

bring him alive back to earth, with all gravitational forces and tremendous velocities. To say they did not think it was possible to provide for absorbing forces for vehicles traveling 65 or 75 miles an hour—it is absolutely incredible. But that is a problem we will have to wrestle out with others who will appear later on.

I want to commend you for your most impressive presentation. I well know the methods of painstaking, detailed work and effort that had to go into the production of such findings. It looks simple on the surface. How many months did the whole project take, Dean Benson?

Dr. BENSON. Well, the actual project, the real work on this began in September of 1963, so we have been about 3½ years at it now, I guess. It was about 2 years from the time we started the project until the first signs were installed on the Texas highway system, which from past experience is a very short time.

Ordinarily you cannot go from an idea to practice in that period of time. So really in some respects this idea has been picked up faster than lots of other ideas.

Mr. BLATNIK. You say “picked up,” Dean. Is that the State of Texas? Have all the other States who participated in this research—are they utilizing the findings?

Dr. BENSON. Mr. Chairman, I do not know what the situation is in the rest of the country.

Mr. BLATNIK. Counsel, do you have information later on, Bureau of Public Roads?

Mr. W. MAY. It is of interest, Mr. Chairman, Texas installed their first breakaway sign support in September of 1965. Last week we had an analysis of nine brand new State projects from various regions of the country and on only one project did John Constandy and Mr. Prisk find a breakaway sign. So on eight of the projects in various regions of the country, brand new, no breakaway sign.

Mr. BLATNIK. Brand new—you are talking of the time span of a year to 8 months.

Mr. W. MAY. Opened in the last part of 1966 and some in 1967, representing the latest thinking. It is just not being used. We rode over 700 miles from here before we found a breakaway sign support.

Dr. KEESE. Mr. Chairman, it might be appropriate to comment at this time, and I would like to dwell on it in more detail later, that today's traffic facilities are becoming so complex that it is necessary to bring together disciplines of technology that were formerly not associated with the highway development program.

The implementation of research, I feel, depends a great deal on the mutual respect and understanding of the people and the disciplines involved, and I feel that the success in this project, both with the Texas work done with the other 13 States and the District of Columbia, was due to bringing together the operating engineers and the research team, to bring about this mutual respect and understanding between the various discipline groups involved in seeking out the solution.

Mr. W. MAY. What discipline group?

Dr. KEESE. Structures, and traffic, and maintenance, and computers, and scientists, and mathematicians, and economists, I do not know whether I can list the whole array of them. There are quite a number of different disciplines involved, and there is specialization within the disciplines.

Mr. W. MAY. How are we working toward that end right now?