ANIMAL Industry

UTILIZING THE DEPARTMENTS OF HOME ECONOMICS, CHEMISTRY, BACTERIOLOGY, HORTICULTURE, NUTRITION VETERINARY MEDICINE, MEAT INSTRUCTION AND RESEARCH

Edwin A. Kline
IOWA STATE COLLEGE

We are all familiar with the widely publicized "Meat Team," the producer, the processer and the retailer, of the American Meat Institute. I wish you would focus your attention on another meat team for the next few minutes. It is not a new team to any of you but one without which we could not progress very rapidly in the field of meats. This meat team to which I refer is composed of those cooperating departments at our colleges, such as Home Economics, Chemistry, Veterinary Medicine, Bacteriology, and Nutrition working on various meat problems. These cooperating departments make possible a more thorough knowledge of the importance of meat in our every day diet and are continually solving many of the mysteries hidden in this important food constituent.

I would like to illustrate my point by citing a few examples as to how these various departments have worked together in the past at Iowa State College. First of all, I would like to discuss the utilization of these departments in meat instruction. Probably the one department most utilized at our institution is the Department of Veterinary Medicine. The Veterinary division cooperates with the inspection of all livestock slaughtered in the Meat Laboratory. A member of the Diagnostic Laboratory inspects these carcasses and at the first laboratory period of each quarter explains to the students the procedure to be followed in inspection and just what he is looking for in the way of normal and pathological conditions. Also this past year we have asked one of these Veterinarians to come to our lecture period and discuss with the class the history, purposes, functions and organization of Federal Meat Inspection.

We do not utilize the other above mentioned departments perhaps as much as we might insofar as teaching is concerned but certainly with a limited group I can see where they might work in very well so far as instruction is concerned. For example, with a small class of perhaps upper classmen, it would be well worth while to work with the Home Economics department in running some cooking tests on various cuts of meat and then have the group participate in a tasting panel or study. A study of this nature would help to clarify many of the points mentioned in meat cooking and research.

Also by working with the Bacteriology Department it would be possible to illustrate some of the different types of molds and bacterial decomposition with which we are confronted in the curing, storing and refrigeration of meats and meat products. I know at many times it is difficult to receive the cooperation of many departments because their time is taken up with their own classes but certainly with advanced classes of small groups many of these departments could be profitably utilized for the teaching or instruction of meat work.

Many times the meats professor is accused of being a "Jack-of-all-Trades" and many times this is true particularly when one has to act as a refrigeration engineer as well as a laboratory technician making histological

slides and running chemical tests. However, it is impossible for anyone of us to be a master of all these trades and therefore it is increasingly important to have the assistance of trained chemists, bacteriologists, nutritionists, etc., to attempt to solve many of the problems in meat research.

At the present time we are cooperating with Home Economics on a problem in order to determine the relationship of certain physical, chemical, histological and organoleptic criteria as affected by the variation in age of these animals. On this particular problem our work, insofar as the meat laboratory is concerned, is not too involved but we do provide the carcasses, as far as the slaughtering is concerned, and assist in the preparation of the various meat cuts to be studied, getting them wrapped and packaged for freezing or for cooking as the case may be. These cuts are then cooked, sections taken for histological studies, cooking losses and palatability studies determined. The chemistry department is cooperating on this work and are making nitrogen determinations, total nitrogen, elastic nitrogen and callogen nitrogen. To cite an illustration of the cooperation with the Bacteriology Department, a few years ago the Meats Department and the Bacteriology Department here at Iowa State College were working on a project in which they were studying the effecy of carbon dioxide as a means of controlling the mold development in sausages and prepared meats.

On many problems where the meat laboratory is carrying most of the load it is necessary to secure technical advice. For example, several years ago a project under way at the meat laboratory was the determination of certain histological and chemical changes on frozen meats. For such work it was necessary to ask the advice of those in Veterinary Medicine, particularly the histologists to assist in obtaining a produce for staining of the slides and also his cooperation in the interpretation of the resulting material.

We have not cooperated in any way with the Horticulture Department. However, I see no reason why the two Departments could not cooperate on problems of refrigeration since this does involve the interest of both departments, particularly where perishable products are under consideration. Another project under way at the present time is one in which our department is cooperating with the Food Processing Department, a subdivision of Horticulture here at the college. This particular problem being one in which we are trying to develop a canning technique for the lower grades of beef and yet have a suitable product with good slicability quality. In this particular project the Meat Laboratory is assisting in the preparation of cuts for canning as well as roll roasts which will serve as control cuts.

On many of these problems it is not only necessary to secure technical advice but also ask the assistance of other departments since many or perhaps most of the meat laboratories do not have all the equipment at hand to carry on extensive meats research programs.

In summarizing, I would like to say that if we are going to benefit from our efforts it is necessary that we cooperate with the Departments of Home Economics, Veterinary Medicine, Bacteriology, Nutrition, Chemistry and Horticulture in order to secure the advice and experience of men who are trained in their particular line of work in order to secure an accurate and dependable answer to our problems.

- - - - -

CHAIRMAN ANDERSON: The discussion on this topic is to be led by Professor W. Edmond Tyler of the University of North Carolina. Mr. Tyler.

MR. TYLER: Chairman Anderson: This "Meat Team" which Professor Kline referred to is one that we think a lot of in North Carolina. It is one of our most important teams, maybe excluding our basketball team, but we have found that probably, particularly in our research, we could not operate if we did not have these other departments helping us out. The Home Economics Department, as you can imagine, is one that we cannot cooperate with very closely. It is about ninety miles away. The Chemistry Department we have worked with over a considerable period of time and we hope to continue to work with it. As to bacteriology, we have been very fortunate in the last year to hire our own meats bacteriologist -- Mr. Ralph Costilow. He had hoped to be here at this meeting but the money did not turn up for him to come. However, he is starting out strictly on meats bacteriology. He is doing some literature reviews and he hopes to get some research started in the very near future.

With the Horticulture Department we are again pretty fortunate. The food processing laboratory, which is under Horticulture, is right next door. We do not have to do any canning of corn and beans as someone mentioned this morning. They do our meat canning for us which is certainly a big help.

The Nutrition Section works very closely with us. Remember the Nutrition Section does most of the analysis work on our meats. The chemist is with the Nutrition Section.

Veterinary Medicine. We have a veterinary pathologist who in the past year has taken over the job of inspecting all the meat that we have in the department. He takes the responsibility off our shoulders. We like him a lot for that reason.

I am not going to say anything more about what we have done. I should like to open the paper for discussion. Will some one give us his ideas on these meats teams of all these various departments? Is there any discussion or questions? Maybe we had better ask for questions first and then discussion. What are some of the ideas? Are all of the schools represented working with these departments or are they working pretty much as lone wolves or what is the story as far as meat teams with home economics, etc. are concerned?

MR. WARNER: I have a question. Do you get any cooperation from your Home Economics Department or are they interested in your courses as far as meats are concerned?

MR. TYLER: That is something I should like to know, but as I said we do not have a Home Economics Department near us.

MR. WANDERSTOCK: At Cornell we have excellent co-operation from our Home Economics Department. They are our best co-operators. In our own department we have our Nutrition Division which helps us out. I do not think we have gone much beyond our own component parts and the Home Economics people, but we are very fortunate in having Dr. Faith Fenton to head our nutrition work in Home Economics, and she has been

very helpful in carrying through the palatability studies for us. So we feel that we are in a very envious position with respect to the co-operation we get from them, and there is Michigan State and Iowa, and down in Texas do you co-operate with Sylvia Cover?

MR. BUTLER: We try to.

MR. WANDERSTOCK: A number of us are quite fortunate in having the Home Economics people help us.

MR. BRATZLER: I think there is one department head not mentioned here -- Engineering. I think they should be considered.

MR. KEMP: We have been having excellent co-operation from the Home Economics Department in carrying out the palatability tests during the past two semesters. They have been very helpful to us.

MR. TYLER: Do any of you have new members who should be brought onto the team?

MR. EDGAR: We have a problem at Virginia. We have a little trouble with the health officer. He will not let us sell meat at all to the mess hall unless it is inspected, which means taking it about forty miles to a packing plant, getting it killed, and then coming back to Blacksburg and cutting it up in the laboratory and then sending it down to the mess hall that way. He absolutely will not let us slaughter and sell to the mess hall, and so far as the co-operation at Virginia Polytechnic Institute is concerned, the health officer is the big headache.

MR. TYLER: Have we any more complaints? Maybe we can get some more discussion along that line.

MR. DEATHERAGE: I do not want to blow my own horn. I am not even in the Animal Husbandry Department at Ohio State. I happen to be a biochemist, interested in meat for some time, and I can say that as far as we are concerned, we do not know who does the co-operating, we or Animal Husbandry. It so happens that Animal Husbandry and Agricultural Biochemistry happen to be on the same team, however, in experimentation. I can also say that we have one graduate student working in Bacteriology on the etiology of bone solid. We have excellent co-operation from our Home Economics Department.

MR. TYLER: Are there any other comments or discussions? If not, I will turn the meeting back to Chairman Anderson.

CHAIRMAN ANDERSON: Thank you, Mr. Tyler.

The second paper this evening, entitled, "On What Basis Are Graduate Students Used in Teaching and Research?" is by Professor A. M. Pearson of the University of Florida. Mr. Pearson.

# # #