In this case the coliform count, for example, would be indicative of contamination by humans, other animals, or soil. I do not expect to see standards applied to raw or fresh meat products. Such standards would be reminiscent of the old certified milk program, now largely abandoned as impractical and ineffective.

In closing, may I reiterate that unofficial microbiological standards, sometimes called microbiological criteria or guides, may be highly useful in improving plant sanitation and are, indeed, indispensable to an effective quality control program. Official, published standards, on the other hand, cannot assure us of absolute safety and are rather measures of what can be attained by an industry. As such, they may perpetuate mediocre sanitary standards unless frequently revised and unless based on an extensive knowledge of the bacteriology of the product concerned. Certainly, standards are no substitute for intelligently applied on-site inspection. Let us hope they will never be so used.

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T. N. BLUMER: Thank you Bill. I am indeed appreciative of the efforts of these speakers in formulating their discussions and papers and at this time we would like to have a discussion period. As in other sessions we would like you to step to the microphone, identify yourself and ask the question, so at this time, we will open the floor for discussion. I think perhaps what you might consider is whether we should make some effort on the part of this group or some members of this group to initiate at least some thinking on microbial standards, because I believe that we should be the leaders in formulating standards rather than have the regulatory agencies come on and say "Well now, this is what you're going to do." And I know

that many of you in industry have been thinking about this problem for a long period of time and that you probably do have some ideas and perhaps some of you would like to share these ideas with this group.

BOB KAUFFMAN (Wisconsin): This is for all three of you, including Tom, if you would like to answer this Tom. It occurs to me that you talked primarily about standards for products in industry and commercial use. It occurs to me that perhaps in our research laboratories we need standards too and I don't know of very many laboratories that do a regular inspection of their facility or their products before they do some sort of a chemical analysis on them. How severe do you think it may be in terms of results of an experiment if we have never paid much attention to the microbiological problem that might be influencing this particular study that is non-bacteriological?

W. L. SULZBACHER: The bacteriology situation in a chemical laboratory is really a fairly important subject. And when I was reading Max Levine's paper the other day, he quoted from Sedgwick, and that's where I got that quote that I gave, from Sedgwick. This got me interested enough to just spend 5 minutes reading something about the history of the society as I couldn't remember when Sedgwick had been president. I got out a little history that Barney Cohn had prepared a few years ago on the history of the Society of American Bacteriologists. I was looking at the first programs that were given and there were several papers on using things like chloroform and toluene and chemical solutions. I guess it still is a favorite way of preserving some protein sources and there are obvious bacteriological falacies in these kinds of things. Many a person who thinks he's got an enzyme isolated has really isolated an enzyme from the bacteria in the solution and not the material he thought he was working with. But it's mostly bio-chemists who make these mistakes. Bacteriologists usually know better. But these kinds of things aren't standards; these are just good laboratory practices. You have just simply got to know that if you have a solution that is Ph6 to 8 at room temperature and expect it to be the same in 24 hrs. it just won't be. But this is not really a matter of standard. When we say standard we mean something that has a force of law. And that's why the food protection committee that Tony Kotula referred to has made very particular definitions of these terms. And they have defined the standard as something which is used by an official regulatory body. The other things you say are the sort of things that one might use in his own plant, but we can refer to them as criteria or guidelines. And the sort of thing that Bob Kauffman was asking about is just efficient laboratory handling practices. Sometimes if you think you have a protein solution, it might pay to put a drop of it under a microscope and check.

NEIL WEBB, (North Carolina): Since most bacteriologists are trained in biochemistry, Bill what do we conclude on that statement? What I wanted to ask Dr. Sulzbacher is for your comments on methodology and on further research in this. If we take a product like a chicken pot pie or a beef pot pie and we go after Salmonella or Staf, there is great confusion today on what method you should use. If you look at FDA and USDA methods you find a difference. What I'm wondering here is what role a group such as this can play in resolving these methods. In other words we seem to look today toward the regulatory agency for the method. This is a standard used rather than the research group working on a method. Do you have any further comment on this?

W. L. SULZBACHER: I don't know that I have very much more to say that I haven't said. I don't think that our group, for instance, is going to influence the strictly bacteriological procedures, but we certainly influence their application to meat. And we can probably influence sampling methods, sampling size, sampling times, the interpretation of the results Bill Brown has which is a very important thing. In this connection you might be interested to know that Paul Elliot, for example, who is in charge of the laboratory section, consumer marketing services, has an advisory group made up of industry bacteriologists. He has people from these industries who are in charge of meat bacteriology who meet with him and they discuss these kinds of problems. The International Association of Microbiological Societies, as all three of us referred to, in developing their standards, is sending out samples to collaborating laboratories in a number of different countries. These laboratories are going to run similar counts the same way in every laboratory and the aid of the committee is to demonstrate to various people that even when they think they are using the same methods they are not. And their secondary aim in this is to come out of it with a method that everyone can use and be the same. They have already published some recommended methods and they will publish others as they go along. They are tackling some very very tough problems and this business of Salmonella is reasonably simple because they depend on rather unusual kinds of methods. You see we use fancy media for Salmonella, so these things are special and if you just read a book you can come reasonably close to doing it the way somebody else does it. But if you take a subject like toxigenic coliforms, then you really are up in the air; you really don't know where to turn. And nobody is willing to suggest any definite methods. The International Committee is going to tackle these tough problems and they're gonna try to get some degree of agreement. But let's take my barrel of sausage trimmings that I like to talk about. What's a reasonable way to start on this thing? There must be some reasonable approach -- you can't just throw up your hands and say, "well I just don't know." The approach can only be arrived at if a number of people will try a number of different methods and report what they have done and how they have come out. I think this is the sort of thing where we could do something.

W. L. BROWN: Tom, can I comment on that one a little bit? Neil, I think from a laboratory standpoint, a food industry lab or a commercial lab, the method to follow is going to be entirely dependent upon the methods suggested by the regulatory agencies and if you're working in an FDA plant, you're going to have to use regulatory methods or you're going to end up with some serious questions from the regulatory agency. So I think any work that is done on methods, as Bill has pointed out, probably will have to come from one of the national organizations and be adopted by the regulatory agency. The thing that concerns me most is the interpretation of results. It's pretty difficult to interpret these results working with particular food products day in and day out. And for a group of microbiologists in another section of the world to put out standards on products is the thing that concerns me.

DON NAUMANN, (Missouri): I would urge this association to very seriously consider the proposition that Bill Sulzbacher presented that we look into the contribution that we could make into solving or at least mediating in some instances some of the challenges that we know are gonna be facing us. There's going to come a time I'm sure that we see regulatory agencies and individuals or individual concerns meeting someplace in somebody's office thumping the table with their fists trying to get their point across. This

is a reacting type of thing and I would think that it would behoove us to try to visualize the problems that may come up and reach some order of thinking on a more rational basis than would come out of these table-thumping meetings. Very frankly I don't have any idea what the nature of these decisions that we might reach would be. Whether it would be methodology or as some of the speakers had suggested, interpretations of results or application of methods, this could be decided later, but certainly I think we should look at it as an association.

T. N. BLUMER: Thank you Don. I would like to say one more thing to sort of reinforce Don's comments. One of the big things that we have lacked information on and what makes it hard to interpret these results are just what do certain bacteria mean with respect to certain qualities in meat? And the regulatory man, not necessarily to criticize regulatory people, but the regulatory man may not come from a meat background. I remember a few years ago somebody in a large city public health laboratory send a comment in to the meat inspection service in the Department and pointed out to them that they had been collecting sausage samples in their city and they found that certain sausage contained 10 million lactobacilli per gram. And they wanted to know if the Meat Inspection Service didn't think that was kind of a bad situation and something ought to be done about it.

It was obvious that the public health man in that city knew nothing at all about sausage. This would be the same thing as if he said that he found that sour milk had bacteria. This is supposed to be the case. That's how you make certain sausages, by adding high counts of lactobacilli. Unless the man can go to the literature and look this up and find out something about it then he's gonna persist in his view that the high number of bacteria is bad and you fellows in government ought to do something about it. So there just needs to be knowledge about simple things like this fully available to everybody. I don't know why somebody doesn't do a little work on just what do bacteria mean with respect to flavors in hamburger. We have a country butcher where I live and my wife likes to patronize him once in a while because he is our neighbor. So a lot of times she buys ground beef from him on Saturday or on Sunday when the family has a rather irregular schedule as my son and I are working outside and just want something to eat. She would take some of this ground meat and fry it. I have made her stop this because every time I taste ground meat from this store, it tastes like his store smells when I walk into it. Now I like to think that there are not many more people in the world that know more about meat bacteriology than I do because I have spent nearly 30 years learning about it and here's a real simple thing that I ought to be able to answer. Now I ought to be able to say to my wife, "that's because of such and such an organism in that meat." I can't, I don't know what it is. But it's just as clear as can be -- you taste the meat and you smell something that smells exactly like that butcher shop. I am 98% certain it's a bacteriological thing that's doing it. This is rather simple and we want to know the answers to these things.

DR. KOTULA: I would like to make one comment, if this group would like to get their ideas interjected into Paul Elliot's group, then I would recommend that one person be designated to go as a representative and the people in the group could work through him. When Paul Elliot has the meetings, this person would represent the group. You would be in on the ground floor. You would be able to discuss the problems, the meat problems as they arise before action is taken and this would be an ideal way to get your ideas interjected into the department's program.

T. N. BLUMER: I think that one of the starting points would be to find out what the range of microorganisms would be in a certain product. We really don't know this. But if we did, then we might have some chance here of formulating standards. But until we know this I think we're just wallowing around in the dark. As I said before though I think that industry probably has a lot of this information already available, but whether or not we could get hold of this information is quite problematical. Well, Mr. Chairman, I believe we have come to 9:30 and if we have done nothing else we have kept you on time. Thank you for your attention.

A. M. MULLINS: Thank you Tom and thanks to your committee for a very excellent program this morning. I think certainly this group should be complimented because we realize of course that they had a very difficult task in this assignment. But I think all of us now are much more familiar with exactly where we stand in the area of microbiological standards and I would certainly urge our microbiologists in this organization to exert their influence in organizations where, as Bill indicated, standards will probably be made. I think that Dr. Kotula's remark was very appropriate and perhaps it's something that should be given consideration for the protection of this organization. At this time we are going to take a 30 minute refreshment period and we will be back in here promptly at 10 o'clock.

NUTRITION COMMITTEE

A. M. MULLINS: There is an atmosphere going around across the country -- the atmosphere of nutrition and certainly the nutritional value of products so I'm sure that this nutrition committee will have a very interesting and a very timely program for us this morning. We have asked Dr. Edith Weir, who is chairman of this committee to be chairman over this session of our conference. She has her speakers on the platform and ready to go so Edith we will turn this over to you.

E. WEIR: The problems of human nutrition have received a great deal of publicity during the last year starting with the White House Conference and the talks that we have scheduled for this morning, I think, will shed light on some of the current knowledge and some of the current programs. The speakers are certainly well qualified to do this because all of them are in the forefront in their respective areas. I would like to thank the members of the committee for their assistance on this -- Drs. Doty, McClain, Schweigert and Sherman of whom I believe Bill Sherman is the only one who is at the meeting. The first presentation is on Trends in Food Consumption and their Nutritional Significance by Dr. Daniel A. Swope who is chief of the Food Consumption Branch in the Consumer and Economics Research Division of the Agricultural Research Service in Hyattsville, Maryland. Dr. Swope was with the National Canners Assoc. in Washington D.C. at Director of Statistics and Economics Division prior to coming with the Dept. of Agriculture. He is a native of Pennsylvania, a graduate of Penn State in Agricultural Economics. He received his Masters degree at Cornell and he returned to Penn State where he got his PhD in Agricultural Economics. He was on the faculty of the Univ. of Maryland for 6-1/2 years with research and extension responsibilities.

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