Correction

to contribution R. Dąbrowski: Stability of a freestanding column loaded through a roller bearing. Ing.-Arch. 54 (1984) 16—24.

The author received a letter from Prof. W. T. Koiter, Delft, in which he points out an error in interpretation of Case 2 for compressive loads in excess of the critical load $P_{cr1} = P_E$. According to Professor Koiter's analysis the equilibrium in Case 2 is *unstable* for $P > P_E$. He writes:

"The comparison of energies in the "stable" configuration I of Case 2 and the "unstable" configuration of Case 1 is invalid because the latter configuration is *not* an equilibrium configuration for $e \neq 0$. A valid decision on stability can only be obtained by consideration of the second variation of the potential energy for a small (infinitesimal) additional deflection from the configuration of equilibrium under consideration."

Professor Koiter has re-examined the problem by means of the potential energy expression

$$\Pi = \int \left(\frac{1}{2} EIu''^2 - \frac{1}{2} Pu'^2 \right) dx + \frac{1}{2} Pu_0' u_0 - Peu_0'.$$

He writes:

"This quadratic expression is a valid approximation, with a relative error of order (u'^2), and it corresponds to the linear equations in sections 2.1 to 2.3. The second variation is given by

$$\delta^2 \Pi = \int \left(\frac{1}{2} EI\delta u''^2 - \frac{1}{2} P\delta u'^2 \right) dx + \frac{1}{2} P\delta u_0' \, \delta u_0 .$$

It follows that equilibrium is always unstable for $P > P_E$ because the second variation is then negative for $\delta u = \delta f \left(1 - \cos \frac{\pi x}{l} \right)$. Hence bifurcation will occur at $P = P_E$ and the post-buckling behaviour for small values of the excentricity is described with a good approximation by the classical theory of the elastica."

The author regrets the misconception in interpretation of Case 2 in the paper (the Cases 1, 2′ and 3 remaining valid) and thanks Prof. Koiter for clarification.

In Eq. (7′) on Page 18: change $(1 - \cos \alpha l)$ to $(1 + \cos \alpha l)$.