

## Reply

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21 August 1985

We thank J. T. Kirby for pointing out the error in one of the matching conditions at the surface where the current velocity is discontinuous, and agree with him on Eq. (3.15) as well as the deductions in Section 4 in his Comment (this issue). Our error was also pointed out earlier by W. D. McKee (September 1984, private communication) of the University of New South Wales. As a consequence of this correction the numerical results in Table 1 and Figs. 2-4 of Mei and Lo (1984) need to be revised as shown. The figure captions are unchanged from the original.

As in the case of pure depth discontinuity, the reasoning behind Eq. (3.3) of Kirby is, strictly speaking, tentative because the shallow water equations are not valid near, and hence cannot be integrated across, a discontinuity. Dr. McKee has informed us that D. V. Evans' theory for a single vortex sheet has been extended to finite depth by F. Tesoriero of New South Wales and the results in the shallow water limit confirm the results by using the corrected condition.

With regard to Kirby's observation on wave conser-

vation we remark that Eq. (3.3) in his note is valid only for a single wavetrain in a slowly varying medium. It should not be applied to wave scattering and cannot be integrated across a discontinuity to obtain (3.25).

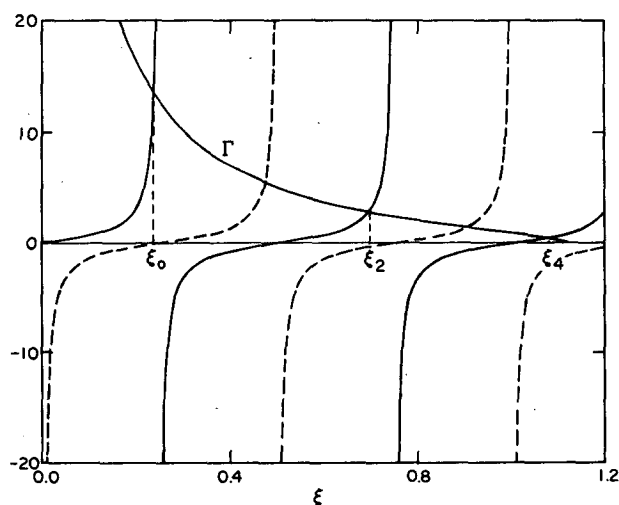


FIG. 2.

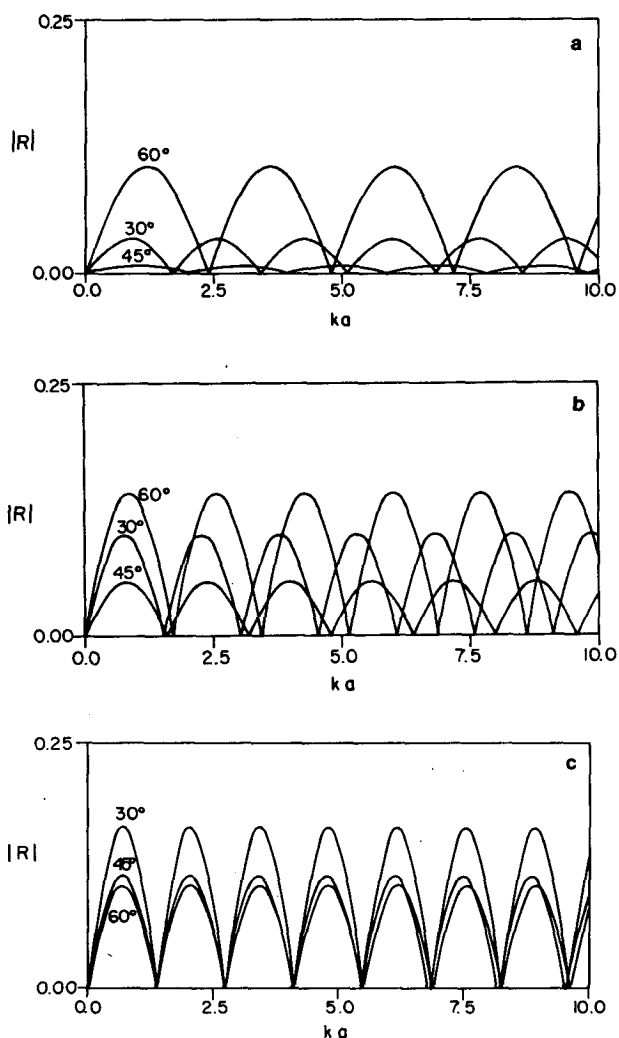


FIG. 3a, b, c.

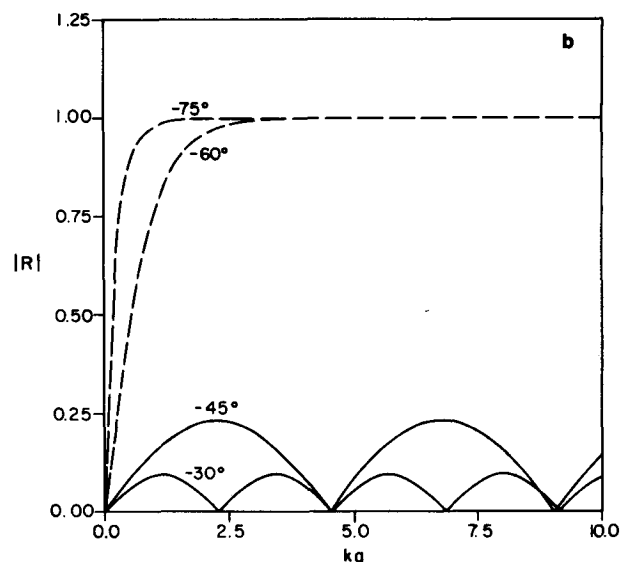
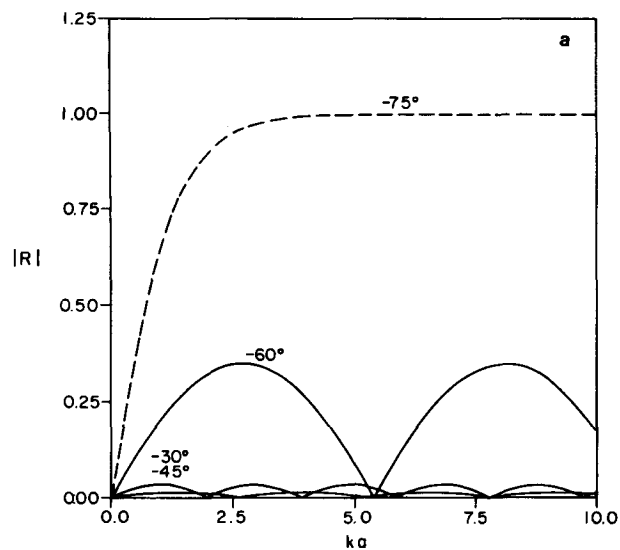


FIG. 4c.

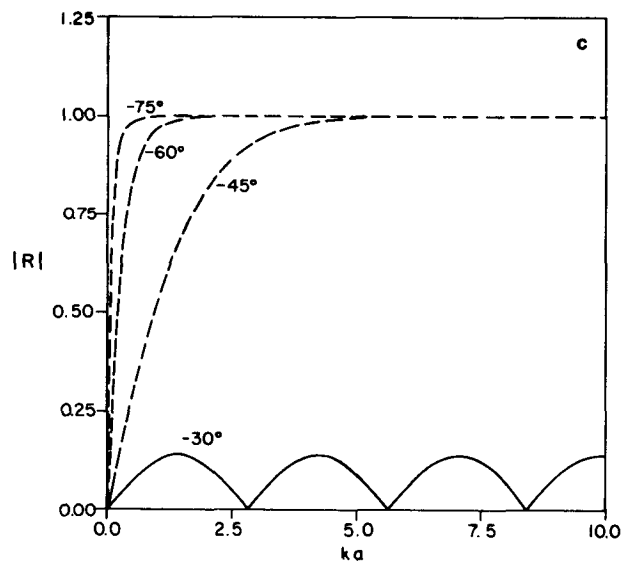


FIG. 4a, b.

REVISED TABLE 1. Eigenvalues  $\xi_n$  of the trapped modes.

$n$	$\beta a = 2\pi$			$\beta a = \pi$		
	$F$			$F$		
	0.5	0.3	0.1	0.5	0.3	0.1
0	0.2382	0.2243	0.1907	0.4480	0.3987	0.2981
1	0.4720	0.4419	0.3650	0.8416	0.7248	
2	0.6966	0.6438		1.1010		
3	0.9052	0.8063				
4	1.0767					

## REFERENCE

Mei, C. C., and E. Lo, 1984: The effects of a jet-like current on gravity waves in shallow water. *J. Phys. Oceanogr.*, **14**, 471-477.