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AUTHOR'S REPLY

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Thank you for the complementary comments on the experimental work reported in reference [1]. As you note, when considering the vibration of curved beams, it is important to acknowledge the work of L. S. D. Morley in the early 1960s. In reference [2], Morley developed a unified theory for the vibration of curved rods where the neutral axis forms a curve of constant radius of curvature. Morley's theory included the effects of rotary inertia and radial shear in a manner analogous to that of Timoshenko's theory for straight rods. Morley's theory also included the effect of extension of the neutral axis. It was shown in reference [2] that when the curvature is slight, the equations can be simplified and a Timoshenko-type equation can be obtained for the flexural motion. For this case, it was shown that the extension of the neutral axis has no effect upon the flexural motion. When the rod has pronounced curvature these simplifications are no longer valid and the more general equations must be considered.

REFERENCES

1. S. J. WALSH and R. G. WHITE 2001 *Journal of Sound and Vibration* **241**, 157–183. Measurement of vibrational power transmission in curved beams.
2. L. S. D. MORLEY 1961 *Quarterly Journal of Mechanics and Applied Mathematics* **14**, 155–172. Elastic waves in a naturally curved rod.

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