MODERN MEAT CURRICULA MEETS THE CHALLENGE OF CHANGE

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The title indicates that there has been change. Since change involves time, it will be necessary to sketch the history of meat work in the Land Grant College field, to take a look at the objectives of the early years, note the changes through the years and make some deductions. We will endeavor to do this.

Andrew Boss of Minnesota was acknowledged to have great vision in many lines of endeavor. His pioneer work in meat, was but one of several of these. He was interested in improving living standards on the farm and one of his ideas for improving that standard was a larger and more varied meat supply. He felt that anything that would improve the variety, supply, and quality of the meat supply would help raise the standard of living. He also had an idea that a better knowledge of animal conformation and composition as well as commercial value of animal products would make better livestock judges and better livestock producers.

Due to his intense interest in this subject he was asked in 1901 to prepare a course in dressing and curing meat for the School of Agriculture. Material was scarce but "Andy" Boss with his characteristic thoroughness gathered together such information as was available for a foundation for a course in meats. The first official course of meats was offered in the School of Agriculture in 1894. In 1895, two courses were offered, "Meats I" and "Dressing and Curing Meat". The last mentioned was required of all men in the School of Agriculture and became an extremely popular course.

By 1901, the value of this field of study was so well recognized that the Board of Regents of the University authorized the construction of a "modern" laboratory which was designed by Andrew Boss and served as a model for numerous other laboratories to follow. This "modern" laboratory with some degree of modernization is still in use. Visitors to the institution, inoculated by the enthusiasm of Andrew Boss and by the students towards this new line of teaching, resulted in numerous articles in the farm press, and Farm Bulletin 189 of the U.S.D.A., which is credited as being the first treatise on meats published by the department, was one of these duplications.

The work developed rapidly and in 1902 a course "Identification of Meat Cuts" was offered to women students in the School of Agriculture. By 1905, four courses related to meat were being offered in the Minnesota College of Agriculture, "Meat I", "Meat Studies and Judging", "Advanced Meat Studies and Judging", and "Animal By-Products".
Other colleges became interested in offering similar courses in meats, Michigan State in 1905, and Penn State in 1907, followed by Iowa State. Other Institutions soon followed.

All earlier references indicate that the demand for information related to meat was directed towards home slaughter and curing with some sausage work, plus identification of retail cuts for Home Ec. Students. However, there is also some indication that research work of a type soon followed. As early as 1895, experimental steers at Kansas State College were slaughtered in Kansas City under conditions that permitted observations to some degree similar to those made in carcass studies today, but the chief instruments available were the scale and the eye, but the thought was towards improved selection of breeding stock. It should be noted that this was the period when genetics began to be recognized as a science, but Robert Bakewell's laws of animal breeding were well known.

Several new laboratories came into existence during the teens, but little actual research was undertaken until the twenties. The Iowa State laboratory, then considered as a palatial small packing plant was erected in the teens, as was the first slaughter facilities at the University of Missouri. It is worthy of note here that, at the latter University, the meats laboratory was under the Agricultural Chemistry Department, under the leadership of the late P. F. "Paddy" Trowbridge, primarily as nutrition studies, and an extensive set of data, still of immense value became available. Probably the first outright research work was done at the University of Minnesota beginning about 1908, under the direction of Dr. T. L. Hacker and Andrew Boss. While this work actually started with studies in Nutrition of the dairy cow, it crossed over to beef cattle and swine nutrition, resulting in a wealth of data still available today. This work stands out as a monument for those of us today to look at and follow.

Teaching in meats had its infancy between 1895 and 1912. During that period it was primarily slaughtering and meat cutting with improvements in methods of home butchering and improvement in the home meat supply, though some thought was given to livestock selection with the carcass in mind. With the expanding knowledge in the teens, thought was given to more basic information and a few men took academic work towards an M.S. degree in meats. One of the first of these, was a good friend K. F. Warner, who graduated from the University of Nebraska, but traveled North to the University of Minnesota where he completed the requirements for an M.S. degree in meats under the late T. G. "Tom" Patterson in 1915. This period in the teaching and research pertaining to meat might be described as the "adolescent stage". The verbiage was not great, the actions somewhat incomplete, but progress was there.

With the same though the twenties might be described as the "adolescent stage", as during that stage as a result of numerous stimuli, the field of meat instruction and research developed and broadened out.

When the National Livestock and Meat Board came into existence in 1923 with the primary objectives of information, promotion, and research in meats, R. C. Pollack, the first executive secretary of the Board found a
great drought of factual or scientific information related to meat. In an endeavor to acquire such information, he turned to the United States Department of Agriculture and the Agricultural Colleges. This endeavor resulted in an organization of a cooperative project known as "Cooperative Meat Investigations". At the first, or organizational meeting, of this group only a very few institutions were actually teaching courses in meats and still fewer doing research in meat, but interest was aroused and action created. I believe that it can be stated that it was through the activities of a few men in this group that two words "and Meat" were inserted into the wording of the objectives of the Purnell Act. This made new money available and at the second meeting of the cooperative group, 27 experiment stations and United States Department of Agriculture were present. Much of the work reported was primarily related to feeding trials but nevertheless interest in research related to meat was much in evidence.

Several new laboratories were built during this period and the objectives in mind during planning these buildings was greatly broadened. Information in allied fields were sought such as bacteriology, biochemistry, physics, home economics, and economics were included along with animal production. The broadening of the field called for further specialized training and an M.S. degree was offered at several institutions. This period brought into the light such names as Helser, Anderson, Snyder, Sheats, Edinger, Beard, Warner, P.F. Trowbridge, C. V. Coffey, Moulton, O. Loeffel, Alice Childs, Belle Lowe and Lucy Alexander, to mention only a few. One of the greatest difficulties encountered was interesting new blood to seek special training in the field, and at least to this individual, the organization and birth of the first Intercollegiate Meat Judging Contest, in 1926 through the efforts of R. C. Pollock, William Loeffel, and Thomas E. Wilson, was the crowning event in developing that much needed interest and enthusiasm for more information on the part of the undergraduate student in this new branch of animal husbandry. The inauguration of this new Intercollegiate contest is to be credited as a most important stimulant to both instructor and student. I feel sure that the majority of our young meat scientists of today received their first stimulation towards entering the field of meats research through participation in one or more of these contests. Another event of the period that acted as a stimulus was the inauguration of the federal grading of beef, and later sheep, and hog carcasses. This new service offered new standards as guides, no matter how questionable these standards may have been, or are today, in the minds of some people.

Some of the outstanding research of the twenties was related to the question of soft pork and during a period of years no less than nine experiment stations and the U.S.D.A. cooperated through the laboratory work, other than packing house observations, was done at only a few institutions. Swine type was another problem of that decade and much of the work done at that time was fundamental to our modern research related to the meat type hog. Color and composition studies were also undertaken as well as experimental work in meat cookery, which was without standard or guide prior to this time.

By 1930, meat had gained recognition as a basic part of animal husbandry and information resulting from research study began to flow into
the printed pages or we might state that the field of meats had reached "maturity". It would be difficult to enumerate the men who began their advanced study during the 30's but the leaders of the Reciprocal Meats Conference today would be found on such a roster.

Research work given priority during this period (the 30's) included methods of experimental feeding, methods of slaughtering and cutting, methods of cooking, nutritional value of meat, methods of grading animals and carcasses, influence of age, sex and breeding on the quality of the carcass, degree of finish, and laboratory methods. The latter included chemical methods, tenderness, texture, histology, bond and free water, color, and so forth. It should be of interest to note that while a great deal of progress has been made in many of these fields essentially the same problems are with us today.

The cooperative project was terminated about 1942, partially because of World War II, partially due to lack of personnel, and probably because the project had served its purpose. Practically every station where personnel was available, work was continued. The same picture was true of teaching, namely that during the war where personnel was available, and students enrolled, classwork was continued. Following the termination of the war, most of these activities took up just where they left off, but with increased vigor. With the closing of the cooperative project there was no common meeting ground for the meats group. It is only proper to state that this situation perplexed our good friend R. J. Pollock who felt that there was need for a private "stamping ground" for meats men. Out of this thought, but only after extended conferences, with many individuals, the Reciprocal Meats Conference came into existence in 1948. A survey made by Kansas State University in 1947, indicated that 36 colleges were offering from one to eight courses dealing with the field of meat, and that 28 of these institutions were conducting research in meat. It was also noted that 30 of the Land Grant Colleges had a meat laboratory and that five were teaching the subject meat without a laboratory.

Early in March 1928, a committee of five men met with R. C. Pollock and other members of the Meat Board Staff to draw up a program and select a date and above all, ask the authorities "back home", for their reaction to such a conference of meat men, as was proposed. The approval of the Deans and Heads of the Departments was unanimous so the conference was planned for the purpose of providing an opportunity for meat instructors and researchers to get together and exchange ideas relative to teaching, extension methods, and discuss research work. There were 41 workers present at the first conference, and the outcome of the conference was a unanimous vote for continuing the meeting as an annual event.

Through the years since 1948 the R.M.C. has been continued and with increased attendance each year (141 registered in 1962) the objectives remain unchanged. It might be well to note here that in the group of workers who met in 1948 there were only two with a Ph.D. degree, but if the same group was reassembled, and many of them are here today, the majority could be properly addressed as Doctor, and these men are still to be considered among our leaders of today.
Over the years, various committees appointed by the conference have been more than active. The teaching committee has had a place on the program each year and in order to get a full picture of the changes with time it would require the re-reading of all 15 reports. At the first conference, the Functions and Importance of meat instruction was ably discussed by P. Tom Ziegler. Adapting a meat course for other groups by D. L. MacIntosh and major objectives of the meat course by J. I. Miller. We might summarize these papers by stating that there had been a great change in the objectives of meat instruction over those mentioned in the "infant" period. There had been a raising of the standards to appreciate not only what becomes of an animal upon processing, but why and in addition to, relating the animal body to feeding and feeding practices to separate out many of the body glands and appreciate the function of each, also to develop some appreciation of animal by-products. In the second conference, Effective Methods of Teaching were discussed, Required Meat Courses for students majoring in Food Technology and curricular requirements for an M.S. and Ph.D. degree in meats.

If one wishes to get a real cross section of the place of the teacher, the graduate student, and cooperative departments, one should read and digest the proceedings of the third Reciprocal Meats Conference. That volume provides real food for thought as well as many suggestions for our future guidance. In fact, this volume should be made mandatory reading of all graduate students and all teachers who could well afford the time to re-read it occasionally.

But to draw our thoughts together with reference to the assigned topic, one could well afford to read the proceedings of the Reciprocal Meats Conference covering the past two years, (60, 61, and 62). In these two volumes, is presented a real picture of the breadth of thought and preparation of our present and rising generation of teachers and researchers in the field of meat.

During the past ten years, progress has been fast and furious in all lines of research including the field of meat, at least 15 new laboratories have been erected during this period and each of these has been equipped with research as well as teaching facilities. As indicated earlier the philosophy of teaching meat has been modified, the research facilities greatly improved and expanded, cooperation between departments within the same institution has been extended and the graduate program as discussed at the 1962 conference would seem to indicate that our graduate students are being well rounded in the basic sciences, whereby they would acquire new tools with which to further attack the many problems and questions yet unanswered regarding quality of meat. It behooves this rising generation of meat scientists, many of whom are with us today, to make use of their opportunities, to appreciate the potential tools when they see them, and put them to work in the years to come. I am sure that they will do so because I have hope in their future and great confidence in their leadership. While a great deal of the research work will be basic in nature we must never lose sight of the producer and the consumer with regard to the ultimate end of our teaching and research.
In conclusion I wish to again reiterate that progress has been pyramiding with each successive decade of workers but we should all remember that a great deal of the inspiration toward this end as well as a fairly direct driving power has come from the National Livestock and Meat Board. We have much to thank the Board for, but I hope and believe that the present generation appreciates that fact, and I sincerely hope that future generations will also appreciate that fact and keep driving after "Further Truths Related to Meat", and preaching their findings.

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DR. WALTERS: Davie, you didn't fool this group at all, they knew why the Committee had asked you to present the topic. Thos of you who know Davie well I am sure realize that the sage advice of this gentleman has perhaps influenced more young men seeking information and training at all the levels or degrees up and down the scale than any other man that could be named in our entire group. We are very grateful to you, Davie, for making this fine presentation to us.

We are right on schedule, Mr. Chairman, and without further ado we will move to the next speaker on our program who will discuss with us some of the considerations involved in the matter of communications. I think it goes almost without saying that any of us in this room, regardless of whether his primary interest be in teaching, in extension or in research, the matter of communicating with one another and communicating among our various groups is certainly one of the more important attributes of effective teaching, extension or research. To discuss this topic with us we have Dr. Alex Warren who is the Field Studies and Training Specialist for the Oklahoma State University Agriculture Extension Division, a man who is widely known throughout the southwest for his endeavors in this area, and I am happy to bring to you this morning Dr. Alex Warren who will present our next paper.

DR. WARREN.

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