# Discussion of Paper by J. N. Nanda, 'The Origin of Microseisms'

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May I call attention to some misstatements that have appeared in a recent paper in the June number of this Journal [*Nanda*, 1960]. Present comments are confined solely to cases where Dr. Nanda refers to a previous paper [*Longuet-Higgins*, 1950].

1. In the Introduction Dr. Nanda states: 'The Longuet-Higgins theory does not show a direct influence of depth of the sea at the origin.' In fact, it is shown in §5.1 and 5.2 of my paper that the response depends quite markedly on the local depth; the response curves for the different modes of oscillation are given in Figure 2 of that paper.

2. A little later Dr. Nanda states: 'The Longuet-Higgins theory would require the existence of standing waves.' Such is not the case, for the requisite pressure fluctuations are produced by opposite wave trains whose amplitudes need not be equal; the pressure fluctuations are simply proportional to the product of the amplitudes of opposite components in the spectrum.

3. On p. 1819 he states: 'Usually standing waves can arise only from sources which have definite phase relationships.' However, the main purpose of §3 and 5 of my paper is to allow for the random phase relationships between different components in the two-dimensional spectrum; and it is shown that the requisite pressure fluctuations do occur even in an incoherent sea.

4. On the last page Dr. Nanda states: 'A similar calculation on the Longuet-Higgins theory, when wave heights are assumed to be 3 meters, is 16 mm.' I do not know how this figure is arrived at, unless Dr. Nanda has assumed that the second-order pressure fluctuations are in-phase over the whole generating area, an assumption which is quite unsupportable, and which is certainly not made in my paper.

## REFERENCES

Nanda, J. N., The origin of microseisms, *J. Geophys. Research*, *65*, 1815–1820, 1960.

Longuet-Higgins, M. S., A theory of the origin of microseisms, *Phil. Trans. Roy. Soc. London A*, *243*, 1–35, 1950.

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# Corrigendum

The author, Dr. J. H. Rosenbaum, has called attention to several errors in his paper, 'The Long-Time Response of a Layered Elastic Medium to Explosive Sound,' in the May 1960 issue of this Journal. His corrections follow.

Page 1579, first column, following equation 3:

$$R^2 = r^2 + (d - z)^2.$$

Page 1586, second column, line 33:

$$|e^{\sigma(K)}|.$$

Page 1587, first column, equation 38, second line:

$$e^{-i\gamma/2}.$$

Page 1590, second column, following equation 45:

define $\psi^e$ = phase $(Q_n^e) + \pi$ (omit the rest of the definition); also define $-\pi <$ phase $(-i\bar{\omega}_n'') < \pi$.

Page 1592, second column, last paragraph, and page 1593, first column, top of page:

points where $\alpha_{2n} = 0$ are *not* branch points of the period equation $\bar{\omega}_n$ as a function of $K$; however, points where $\bar{\omega}_n = 0$, and $d\bar{\omega}_n/dK$ becomes infinite, are also branch points.

Page 1593, column 2, line 7:

real values of $K$.