In so far as Poisson's ratio is concerned, the values in the cross and machine directions for the paper used were very small.[4]

Acknowledgment

The authors wish to thank Prof. D. Robinson of Cornell University for permitting the use of Fig. 1 in this Closure prior to the publication of his investigation on dynamic properties of paper.

[4] Conway, H. D., and Schaffer, R. R., "The Contact Problem in Solid-Ink Printing," *Experimental Mechanics*, Jan. 1967.

Eigenvibrations of Barrel-Shaped Thin Shells[1]

JACK BAYLES.[2] The specific examples the author used in Figs. 1 and 2 are misleading in that a shell cannot exist for the complete range of R_y/R_x that is shown. From the geometry of the shells, R_x must be equal to, or greater than, $L/2$ or the side will not meet the ends; also for the inward bulge the side must not cross the axis of revolution. Since R_y/L is given as $L/4$, it can be shown that R_y/R_x cannot be greater than $^1/_2$ for the outward bulged barrel and not greater than $^2/_5$ for the inward bulged barrel. With these restrictions it now follows that the author's second conclusion on inward bulged barrels is not valid.

Author's Closure

The author would like to thank Mr. Bayles for pointing out some restrictions which apply to the examples chosen in reference [1]. As shown by Mr. Bayles in his discussion one of the conclusions drawn in reference [1] is therefore invalid.

[1] By H. M. Haydl, published in the September, 1969, issue of the Journal of Applied Mechanics, Vol. 36, Trans. ASME, Vol. 91, Series E, pp. 629–630.

[2] Research Engineer, The Trane Company, La Crosse, Wisc. Mem. ASME.

Wave Propagation in a Finite-Length Bar With a Variable Cross Section[1]

KENT L. LAWRENCE,[2] **and C. E. LARSON.**[3] The writers would like to point out that the author's definition of the Bessel function order, p, in terms of the area variation, n, renders the author's equation (12) invalid for those cases in which $n > 1$. This observation follows from consideration of the derivatives of the function

$$F(x) = x^{\mu}Z_p(x) \tag{1}$$

where $Z_p(x)$ is a cylinder function. The derivatives differ depending upon the sign associated with the exponent of x. In terms of n, the author makes the following definitions

$$p = \frac{|1-n|}{2} \quad \text{and} \quad \mu = \frac{1-n}{2} \tag{2}$$

The derivatives presented by the author in equation (12) are valid only for positive exponents μ in our equation (1). Thus, if positive order Bessel functions are desired in the author's equation (11), the derivatives of these must take into account the negative sign of μ for $n > 1$. That is,

$$F'(x) = x^{\mu}Z_{p-1} \quad \text{for} \quad n \leq 1$$

and (3)

$$F'(x) = x^{\mu}Z_{p+1} \quad \text{for} \quad n > 1$$

Author's Closure

The writer wishes to thank Professor Lawrence and Mr. Larson for pointing out an oversight in the paper. In order to apply the results to the case $n > 1$ one simply replaces all the Bessel functions of order $(p - 1)$ by that of order $(p + 1)$. The writer also wishes to correct a typographical error: the expression $[\tilde{\mu}\, Z_p{}^2(\tilde{\mu}\lambda_k) - Z_p{}^2(\lambda_k)]$ appearing in equations (19)–(22) should read: $[\tilde{\mu}^2\, Z_p{}^2(\tilde{\mu}\lambda_k) - Z_p{}^2(\lambda_k)]$.

[1] By Tien-Yu Tsui, published in the December, 1968, issue of the Journal of Applied Mechanics, Vol. 35, Trans. ASME, Vol. 90, Series E, pp. 824–825.

[2] Associate Professor, Department of Aerospace and Mechanical Engineering, University of Texas at Arlington, Texas. Mem. ASME.

[3] Graduate Student, University of Texas at Arlington, Arlington, Texas.

Instability of a Mechanical System Induced by an Impinging Fluid Jet[1]

A. D. KERR.[2] In the analytical formulation of the model, the authors included the response of the lower line spring into the response of the rotational spring at the base. This is a questionable practice which usually results, in an erroneous description of the postbuckling response of a structure. To show this, consider the two simple systems and their equilibrium branches, shown in Figs. 1 and 2. Note the very different postbuckling response. In particular note that the equilibrium branch of the system with a line spring, shown in Fig. 1, is "imperfection sensitive" whereas the equilibrium branch of the system with a rotational spring, shown in Fig. 2, is "imperfection insensitive."

In the paper the authors are looking for the reason why the instability loads obtained from the tests are lower than those predicted by their analysis. The foregoing comments suggest that the incorporation of the response of the line spring connected to the lower bar into the response of the rotational spring at the base, may be partly responsible for this disagreement.

Authors' Closure

While Professor Kerr's observation is valid, the results presented in Fig. 14 of our paper are essentially unaltered if we implement his suggestion. That is, for values of φ_1 and φ_2 within the experimental range, curves C to E in Fig. 14 of the original paper are not changed noticeably even if we include

[1] By W. T. Feldt, S. Nemat-Nasser, S. N. Prasad, and G. Herrmann, published in the December, 1969, issue of the Journal of Applied Mechanics, Vol. 36, Trans. ASME, Vol. 91, Series E, pp. 693–701.

[2] Professor, Department of Aeronautics and Astronautics, New York University, New York, N. Y.

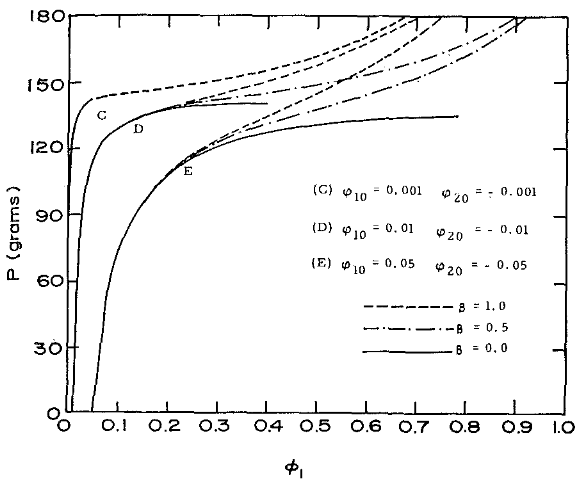

Fig. 1

the entire stiffness of the lower rotational spring into that of the lower line (coil) spring. This is illustrated in Fig. 1, of the Closure, where P is plotted against φ_1 for indicated values of the initial imperfection. Here the dashed curves ($\beta = 1.0$) are the same as those in Fig. 14 of the original paper, while the solid curves ($\beta = 0.0$) correspond to a case in which the line (coil) spring is endowed with the entire stiffness of the lower bar; the dash-dot curves pertain to the case in which each spring has 50 percent of the total stiffness ($\beta = 0.5$). As is seen, for $\varphi_1 < 0.2$, which certainly covers the entire experimental range, no noticeable change in the results can be detected.

Finally, we would like to use this opportunity and point out that in Table 1 of our paper, the physical dimension of the stiffnesses K_1 and K_2 should be changed to dyn cm (instead of gm cm), and that of K_3 to dyn/cm. Moreover, the value of K_2 should be changed to 9.12×10^5 and 9.02×10^5 for Systems I and II, respectively.

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