CLOSING REMARKS AT SYMPOSIUM ON BRIDGES: LOADING HISTORY, ULTIMATE STRENGTHS, AND PERFORMANCE

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•THE ONE recurring theme from all of the papers presented at the symposium was that measured stresses were small and well below the live-load design stresses, and that therefore, there is no need to be concerned about fatigue problems in highway bridges. For the great majority of bridges, that statement is true. There have been very few reported instances of traffic-induced fatigue problems in the main load-carrying members of bridges.

However, the recent discovery of several cracked beams on a relatively young bridge (12 years of service) on the Connecticut Turnpike has raised the question of how relevant these other bridge-loading history tests are to the very high-volume, heavy-truck arteries in the congested urban areas of the country. Some observers believe that it will only be a very short time before fatigue cracking on certain bridges will be a major repair problem.

It is urged, therefore, that extensive loading history tests be made on the bridges in these high-traffic urban areas and that the owners of the bridges make especially close inspections of those details likely to suffer fatigue damage. It may well be that there is more fatigue damage than has been heretofore recognized, or publicly admitted. In this connection, it is strongly urged that there be established a more open line of communication between bridge maintenance engineers and the bridge design and research community. Very little is learned from hidden failures.

The paper by Heins and Khosa presents a method for relating truck gross weights to induced girder stresses and is a step in the right direction. Admittedly, the method is approximate and empirical, based on only a small sample of field tests, but it is simple; for the cases considered it is probably as accurate as the usual variations encountered in fatigue testing. The method should be verified for other traffic, bridge, and span conditions.