

realize at that time that I would spend the remainder of my career working closely with these persons involved with poultry diseases research.

Our first major development came in 1979 with the development of a successful vaccine for turkey coryza. This resulted from the discovery by Dr. Don Simmons at North Carolina State University that the agent causing coryza was a bacterium and not a virus. We then developed a temperature-sensitive mutant of the causative bacterium, *Bordetella avium* (then regarded as *Alcaligenes faecalis*), that served as an effective oral vaccine (this vaccine is called ART-VAX™). Reports on the development of this vaccine were made at the 1980 WPDC/ANECA meeting in Acapulco, Mexico and at the National Turkey Federation meeting in Salt Lake City, Utah in July of 1980.

Our next development came in 1980 when we made a slow growing and temperature-sensitive mutant of the CU strain of *Pasteurella multocida*, which was used as a vaccine for fowl cholera. This mutant was the ninth mutant we developed, or M-9. This vaccine was tested in 1981, and a report on its successful use was given at the WPDC held at UCD in February 1982. The M-9 vaccine is still being used at this time (2019) and is called M-NINEVAX™.

In February 1983 I attended the WPDC at UCD and reported on the work we were doing on staphylococcal infections in turkeys. We were able to use an interfering strain of *Staphylococcus epidermidis* (now called *Micrococcus caseolyticus*) that when administered to turkeys by aerosol, reduced the incidence of staphylococcus by over half. For the next 20 plus years this procedure was used to help control staphylococcal synovitis in Utah. In February 1984, I reported on the development of this procedure at the WPDC at UCD, and in July of that year I presented a poster on this project at the American Association of Avian Pathologist (AAAP) meeting held in New Orleans, LA.

At this time in my career, I was involved in both poultry disease projects and teaching classes on human disease. I was also involved in organizations dealing with all phases of microbiology, e.g., the American Society for Microbiology (ASM) and the American Association for the Advancement of Science. As a result, in March 1985 I was chair of the local hosting committee for the National ASM meeting being held in Las Vegas, Nevada. Because the ASM meeting was being held at the same time as the WPDC, I missed this conference - and in my absence was elected as the program chair for the WPDC meeting to be held in 1987.

During 1986 I attended various poultry disease meetings, including the April WPDC/ANECA meeting in Puerto Vallarta, Mexico. There the proceedings of the meeting had been printed and were available at the start of the meeting - this was done by Drs. Duncan McMartin and Ben Lucio. Up to this time, the proceedings were only available some weeks after the conference.



36th Western Poultry Disease Conference Executive Committee (1987)
L to R: Duncan McMartin, President; Marcus Jensen, Program Chair;
Barry Kelly, Program Chair-Elect; Rosy, “Commander-in-Chief”

Because of the rapid advances that were being made in computer technology in the mid-1980s, I was able to get the Scholarly Publications and the Graphic Communications Departments at Brigham Young University to help with the production of the 1987 WPDC Proceedings, and the printing was done by the BYU Press. This required the authors to submit their manuscripts on a computer disk or submit their manuscripts directly over the BITNET network that connected most universities in the world at that time. This allowed us to have the printed Proceedings at the start of the 36th WPDC Conference held at UCD in March. At this conference, I was automatically put in as president for next year, and was also retained as editor of the Proceedings.

During the July AAAP meeting in Chicago, the board of directors of the WPDC met to begin a reorganization that would help reduce the work load on Dr. Rosenwald in running the WPDC. At that time, it was agreed to continue printing the Proceeding at BYU.

The second printing of the Proceedings was done at BYU in 1988 for the 37th WPDC held at UCD, this meeting being dedicated to Dr. Rosy. I would now be involved with the editing and production of the Proceedings for the next eight years, but the method of production would change as technology evolved. The third printing of the Proceedings for the 38th WPDC in 1989 was done at BYU, but the conference was held at Arizona State University in Tempe, Arizona. The next conference, in 1990, was held in Sacramento, California, which began a shift from holding the meetings in Davis. In 1991, the WPDC was held in conjunction with ANECA in Acapulco, Mexico. We collected and formatted all of the manuscripts for the WPDC, and sent them to Mexico for printing six weeks before the meeting; however, the printed copies were not available until sometime after the meeting. Nonetheless, we enjoyed a nice meeting in lovely Acapulco. Starting with this Proceedings, the computer technology had progressed to the point that I started using part-time student secretaries to format the manuscripts from computer discs.

By 1992 the production of the Proceeding was becoming routine, but did require a fair amount of effort early in the year. At the 41st WPDC, held in Sacramento, I was surprised to have the

conference dedicated to me for the effort I had made in producing the proceedings of the conferences over the past years.

For the years 1993, 1994, and 1995 the WPDC meetings were held in Sacramento, and I continued with the editing, formatting, and printing of the Proceedings at BYU. In 1994, I retired from BYU, but retained a position as an emeritus professor, and thus retained full use of University facilities. So I continued with the work on the Proceedings as usual.

The 45th WPDC (and last proceedings that I was involved with) was a combined WPDC/ANECA meeting to be held in May of 1996 in Cancun, Mexico. This required some pre-planning, and in November of 1995 I met with committee members from WPDC and ANECA in Mexico City for the planning of this meeting. The manuscripts for the WPDC papers were received on discs or by electronic transmissions and processed at BYU early in 1996. Subsequently, they were sent to Mexico to be combined with the ANECA papers into a single publication that was ready by the time the combined conference was held. Ten relaxing days were spent in Cancun attending this conference.

In addition to the WPDC meetings listed above, I attended various AAAP meetings as well as various international poultry disease conferences over the years.

After the 1996 WPDC meeting, I was less involved in the leadership, but still attended many of the WPDC meetings, and had papers presented on some of our ongoing research. At the 47th WPDC meeting, I was awarded a Special Recognition Award for the many contributions made to the Conference, and at the 2001 Conference, I was one of seven recognized as having made important contributions to the Conference. I continued to attend intermittently through 2006, and at this last conference Dr. Rosy Rosenwald in his 96th year was still attending.

I am forever grateful to Rosy and other coworkers in the field of poultry disease research who helped me move into this field of research and have helped me to have a productive and rewarding career.

Reflections and Additional Insight

Turkey disease research at BYU. At the time of Marcus' re-introduction to MFC in 1975, the cooperative was facing a devastating contagious disease known locally as turkey coryza or the "west-side hack." The problem was so widespread and economically crippling, that according to the MFC Chief Executive Officer at the time, the Utah industry may not survive if the west-side hack was not brought under control. As noted above, with the eventual elucidation of the causative agent, Marcus began the task of developing a vaccine from a temperature-sensitive (ts) mutant of *Bordetella avium* (BA). The resultant vaccine was so successful in preventing clinical outbreaks that Marcus commented that this achievement was the most exciting and satisfying accomplishment of his career.

The success of the ts BA vaccine spurred on further work to help the Utah cooperative. Over subsequent years, a cadre of graduate students were taken under wing to work on vaccine

development for reduction of staphylococcal infections, fowl cholera, and colibacillosis in turkeys. Dr. Jensen showed a genuine interest in his students and possessed a superb ability to obtain funding and keep them motivated and on task. Being employed at a university whose core emphasis is not predominantly on graduate studies makes this feat even more remarkable.

The end result of Dr. Jensen's extremely successful years of research and development at BYU resulted in the creation of innovative vaccination tools that were not only industry-saving to the Utah cooperative, but also significantly impacted turkey production in many other areas of the world.

Proceedings Editor of the Western Poultry Disease Conference. Marcus' pioneering work as proceedings editor of the WPDC cannot be over-emphasized. His innovative efforts of engaging university staff assistance in constructing, illustrating, and formatting the WPDC Proceedings resulted in a professional publication unmatched by other regional poultry organizations affiliated with the AAAP at the time. The practice of having the printed proceedings available at the time of the meeting was firmly established during his tenure as proceedings editor – a practice still followed to this day. This was no small feat in an era restricted to “snail-mail,” difficult international shipment of hard copies, and rudimentary computer transfer systems.

Additional reflections. When asked what were some of the big challenges in his career, Marcus commented that perhaps the most challenging thing is to get the industry to readily embrace available technology. Responding to the question, “What message would you give to the next generation?” his simple advice was to “keep at it.” A supportive family and successful career have allowed Marcus and Mary Jensen to do over the years what they enjoy most: travel the world!

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*