any potential food animal for which there are no established criteria or procedures for inspection and labeling, and could also include animals produced by traditional breeding as well as by genetic engineering.

These areas I have covered in a very broad sense give some examples of a possible future direction of meat inspection, I think the main purpose of this type of meeting is to get at questions and answers rather quickly. I have tried to raise three broad areas of concern in the hope that we are setting the stage for further discussion. With that, I think we might want to go on to our question and answer session.

Discussion – Session One

D. Meisinger: John, what Charlie started off with was talking about the codes. Once you get to the point where you can recognize the official test for trichinosis (like the pooled Digestion Technique or the ELISA Test, both of which are in some state of involvement or some state of recognition as an official test), it seems to me that you have a responsibility to require 100% mandatory testing for trichinosis. That's what's in the code. Am I hearing that wrong?

J. McCutcheon: Yes! We do a lot of things on a voluntary basis like our voluntary Total Quality Control program, which is another way of handling processed products inspection, which is not for all processors. In the case of those types of tests, I would see them as being on a voluntary basis for those members of the industry that would wish to use them. I think that our concern is that the public must be protected and informed. If there are alternate ways of doing that, such as the time and temperature requirements for freezing which historically have been available, then you continue to use them because there is no reason to say that product is any less safe tomorrow just because these tests came along. Economics of the situation is usually what drives us, both our economics and industry's economics, in that if there is a test that "is as good as or better than" on the basis of some criteria, then we're going to migrate to that test. We would then use it either for our own inspection purposes, which would have no impact on the industry other than the potential influence on line speed, and/or industry would use a test or a technique for itself when it would become economical. But we are not in a position where we have to mandate that.

Meisinger: Okay, but based on all those different approaches like your curing, smoking, etc., or freezing techniques that are already approved in regulations and in consideration of what you termed the "public's right to know," you would almost have to approve labeling, so that the public could differentiate between products that were so tested or so treated and the product that wasn't. Right?

McCutcheon: I wouldn't say we must approve labeling like that. I think it's a good question, whether we would approve or feel that we must inform consumers of the use of a particular process. We would certainly have to inform the consumer in some way; it would be mandatory if safe use was dependent upon consumers doing something like cooking a meal or somehow behaving differently than they have in the past. Information such as that would have to be on the package.

Meisinger: But why isn't it dependent on that? The consumer has to cook the product if it is not labeled "ready to eat." Therefore, it has undergone some smoking and curing-time temperature treatments under those regulations. If you don't know that it has either been tested or treated in some way, then you have to cook it in some way. That's why it does require the consumer to do something.

C. Cook: David, I understand your logic, where you are coming from, but it scares me, to be very truthful. Using your logic, we can also address the salmonella issue and I don't think we even want to get near that. What you are saying is that if you could produce a certified trichina-free product, I think John will accept the fact that if there is a certification program, you can make a label claim. I don't see that the Department (FSIS) has any problem in terms of certifications or claims. If you do claim that your product is trichina-free by some certified or approved test program, USDA must be able to verify that this information is correct. I don't see where the Department would have any trouble with that.

McCutcheon: I didn't mean to imply that we wouldn't permit it. I was just responding to your statement that we "make it mandatory" and I'm saying that's not a valid assumption.

R. Terrell: Is trichina in pork a problem? Who says so and where are the data? How many outbreaks of trichina from human trichinosis do we have from pork on an annual basis over the last 50 years?

Meisinger: The problem is perception. Perceptions are realities in the market place. We keep hearing that and it is definitely true with trichinosis. Our surveys show that some 96% of the population (the consumers) know that they have to cook pork until it is well done. Until you can guarantee that there is absolutely no chance of them ever contracting trichinosis from eating pork, there is no way that you can tell people that you don't have to cook pork well done.

Terrell: So your rationale from a producer's viewpoint is to come out with a campaign that pork is trichina-free. At the same time, we should say it is salmonella-free, there are no drug-resistant microorganisms and that antibiotics don't promote drug resistance. You see what I am saying? You can't singly point to trichina and go to the government and say, "hey Mr. Government, we need more regulatory controls in government." The Reagan administration says we need less and I think the general public says we need less. I would be very, very careful about this whole subject of trichina and irradiating pork so we can get export markets, too. I am not opposed to the idea but you better be careful about how it is handled, Dave. I can see right now, if you come to me and say I should have a trichina-free pork program, I say why? I'm not having problems with what I have now. I'm selling all the hogs I can kill. You want me to sell more – I have only a certain amount of kill capacity. You want me to certify trichina-free? How many technicians am I going to have to hire? Where's the customer who really needs it?

I am not saying it is not here now, it could be ten years from now, and I am not turning off the idea. But if you want me to put "trichina-free pork" on my label, then I am going to have to put "salmonella-free" and I don't want any liability. I don't want to get a countersuit from a customer back to a producer that he sold me a load of hogs that had trichina. There are some legal ramifications of this thing that you haven't considered yet. I guess where I'm coming from is, that in my judgement, that is not the kind of thing we need to focus on here. If you are going to move toward trichina detection, fine, move toward it. If it helps the producers, if it helps pork exports, fine. One thing I learned about foreign exports is that they have to have American dollars to buy, right? There are a lot of countries that don't have American dollars right now and aren't going to have them, because the dollar is at a pretty high value. But we tend to make up for that with the AID programs and other things. I'm just saying in a nice way, "hey, time out, let's move on to something else."

Cook: Bob, I think Dave has a valid point, that if the consumption of pork can be increased by improving its public perception of pork quality, then something should be done. However, I think we have to be very careful about the mandatory implication of this.

Another thing, that John alluded to, and that I just want to open up for discussion is the issue of irradiation. I think one of the things we in the meat industry are confronted with is that there are so many negatives out there in terms of public perception of meat products, with respect to the health implications. But let me offer this for consideration now; I am concerned about the public perception and the negatives associated with irradiating meat. I agree with Bob; when was the last time that we had an outbreak of trichina?

McCutcheon: Dave, just let me add quickly to the labeling context. The label is a unique communication device that has some recognition in the law, but it is only one of many communication devices; some of them, we have absolutely nothing to do with. There is nothing to say that once you get off the label that consumer education campaigns, advertising campaigns and other means of communication with the consumer would be effective. There are more ways of doing that than just the label, so I think the label should be looked at as one of many ways of achieving information transfer.

Meisinger: I have a couple more things to say. For one thing, tomorrow morning I have to make a rebuttal on a Louisiana radio station. I just heard a radio tape about a half-hour ago, in fact that's why I was a little late getting here. There is some lady from Atlanta who wrote a book "How to Avoid Pork or How Not to Eat Pork" or something like that. She was talking for 15 minutes on this Louisiana radio station this morning and going through the whole thing about trichinosis. "Pork will poison you, pork is in your soap, it's in your cosmetics, it's of course in the food you eat." She goes through all that and how to avoid all those things on labels, that say hydrolized animal protein and on and on, but it's all because of trichinosis. "Every hog in this country has trichinosis and the meat industry will tell you it's not true but it is" and on and on she went. It's crazy talk, but there are people out there that are listening to that and it's just making their point stronger and stronger. Another thing is that the meat industry is talking out of both sides of their mouth when they say they don't want mandatory "this and that" at the same time they put a petition in for mandatory identification.

Terrell: We have to have mandatory animal identification in order to label trichina-free, Dave.

Meisinger: Well, maybe I shouldn't have brought that up, Bob. But wait one second. I didn't mean to imply that I want mandatory testing for trichina because our task force has talked about this, over and over, and we all agree, it's unanimous, that we don't want to make anything mandatory. We think the market place will take care of it. George is on the task force and he will attest to that. I was just asking a question in the beginning, because what you said about the code seemed to me to imply that FSIS had the responsibility to require that. That's the only reason I asked, but that was just for my own clarification. But I want to clarify the point that we are not in one way ever talking about requiring legislation and regulations to require testing for trichina.

Cook: I would like John to lead the discussion for a while concerning rapid test methods. The department has come a long way in developing rapid test and I would like to make a comment here; to throw a challenge out to my academic colleagues. I have been in this business for about 25 to 30 years and I have been hearing about "warmed over flavor" for about 25 to 30 years. We haven't come a long way and I think one of our speakers today pointed out that the meat processing industry is not overly concerned about "warmed over flavor." The food service industry is not concerned about "warmed over flavor." Apparently academia is.

If you are really looking for something significant to work on, if you have given "warmed over flavor" enough of a test, one area I would urge you to look at is to develop a test to identify foreign proteins in processed meat products. That would be a really significant advance.

Talking about rapid tests, I address this to John. Dave and I were at a meeting the other day talking about sulfonamide testing in swine, since the Department has expressed grave concern about the presence of sulfanilamide residue and justifiably so. John, I am very concerned with what I see about the implementation of this test because you are going to make quasi-regulatory decisions which will involve a very subjective testing procedure based on a color judgement by the inspector. We are going to have to be very careful of how we develop some of these quick rapid tests and how we use them, in terms of making regulatory decisions.

McCutcheon: I certainly feel we do have to be very careful. Some of us that weren't are not around any more. I think you should read the proposal. It is a statement of our best estimate, with information available to us, of a system that could be used. As a proposal, it is open for comments and I think we all agree that if sulfas are a problem, we don't want them out there and we want to do something about them. If there are other ways of getting that achieved, we are perfectly open to hearing that and will respond to any suggestion that gets you to the same end point.

The rapid test that I was primarily referring to in the paper that I talked from, had to do with replacing the organoleptic forms of testing in the slaughter house with rapid test as a way of estimating whether the product is "safe and wholesome." It is in those areas now that this particular task force is going to be moving – these would be plant-based as opposed to laboratory-based and they will be used to replace the method of inspection (which has been palpation, slicing

or observation techniques used by the inspector in the plant) with something which we hope will be a lot faster. There are problems associated with that.

I'm sure you can see, we are going to be trying to tune those to the same level of detection as we had with the old system. We have to be careful that we don't replace something that is detecting something quite different than we thought it was. But we are doing it so that we can reduce the cost of inspection to the taxpayer and yet provide the same level of protection. So I was really referring to the plant type of test for replacing the historical inspection system.

Cook: John, allow me to change direction a little bit. I think all of us who have been in a slaughter plant are fairly familiar with the mode of inspection of all species of animals. Basically, you have an inspector looking at a carcass from "head to toe" seeing what pathology is involved and being very concerned if there is any hair stubble on a jowl. I think we have all gone through some of these problems. In recent times, John, you people have looked at new modes of inspection. In the broiler industry, you are looking at the NELS system. Would you care to comment on your procedures, some of the statistics involved in your approach, and also comment on what you are looking at as a 3rd-generation slaughter inspection? I believe the Department should be really commended for the effort they have taken. They are really trying to take slaughter inspection out of antiquity and bring it into modern-day procedures. Maybe this would be of interest to the group.

McCutcheon: As you are all probably aware, every animal that is slaughtered for food consumption is inspected by a federal inspector. There are about 8,000 inspectors in about 6,000 plants in the United States and they have to be there on a full-time basis. The plants cannot operate unless our inspectors are there. It is the most intense inspection system of any of the regulatory systems in the country, bar none. In the last few years, we did as good a job as we could, using an industrial engineering technique to say how we could optimize that system, to reduce the cost to ourselves and allow as fast a line speed as we could. So we looked at those items where we were incising glands and muscle tissue, etc., that could be palpated and yet receive the same level of inspection. We used veterinarians to verify that what we were doing "was equal to or better than." We went about as far as we could in that direction. On the processing side, we had been experimenting with a "Total Quality Control" program or "Partial Quality Control" program and it appeared that we could use some of the same concepts of statistical quality control techniques on the slaughter floor. So we set up some final carcass standards that our inspectors can examine the carcasses for. We have been able to achieve, in conjunction with cooperation from the plant, a process whereby we are keeping data on individual carcasses. We have quality control charts that are becoming part of the slaughter process now. This same process is pretty far along in the poultry area.

The migration of inspection techniques (for no apparent reason, but historically true) started on the poultry side; broilers primarily, then on to the turkey area; and then to beef and swine. It is primarily just the receptivity of the industry. It costs a company quite a bit of money to be a pilot plant. We really appreciate that it is disruptive to the plants. Employees have to be trained and there are other expenses that are involved. Poultry plants have been in a growth mode and therefore pushing for more productivity. We have a final regulation in the poultry side. Turkey regulation is coming along, we will shortly be out with a cattle one and the swine one somewhat after that.

Again, going back to the poultry and broiler area, we are coming up with what we are calling a 3rd-generation inspection system, where we will be using a federal inspector as a standard setter. Company employees will be performing the inspection of the carcasses for the observable conditions of pathology, and they will be entering data "on line" in "real time." We will be using this in this particular configuration: 6 employees, one of whom will be a federal employee, the standard setter. The presumption is that the lot that is coming in has a certain amount of homogeneity to it and in fact what each person is doing is represented as to what the others are doing. There is no reason to assume a bias and all the condemnable conditions will be reported. We will develop the statistics and, using the quality control concept, we will track what each of the "inspectors" (company-employed and USDA) is doing. Then at the end of the line, we will have a federal inspector doing the final product inspection system on that product.

That is just about to get started. We have a contract with Georgia Tech to develop the software for us and that is completed. In July we will be setting the first line up in Perdue's plant on the Eastern shore of Maryland. Starting in July, it will probably take about a month to work some bugs out, so by August we will be getting our first set of data. We have not yet set up our statistical routines for how the comparison among the inspectors will take place. We will be using the software to gather the data. In other words, I haven't got to the point yet of being able to set the upper and lower control limits, etc., because we are not sure how the statistics are going to work out. Those records are being collected now. If this works out as I would anticipate, then this same type of concept will be carried along into the other product lines, as the time of our staff permits and the willingness of plants to experiment with the procedure. I hope that answers your questions.

Cook: I think it is very interesting to note that in this whole area of slaughter inspection and the ability of the Department to perform their function, there are some other approaches under investigation. The Agriculture Research Service is approaching this from a rather interesting direction where they are using holographics with computer graphics that look at different tissue and organs to identify gross pathology. I know Bob Kauffman of Wisconsin is looking at another approach and if Bob can ever get some of his line speeds up, it may be of commercial value. As John pointed out, there are real problems in capacity limitations at slaughter, because of the mandates of the Act. In the processing end of things, plants can implement TQC or PQC programs, so you really have a non-continuous inspection provision there. But the problems in terms of trying to automate inspection and be cost-efficient on the slaughter end of the business are more difficult. Are there any other questions, any concerns, any challenges? Robert?

Terrell: Just a comment I might pass on about these techniques and procedures that seem to come out of the woodwork and all of a sudden get implemented. I would like to propose to the U.S. Department of Agriculture and to

Congress, if they are the ones that control the strings, that some of these analytical methods ought to go through the scientific peer review process before they are implemented. That's always bothered me, personally, to all of a sudden find out that there is some test that "came out of East of the Potomac" and nobody else seems to know in the academic community what it's all about. I think that would be good protocol. That's the way it is done in most of the European countries and as a matter of fact in many other countries besides the United States. Their meat research groups tend to participate in the authenticity of methodology regarding those kinds of things.

The second comment I would like to make is that there must be some rationale behind all this automation of inspection lines. I really don't know what it is. Is there economics involved, less plants, less people, is there pressure to reduce the federal meat inspection budget or is there some rationale beyond just that we want to increase line speeds?

Cook: The rationale, Bob, is very simple – economics. If you can go into a broiler plant and increase the rate of inspection capabilities, you can automate that evisceration and slaughter inspection. There is a lot of slaughter equipment, and the equipment capabilities far out-strip the capacity of the inspection capabilities right now. Basically it's economics and that's why Frank Perdue and Holley Farms and some of these people do it. Now the extent of application in the swine industry and the beef industry, I think, is questionable and the swine industry probably has a lot more application than in the beef industry. The only thing we ask of the swine producers is that they produce uniform-sized hogs. That would really help us so we could automate the system.

McCutcheon: In addition to what Charlie said, I would like to say that in the Monfort plant we have had 12 employees and we can currently handle the same line speed with 9 employees. This is an inspection system that we feel is, in fact, better than the old system, in terms of disease detection. But it is also good from another standpoint; the introduction of the quality control concept into slaughter inspection is providing a more objective inspection system. There are fewer disputes concerning condemnations between our employees and plant employees; the plant employees and plant managers are finding out (in Monfort in particular – they have a processing plant), that their processing supervisors say they were getting better looking product coming out than they had been seeing prior to this. Now, I realize that the Hawthorn effect may come into play here because everybody is doing research; so that naturally improves what may happen and there may be some change in this. But objectivity is being brought into the inspection system in a way that wasn't there before; we are saying that this is good and I think the plants are finding that this is also good. By the way, these are voluntary systems, the traditional systems are still there. They are not for everybody because there are certain things that are required of plants and certain other sophisticated commitments on their part that are needed to make it work and so again there are voluntary systems and that is where it works well.

V. Cahill: As you indicate, these are more sophisticated methods of inspection. Does that suggest any change in the type of personnel who might be utilized? How will this influence university programs?

McCutcheon: Yes, it has and some of you might be aware of the fact that we just made a decision on our processing inspectors. Our processing inspector has a new job series available that is called "1382 job series" and it has a minimum of 30 hours of food science requirement, which is generally met by a B.A. degree. We can't require a B.A. degree but it's 30 hours of training. Not all of our processing jobs are going to be in sophisticated plants where that level of sophistication is needed. But up to this point our natural progression was that we would hire a person as a slaughter inspector who would start on the line, work his way up through the government series and then get into processing. This new series is going to give us some problems because it is cutting off the career ladder for some of those people. But we have seen, because of the introduction of Quality Control Concepts, the need to require more advanced training in food science for many of our processing inspector jobs. This is just getting started and we hope we will be hiring our first people this fiscal year which means by the end of October. We are looking to hire somewhere between 20 and 40 food inspectors with that background.

J. Kemp: I would like to go back for a moment to the trichina problem. We're in the part of the country where we dry-cure a lot of hams, and we can produce a country ham in about half the time that is now required (for trichina destruction) under the federal inspection regulations. The only way we can get around it is to use previously-frozen hams that can be certified as trichina-free. We need hams certified trichina-free in the fresh state. We can sell a lot of pork if we have that regulation so I would encourage the speedup of a process of guaranteeing us that we can have a trichina-free fresh ham, although I do not know of any documented case, *any* documented case, of trichinosis in humans from eating a dry-cured ham.

Ockerman: Any comment?

McCutcheon: I heard what he said, he is just encouraging us to be quick.

Ockerman: Anybody else? We are rapidly running out of time, in fact, we are out of time. We want to thank John and Charley for the comments they have given, we also want to thank the audience for their response. We'll let you go to the next session.

Discussion – Session Two

C. Cook: John, I would like you to address just a couple of issues, if you would. You raised the question of irradiation and there has been a lot of discussion about low-level irradiation of pork, specifically in terms of a method of trichina control. No. 1. Is trichina really a problem? I don't know when the last time was that anyone came down with trichinosis from commercially prepared meat products. No. 2. I am concerned about the negative impact of irradiation from a public perception point of view. I think we have to face the fact that there is a difference between science and public percep-

tion. The meat industry is suffering from a real public perception image problem right now. You can pick up the paper any day of the week and find that you get almost any illness from eating meat. What I am concerned about is that we face the fact that if we have a pork chop that is irradiated, we have to label it with a "skull and cross bones." I can see Mrs. Consumer saying "Hey, I don't want meat that is being 'nuked'."

I'm going to ask a few more questions. In terms of rapid tests, the Department (FSIS) has done an excellent job in trying to bring some objectivity into the inspection process and a lot of rapid tests are being developed. I am concerned about the potential regulatory implications based on a rapid test. I have no problem if the test is used for screening; however, when these become the basis for regulatory action, I have some concern. I think that once you base a decision, a regulatory decision, on a rapid test procedure, that it should be evaluated by peer review.

I don't know how many of you are familiar with the problem of sulfonamide residue in swine. If you are not familiar with it and are in the meat business, I suggest you become familiar with it. This is of real concern. We need some help – all of us need help – on this issue. Let me just briefly address this and then come back to the rapid screening test that John discussed. There has been some concern about sulfonamide residue in swine tissue. If you look at the Act and regulations, if sulfonamide is present in swine tissue, above a tolerance level, the product is adulterated. USDA has come out with a proposal which is based on an inplant screening test. The inplant screening test is a TLC procedure, and from my knowledge of TLC procedures, they aren't too precise and leave a lot up to the judgement of the reader. It's a qualitative test rather than a quantitative test. John, I am concerned that maybe some of the inspectors who have trouble looking at gross pathology on a carcass are going to have a lot more problems trying to make a regulatory decision based on a couple of dots on a TLC plate. I just think we have to be a little careful of the type of action we're going to take based on quick tests.

McCutcheon: Some of these questions we could debate for a long time. In the trichina area, as to how extensive the problem is, I think CDC has about 35 to 40 documented cases of trichina that were reported last year. That's certainly not an epidemic. Trichina is unique though; in a sense, it is irrelevant to the problem of how many cases there are. Trichina is unique because the consumer is concerned about it, and our Act doesn't say the disease conditions have to be important, major ones, it talks about no disease.

On the area of overkill on the labeling. I would say the book is open on that and the only thing I am sure of is that mandatory labeling is not required by our act. It is a judgement decision as to what the consumer needs to know and what we judge would be appropriate labeling. I just point out that you shouldn't wholly focus on the label as the only communication device that is available to either the government or industry in communicating with people. The label is a unique device because it has laws written about it but there are other ways of educating the people, such as information distributed by extension services, advertising, education by companies in general, etc. They all have their place and they all can be used to transmit part of the message.

In the case of sulfa, I think that the problem with sulfa right now is that there are sulfa residues which are undesirable, both from the government's point of view and from the industry's point of view. We have proposed a method of how to handle the sulpha situation, based upon our best information and knowledge, and that is currently a proposal. If there are procedures out there that either the industry or the academic community can propose to us, we would be very happy to hear about it. I know that a lot of people feel that once something appears as a proposal from the government, our minds are made up. I can say, in our case, that we can only go so far with a problem. We use the best information that we have, we put out what we think is the best solution and if there are better solutions, we certainly will listen to them.

As far as the issue on screening is concerned, I was primarily talking about rapid test as a replacement for the organoleptic form of testing that is done by our inspectors in the plants at this time. There are three basic procedures that an inspector goes through; he slices the various parts of the animal to look for disease conditions or unsanitary conditions, there is the palpation process and there are observation processes. How much of that is done is a function of what the scientist tells us is necessary in order to have a reasonable probability of detecting the condition. These are time-consuming processes, so if there are better ways to do that and if rapid test can provide that in an inplant environment, that is what we are looking for.

We are talking about cattle, for example. In a fast cattle plant they are slaughtering approximately 400 to 500 animals an hour. That means you are going to have to come up with a test – some way that can be used so that we would not have to slice the cheeks in a "head exam" – and if you could do the same exam with a rapid test, that would save three employees on a fast cattle kill. It would also have to meet the criteria that Charlie was concerned with and be reasonably positive. In other words, the inspector has to be able to do as good a job as he can with the current technique. If it can't meet these criteria, then it's not a suitable replacement. I certainly don't want to impose it strictly as a screening test, because that just adds to the work and does not add anything to the inplant inspection process.

M. Kreul: Dr. Cook, you have intrigued some personal thoughts that I have about this irradiation idea and I would like to pursue some of your own personal thoughts at this time, if I may. Being immediately involved with the processed meat section of our industry, would you care to comment on some of the advantages and disadvantages that irradiation techniques may have from both the corporate perspective with regard to increased shelf life, for example, and also from a consumer viewpoint? Finally, do you personally foresee the implementation of such techniques, assuming that irradiation is accepted by the consumer?

Cook: I think we have to differentiate, as I pointed out, the science from the public acceptance. Scientifically, it is going to resolve some concerns. As our food distribution chain lengthens, shelf life is an important consideration, so I think it is going to address those issues. Another concern from a public health standpoint is that of salmonella control. If irradiation can be used to control salmonella, I think it is a viable option. What I am concerned about is the public conception

of the use of irradiation. There is no question that the product will have to be labeled, if it has been subjected to irradiation of some type. How this message is going to be conveyed, I don't know – whether it will be a "skull and cross bones" or a mushroom cloud. But for some reason or other, the consumer has the perception that if the product is irradiated, it will affect his or her health. The pork industry and pork producers have a lot of negatives out there, in terms of the health implication. The addition of another public perception concern has me worried. Our position is open on the issue of irradiation. We are looking at this from the science standpoint. Yes, you are going to have some benefits by extending the shelf life, lengthening the channels of distribution. We are also concerned about the negatives implied in this. If we can overcome some of these negatives, it is a viable alternative. Interestingly enough, I was discussing this issue with Sandy Miller, Director of The Bureau of Foods. Sandy brings up a rather interesting point with milk; we irradiate milk now and the public is accepting this. But whether they will accept it with meat products and poultry products, I don't know. I think there may be a potential role for irradiation, but I think we have to be very, very careful on this issue.

R. Rogers: I have several questions I would like to propose in relation to the title of "The Science of Meat Inspection". How was the approved label "turkey ham" derived from a scientific approach?

Cook: The Appeals Court in Virginia confirmed the USDA position inasmuch as that the meat from the hind leg on a turkey (the thigh), when made into a cured ready-to-eat product can be labeled as "turkey ham." Bob, I'm the last person who would argue with the learned justices.

Rogers: I guess my problem is that I never did find the front foot on a turkey. The second question is, will there be a new set of comprehensive regulations published, and if so, when? I am of the firm opinion that no two inspectors, nor no two plants, have a complete set of regulations or everything alike. The third point is: We have been hearing about PFF for some time, went through great ordeals about it, and ham hocks were never included. Now, 60 days after its enforcement, ham hocks come under the regulations.

Cook: I answered the turkey ham question, John. You can have all the rest of them.

McCutcheon: What was the second question – on regulations, everybody has a different set? There are two issues, one of regulations themselves, which come out every year in January. The manual itself is currently being revised. Our manual has gotten to be an abomination, and I hope to put it into our central computer and have that available to the regional offices on a "real-time" basis. If they want to know what's in there, that would be our official source of information. I would also make that available to the slaughtering and processing companies who have computers and have an interest in keeping up with the manual and information. It will take me a while to achieve that, but we do not at this point in time intend to have computer terminals in all of our inspection offices in every plant. We will probably have them in the area offices in the next 6 months. But certainly most of the plants that are inspected have a computer terminal of some type now. There are relatively few plants that don't have something. So I think that will be a service to both our inspectors and to the plants themselves to have "on-line" access to that information.

I would have to stay away from the ham hock issue and PFF because I have not been in the office for a few weeks now and I am not sure what the issue is there.

Rogers: The issue is that plants are being told that ham hocks have to come under the PFF inspection.

McCutcheon: Is the issue that they have been told that they were not included in the past, and now they are being told they are included? I'm just not familiar with the issue.

Cook: Bob, I think there are some interpretation problems there because PFF regulations addresses specific products – hams, shoulders, etc. I can't believe, unless something happened since John and I came down here, that ham hocks are involved in PFF. I'd be surprised if they were. Bob, you are raising a very good question about the dissemination of information and I've had many discussions with the USDA on this issue. Another problem from an operating plant standpoint is to try to get timely information distributed through the system. It has to go through the regional office, area offices, and ultimately to the plant. In our own case, we have the information weeks or months before it gets to the plant. John and I have discussed this at length and they are making a concerted effort to improve the system in the labeling area, the policy people have done an excellent job at improving communications.

J. Nielson: I had a question concerning what you mentioned and John mentioned earlier; that federal inspection goes to 6,000 plants. Do you have state inspection, and is that run by your department, too? If you have it, are all inspectors trained in the same form, and do they just inspect meat or is there also plant inspection involved there as well, I am talking about walls, equipment, etc.?

McCutcheon: Yes, there are some state programs, about half of the states administer their own programs. We pay about 50% of the cost. States that do not wish to fund their own programs can turn that responsibility over to the federal government and these concerns become a federal responsibility. But the state policy is that the state financial setup performs inspections within a state, by state employees. We have a federal/state coordinator and they (states) come under that – they cannot administer a law that's different from the federal law. We try to keep them posted, with PFF for example. The state inspectors may be trained at the federal facilities in Texas. They don't have to be, but they are invited.

If a state inspects a product, that product cannot move interstate. It has to stay inside that state. It would not show up in export products either. The inspection service handles the two products separately. I am not sure about all the different state laws – about what a state inspector would be doing. Our employees at the federal level are only doing meat and poultry inspections. If you have a plant that does handle meat and poultry products as well as non-meat and poultry products, then the Food and Drug Administration will also be there, but our employees will only do the meat and poultry products. In some cases, if it's amenable to the act (like if you are doing a beef soup or something like that), then our employees would look at it and the whole process would be looked at by the Food and Drug Administration also. There is some duplication. As far as the state plants are concerned,

I'm not sure what the state employee does, how they are organized. It's probably different in every state, whether they would do meat and poultry products plus other products.

Ockerman: Equipment and building is part of his question also.

McCutcheon: One of my divisions in Washington is called "Facilities, Equipment and Sanitation Division" and we have a huge book of equipment that can be used. All blueprints of the processing plants are on file in Washington and any changes a plant wishes to make must come to us. We approve the facility and the equipment.

Nielson: What about the bacteria on the walls? Is that inspected on a weekly or regular basis?

McCutcheon: The inspector in charge in the plant is required to inspect the facilities and sanitary conditions. They will conduct a sanitary inspection program, usually pre-operatively. In other words, before a plant begins to operate each day. We do have quality control programs though where it may not be our own employee who is doing the entire inspection, they are using a sampling program. If there are 10 rooms, he may look at 3 rooms a day, for example, and spend some time in there. But it is under his oversight. There are specifications, of course, on how clean a plant has to be, and how the sanitary conditions are defined. They are as quantitative as they can be.

Cook: I would like to make a comment, just a follow-up to what John said. A couple of years ago, USDA implemented a program called "Total Quality Assurance Program" and this is where we really get into a more scientific basis of meat inspection. The program is based on good sound statistics and trys to bring some objectivity into the inspection program. Rather than having an inspector walking around looking at the ceilings or the floor, etc., what we do is to develop a plan of inspection. This may include visual inspection, microbiological evaluation with control limits. A plant establishes a good sound statistical base with predetermined action limits. The responsibility for the facility and for the product falls into the hands of the plant. The inspector's role then becomes one of monitoring the available information. We have to make all of our data available to the inspector and the appropriate action which we have taken at the plant and it's a very progressive approach to inspection. We (Oscar Mayer) have about 11 plants in TQC. We are very supportive of it.

McCutcheon: We have about 450 plants nationally.

D. Buege: In Wisconsin, with our dairy situation we have a sizeable number of "downer cows" that are slaughtered principally through our state-inspected plants. It's a real problem because these animals have everything from broken legs, just injured animals to chronically ill animals and these, what we call "downer plants," see largely only these types of animals. I know our inspection service would like some method of evaluating these animals. It becomes very difficult to judge the health of these animals quite often because the terms are often quite vague and it comes down to subjective decisions. I know our state inspection people would just love to have some sort of objective test to really decide whether or not this animal is fit. I think this whole area of "downer meat" has a lot of potential. Even though it's a very small part of the meat industry, it has a large potential for hurting our already bad perception problem if this were to be better known.

Cook: I just want to make a point of clarification. These are "state-inspected plants?"

Buege: Right, but they could be federal. The point is that you indicated that there are not any rapid tests currently available to make decisions on wholesomeness or dispositions. Are there any? Can you see anything down the road that would help the people in the inspection system to make these kinds of decisions objectively and give them firmer ground to stand on in passing this meat for human consumption?

McCutcheon: The question of "downers" can be a problem for a number of reasons. Does the animal have a mechanical problem in the upper leg or a pathological condition or a disease condition? The only thing we are doing right now from the humane slaughter aspect (that we're also responsible for administering) is broadening our definition of antemortem, so that the inspection can be done on the truck instead of bringing the animal into a stationary pen. We do this so the animal can be moved quickly, especially if it is in pain, and they should not be forced to move with some conditions. We don't have anything going on, other than that, right now because it has not come up enough to be a major problem to be concerned with.

Rogers: Taking the temperature of the "downer animal" would be helpful.

McCutcheon: Yes, but we don't use it regularly. Taking the temperature of all the animals would be a major problem. You can use it if you have a fever problem and that can be done now.

Cook: One thing, Bob, that this touches on is the area of responsibility of the veterinarian. The veterinarian responsible for this is the ultimate expert in pathology. I think they would be very concerned about taking their judgmental abilities away from them. I am sure they would be very strongly protected by their union. Any time you start eroding the veterinarian's authority, they become very sensitive. I understand what you are saying, and I agree with you. But you have some human relations problems that you are going to be confronted with.

Buege: Some are usually condemned and some are passed, but there are probably a good number of gray areas.

Cook: Again, I would raise the public perception issue. If the public perceives that you are trying to move suspect "downers," through a two-stage system, I think it is going to generate a lot more negative values and economic gains will be minimal.

H. Hedrick: You mentioned humane slaughter. Whenever I talk to my students, I explain some of the methods of humane slaughter and then I have to tell them the kosher-slaughtered animals are exempt from these. What is the present situation for immobilizing or rendering these animals ready for kosher slaughter?

McCutcheon: There has not been any change in our kosher slaughter regulations recently. It's a delicate balancing act to try to accommodate – slaughter or kosher slaughter or any other type of slaughter – and the Act says that we will consider the religious needs of the various communities in defining the slaughter requirements. We try to do that with a

very delicate balance between what the religious needs are and what the humane slaughter needs are.

N. Marriott: I have a question for you, John, of cross-pollination of meat inspectors and meat graders. Can you basically tell us what is most current on this thinking?

McCutcheon: I think the technical term is cross-utilization. There is a new memorandum of understanding that I believe the agency has signed with the Agriculture Marketing Service and I'm not familiar with the details of that. The intention is to use the people as efficiently as we can. But outside of the general policy statement of that type, I don't have any details.

Ockerman: Anybody else? Well, we are out of time and I'm sure John and Charlie will be glad to spend a few minutes in addition if anybody has any specific questions for them. I would like to thank both of them and all the people who have participated today. It has especially been a stimulating week for me, and I hope it has for you.