

SUMMARY REMARKS BY DR. LAWRENCE MANN, JR.

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Mr. Cooper said "God help the last man" - well what about the man who comes after the last man. I guarantee you that I am not going to take more than about five minutes of your time. I am sure, Mr. Cooper, that you were not referring to industrial engineers in your previous talk.

I too want to congratulate you on staying. All the brain power in this room reminds me of the story I heard coming up on the plane, about a man who got held up, and the crook said "give me all of your money, or I'll blow your brains out" and the man thought for a minute and he said "I can do without brains but I can't do without money, shoot away."

We started out with the remarks by Mr. Christensen, who emphasized a better utilization of existing resources, and I think that's what we are trying to do in systematizing or "putting the management concept" into our maintenance operations. I think this is a very good point with which to start these discussions.

Second Mr. Jorgensen talked and he emphasized the restraints that must be imposed upon any management systems that we apply to our maintenance operations, and he went further and gave us a step-by-step process which is followed in creating this management system. His last two sentences were, to me, very poignant in that he emphasized that one can't set up the system and then have it go, it's dynamic, you can't relax, you have to continue to keep it up to date. The second thing, in his last sentence, was the mention of the industrial organization relationship, and although Mr. Cooper brought that up in his talk, I still think we have some relationships that might be helpful in creating our maintenance system.

Mr. Inda spoke next and described Oklahoma's efforts. He mentioned the manual, which of course is written procedures, which are necessary for any system. He mentioned the rating system and then he described the grandfather's clause in training that is used in the Oklahoma operation.

Next we had Mr. Leigh, and I suggest that if he is going to continue to live in Virginia, he change it to the proper spelling.

Mr. Leigh pointed out the sources of the data that were used to get the information for the Virginia study and I think that this is very helpful to anyone contemplating setting up a system. One at least gets introduced to the type of data that will be needed to initiate such a system. He showed some typical summarization forms, which were also helpful.

Mr. Records spoke next. He generalized and discussed the record collection systems from the overall outlook, not from the specific point that Mr. Leigh noted. He mentioned the difficulty in getting started, and again this puts me in mind of the story of the old drafting professor I used to have. People would sit there and look at the paper wondering what to do, and he says "for God's sake draw a center line - get started - do something." So here we

want to emphasize that you don't sit at your desk and try and evolve the whole system. Get your feet wet, start collecting some data and the more you get into it, the more you will realize what you will need. Mr. Records also mentioned the difficulty in getting qualified personnel, and of course the definition of a qualified man is anyone who can do a job as well as we can do it ourselves, and we all know that no such person exists, so we have no problem or worry about getting qualified people.

Mr. Parsons then described how Utopia can be achieved using engineering skills which is certainly not new to engineers, but we all knew this already. He mentioned the use of the methods time measurement which of course was started by the founder of his company, and evidently has its usage in the maintenance situation.

Mr. Cheatham mentioned that the burdens of maintenance justify the needs. He talked about considering the highway as a physical inventory and emphasized the unit-mile cost with which Ohio has been dealing for quite a while. Then he cried on our shoulder about the computer that he was not able to get data out of.

Mr. Byrd limited himself to two minutes and he was unique in this particular aspect. He emphasized the historical data approach in starting out the system and he reviewed very briefly the Ohio approach, the New Jersey approach, the Louisiana approach and then titled his approach "Budgeting via Work Loads."

Mr. Taylor (2/) who was pinch-hitting for Mr. Edwards, came up next, and he again was characterized by his brevity. He mentioned the approach that Louisiana is taking, using a formula to try and predict future roadway maintenance cost.

Mr. Stelljes (2/) spoke on "Industrial Engineering Approaches" and, in view of Mr. Cooper's talk, he didn't mention anything about industrial engineering, but described a "work sampling" application which is evidently what was used in New Jersey in order to schedule work loads. He emphasized that the people (again without mentioning their titles) were basically methods engineers and evidently failed to bridge the gap from basic methods engineering to practical maintenance management, which of course we must attempt to do. He also mentioned the standardization of procedures.

And then came Mr. Cooper with his potshots. The first one, maintenance is people about which nobody can argue. And then maintenance principles and chorus girls which some people might argue about. The third potshot he took was at God for not being cooperative. And then he mentioned how a highway department can make profits from junk - I thank you.

2/ Edited comments by Mr. Taylor and Mr. Stelljes were not returned for publication.