References

1 Reissner, E., and Stavsky, Y., "Bending and Stretching of Certain Types of Heterogeneous Aeolotropic Elastic Plates," JOURNAL OF APPLIED MECHANICS, Vol. 28, No. 3, TRANS. ASME, Vol. 83, Series E, Sept. 1961, pp. 402–408.

2 Stavsky, Y., "Bending and Stretching of Laminated Aeolotropic Plates," *Proceedings of ASCE* (*Journal of the Engineering Mechanics Division*), Vol. 87, No. EM6, Dec. 1961, pp. 31–55.

Transient Excitation of an Elastic Half Space by a Point Load Traveling on the Surface[1]

J. C. THOMPSON[2] and J. H. WU.[3] The paper by Gakenheimer and Miklowitz represents the culmination of several authors' attempts to solve the elastic half-space problem, using Cagniard's technique. While there have been many attempts, using various techniques, at time-dependent solutions, only a few appear significant. Among these are papers by Payton, Lansing, and Cole.

The principal merits which the authors' treatment displays are:

1 The complete time-dependent displacement field of an impulsive surface load moving at an arbitrary constant velocity is obtained for the interior of the half space. This displacement field is expressed as a sum of single integral and algebraic terms, each one representing the disturbance behind a specific wave front. This solution does not depend on any symmetry assumptions, such as that of axial symmetry. The particular techniques used to obtain the single integral and algebraic expressions are for the most part the ones developed by Cagniard and modified by De Hoop and Mitra.

2 In order to carry out the steps which lead to the final integral and algebraic expressions, it was necessary to investigate all singularities in the plane of integration. The complete description of these singularities is an original contribution of the paper.

Another contribution worthy of mention is the obtaining of wave-front expansions for each of the waves which enter the problem.

Authors' Closure

The authors thank the discussers for their kind remarks.

[1] By D. C. Gakenheimer and J. Miklowitz, published in the September, 1969, issue of the JOURNAL OF APPLIED MECHANICS, Vol. 36, TRANS. ASME, Vol. 91, Series E, pp. 505–515.

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Axisymmetric Elastic-Plastic Wave Propagation in 6061-T6 Aluminum Bars of Finite Length[1]

G. E. DUVALL.[2] The thin bar approximation has been a millstone around the necks of experimenters in mechanics for many years. Questions of its validity have been raised routinely in recent years whenever new results are reported on dynamic material properties obtained from impact on bars. In some cases controversy has continued for nearly a decade, as for Bell's work at Johns Hopkins, and questions of strain-rate dependence or independence have been inextricably intertwined with questions about the validity of thin bar calculations. Various analytic approximations to the problem have been made, as pointed out by the authors, but it has not been possible to use these nearer than about 15 or 20 bar diameters from the point of impact.

Bertholf's numerical integration of the elastic bar equations showed great promise of resolving these questions of pulse propagation near the impact end,[3] but at that time, there were little experimental data to verify the computations. The correlated experiments and computations described here seem to shout that the problem of bar response need no longer be a mystery: If you wish to know the response, compute it numerically! One could wish that the agreement between experimental and calculated details were better, but considering the inherent uncertainties in both, it seems very satisfactory.

There still remain questions about response between $1^1/_2$ and 20 bar diameters, but the results shown here give one confidence that, if computations are carefully done, response in this intermediate region will also be correctly predicted. It would be some comfort, however, to have correlated experiments like these extended to longer bars. There remain, of course, profound questions about the design and use of computational programs like TOODY, and until many of these are settled, computations of the kind shown here will not be undertaken casually by the uninitiated engineer.

[1] By L. D. Bertholf and C. H. Karnes, published in the September, 1969, issue of the JOURNAL OF APPLIED MECHANICS, Vol. 36, TRANS. ASME, Vol. 91, Series E, pp. 533–541.

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[3] Bertholf, L. D., JOURNAL OF APPLIED MECHANICS, Vol. 34, TRANS. ASME, Vol. 89, Series E, 1967, p. 725.

Stability of Clamped Skew Plates Under Combined Loading[1]

S. DURVASULA.[2] The author is to be congratulated for presenting useful results for buckling under combined loading of clamped skew plates. The discusser too considered this problem [1][3] using the same beam characteristic functions and Galerkin method (which is identical with Ritz method for this problem, since the boundary conditions are only geometric). The values obtained by Ashton are seen to be slightly less accurate than those of reference [2], where comparison is possible. Further, the author did not give any indication of the number of terms used or the symmetry group to which the buckled mode belonged in each case. This information is equally important and should have been given.

The discusser considered the buckling problem of clamped skew plates using beam characteristic functions in 1965 [1] and the results of more complete investigation were presented in [2]. This material is published subsequently in the form of a report [3]. This investigation by the writer originally arose in the context of a study of the panel flutter problem of clamped skew panels [4] using beam characteristic functions.

With deflection expressed as

[1] By J. E. Ashton, published in the March, 1969, issue of the JOURNAL OF APPLIED MECHANICS, Vol. 36, TRANS. ASME, Vol. 91, Series E, pp. 139–140.

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[3] Numbers in brackets designate References at end of Discussion.