

DISCUSSION

*A. F. Conn*¹—The talk by Dr. Adler represents a well-planned and expertly presented approach toward what must eventually be the answer to a complete explanation of the response of materials to a raindrop impact. In his oral presentation he suggested that he was not going to side either with Dr. William Morris (formerly of Bell Aerospace) or with me with regard to the discussion of whether a uniaxial strain or a uniaxial stress description is the correct one to use in trying to describe rain erosion phenomenon. On the contrary, Dr. Adler has stated, and I could not agree more, that the phenomenon is an extremely complex spherical wave propagation situation. It was also nice to hear Dr. Adler reinforce what we have been trying to emphasize, namely, the importance of using dynamic properties when studying rain erosion, particularly for the highly elastomeric, extremely rate-dependent materials, and the impossibility of ever making any sense out of the problem if one tries to use the statically measured responses of such materials.

Let me emphasize that I do not claim that the waves generated by a drop impact are simple bar waves, and of course I am aware of their spherical nature. However, the results of our research, as described most recently in our paper in this volume,² indicate that one may make many useful engineering correlations with the rain erosion response of these materials by using the results of such uniaxial stress testing. However, the complete solution of this problem, as Dr. Adler has so well described it, must be the result of the eventual understanding of the full spherical wave problem. This paper by Dr. Adler, and the clear indication he has given of the usefulness and limits of Dr. Peterson's paper,³ are valuable contributions to the rain erosion literature.

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² Conn, A. F. and Rudy, S. L., this volume, pp. 239–269.

³ Peterson, F. B., "Some Considerations of Material Response Due to Liquid-Solid Impact," American Society of Mechanical Engineers' Winter Annual Meeting, Nov. 1972, Paper No. 72-WA/FE-27.