mostly in the West except for 2 sabbatic leaves; one to begin and complete a PhD at the University of Wisconsin, where it was my good fortune to be associated with Carl Brandly, Bob Hanson, and other greats, and the second at Cornell University to take over a field study on mycoplasma eradication under the guidance of Drs. Levine and Julius Fabricant. My work and play have been people oriented. In the past 50 years, there have been vast changes in the profession, in the schools, and in the orientation of research and extension. In the thirties, veterinarians were educated, as one of my close friends of earlier days said, "so that they were well trained biologists and could fit in many different niches." With the growth of non-farm animal practice, increasing specialization, and narrowing of the practice clientele (as well as the educational thrust), it seems to me that there is greater emphasis on technical expertise and business skills. There are, no doubt, practical and justifiable reasons for this, but in years past we thought basically of the benefits to society and clients; currently, there seems to be some feeling that the economic benefits to the profession itself are most important.

Dr. Beach summarized some contributions of the veterinary profession to the world's poultry and egg supplies at the International Veterinary Congress in London in 1949. He stated that,

"veterinarians have made laudable contributions to the World's poultry and egg supplies, and . . . their contributions undoubtedly would have been greater if the attack on poultry disease had had the interest and support of all segments of the veterinary profession. It is to be hoped that in the future students will emerge from the veterinary colleges well grounded in the principles and procedures of poultry-disease control; that the practicing veterinarians and livestock disease control officials will recognize that in monetary value poultry and poultry products compare favorably with those of other types of farm livestock and, therefore, merit attention. It is the duty of the veterinary profession as the guardian of health of farm livestock, to render service to poultry equal to that given to other types of farm animals."

His statements are true; let us not forget the past in looking so much to the present and future.

During the more than 50 years with poultry and poultry disease control and education, certain truisms have developed for me. Going way back to my undergraduate days at UCB and UCD, basic biological courses were required for the Animal Science degree. During my junior year at UCD, I objected to the fact that we were taking a lot of biological sciences (eg, physiology and biochemistry) instead of the more "practical things" such as livestock judging and stock selection. Dr. George Hart, at that time chairman of the Department of Animal Sciences, chastised me verbally for not thinking ahead, saying they would continue to emphasize sciences that could be applied after we finished school. Subsequently, when entering veterinary college at Kansas State, I had good reason to reflect on this. With a solid science background, rather than the application thereof (skill training), it was possible to complete the veterinary course more quickly and be both stimulated and educated, rather than trained. The lack of skills may have accounted for part of my career selection, but the basic background and the emphasis on logical, factually based thinking has always stood me in good stead.

Involvement with Latin American veterinary medicine

In the early 1960s, my experience with Latin America, partic-

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ularly Mexico and Central American countries, began with attendance at the Latin American Veterinary Congress in Mexico City. Subsequently, I was asked to participate for 6 weeks in a training course for poultry veterinarians of Central America, the Caribbean, and Mexico, sponsored jointly by the Rockefeller Foundation and the Food and Agricultural Organization, organized by the very great, late Dr. Robert Gordon.

A researcher whose specialty was fluorescent antibody diagnostic procedures had preceded me as an instructor and had emphasized the need for fluorescent antibody diagnosis. He forgot that the trainees lacked equipment and the tagged antibodies necessary for fluorescent antibody diagnosis. One of the Latin American veterinarians complained to me, "How can we solve problems, since we do not have the proper equipment or materials to make accurate and adequate fluorescent antibody diagnoses?" My response was that many basic discoveries had been made and numerous extremely complex problems had been solved, using only the same tools they had available—namely their eyes, ears, hands, and especially their minds. In truth, outstanding scientists have made noteworthy progress in poultry medicine as well as in other fields, using just their minds and simple facilities.

It was during this same training course that I became aware of the gap in many countries between the veterinary profession and agricultural science. For example, the course had been taught at a school of veterinary medicine building; all of the instructors had been veterinarians. When nutritional diseases and nutrition in general was to be taught, the most highly qualified individual was Dr. John Pino, an outstanding scientist and administrator, but not a veterinarian, who was in Mexico with the Rockefeller Foundation. The veterinary faculty immediately said that the course could no longer use the facilities of the veterinary school because a nonveterinarian was teaching! This fallacy, as well as my background in agricultural science and poultry work emphasized the fact that veterinarians cannot be everything to all people. We need to do collaborative investigation and interpretation to best solve problems. We live in a world of people, and tolerance is a must.

Learning to say "I don't know"

Through the years, perhaps by osmosis, the need to work with others who know more than you do to reach a goal has been reinforced. There are no completely correct or immutable answers; we need to learn to say, "I don't know, but I'll darn sure try to find out," and we need to recognize that veterinarians, to be most effective, need to work as part of a team, solving real and differing problems. The slogan, "each ranch is different" is certainly still true despite the increasing size and complexity of poultry and other agricultural enterprises.

One further comment that may not be, but seems to be, true is that 40 to 60 years ago, the outstanding research in veterinary medicine for poultry and other food animals was done at land grant colleges that did not grant veterinary degrees, by departments or divisions of veterinary science that were part and parcel of the Agricultural Experiment Stations. Such research was carried on in notable departments at UCB (Strawberry Canyon) with such notables as Drs. Beach, C. M. Haring, Jacob Traum, and W. H. Boynton, at UCD with Drs. Hinshaw, Fred Hayes, and J.A. Howarth, at the University of Minnesota, and at Oregon State College (now University) where such individuals as Drs. Simms, Johnson, C. R. Donham, and Shaw flourished.

It is hard to say whether the research productivity of these institutions stemmed from their compact size, or the interest of the

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individuals, or the lack of teaching and administrative pressures, or the stimulation of association with the bread-and-butter agricultural group. In addition, the source of funds for animal disease research has also changed. A higher percentage comes from external, non-agricultural sources; state or federal agricultural funding has become proportionately less than grant funds—and grant funds are often obtained because grant requests are tailored to obtain support rather than to get answers to problems recognized by the investigators. It is a vicious circle. The research output, especially in food animal medicine, seems, to me at least, to have decreased as more land grant schools have become veterinary colleges. Perhaps this assessment is unduly harsh, but in looking around it seems to me that the veterinary schools and colleges are currently more concerned with providing technicians to meet or develop a market than with solving some of the very real social, public, and societal problems. Again, it is recognized that no one or no one institution or series of institutions can be everything to all people; what you gain in one field you may lose in another!

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Dr. Rosenwald is one of the founders of the Western Poultry Disease Conference (1951), having been active as secretary and secretary-treasurer for many years. Currently, he serves as treasurer of the Conference. He is also a charter and life member of the American Association of Avian Pathologists, and served as president of that organization in 1968 to 1969. He was editor of *Avian Diseases* from 1961 to 1965. He indicates that his “hobbies” are the Western Poultry Disease Conference and people, particularly other veterinarians and especially those who know the value of feathered animals for the welfare of human beings.

For this feature, the editor welcomes and seeks contributions from veterinarians who have retired or are about to retire.