J. Fluid Mech. (2026), *vol.* 1046, E2, doi:10.1017/jfm.2026.12298

CORRIGENDUM

Viscous and resistive eddies near a sharp corner – CORRIGENDUM

H.K. Moffatt

DOI: https://doi.org/10.1017/S0022112064000015, Published online by Cambridge University Press, 28 March 2006.

There are two errors in the introductory sections of Moffatt (1964). Neither has any bearing on any other part of that paper, but it may be useful here to set the record straight.

The general solution of the Stokes equation $\nabla^4\psi = 0$ of the form $\psi = r^\lambda f_\lambda(\theta)$ was stated in eqn. (1.2) of the paper, and degenerate forms for $\lambda = 0, 1, 2$ in eqns. (1.3)–(1.5). Equation (1.3) for $f_0(\theta)$ is obviously incorrect. The correct expression [like (1.5) for $f_2(\theta)$] is

$$f_0(\theta) = A + B\theta + C\cos 2\theta + D\sin 2\theta, \tag{0.1}$$

for arbitrary constants A, B, C, D.

The second error relates to the example sketched in figure 2(b) of Moffatt (1964). In this example, fluid is contained between a rigid lower boundary $\theta = 0$ and an upper horizontal free surface $\theta = \alpha$ on which a uniform tangential stress is imposed. The stream function has the local similarity form $\psi \sim r^2 f_2(\theta)$. The boundary condition $v = 0$ on $\theta = \alpha$ was incorrectly stated as $f_2'(\alpha) = 0$; it should have been $f_2(\alpha) = 0$. With this change, the correct solution for the function $f_2(\theta)$ becomes

$$f_2(\theta) = \frac{2[\alpha - \theta + \theta\cos 2\alpha - \alpha\cos 2\theta] + \sin 2\theta - \sin 2\alpha + \sin 2(\alpha - \theta)}{8[2\alpha\cos 2\alpha - \sin 2\alpha]}. \tag{0.2}$$

Interestingly, the problem encountered by Moffatt & Duffy (1980) for the 'hinged-plate problem' occurs here also at the same critical angle $\alpha = \alpha_c \approx 0.715\pi$, the similarity solution $\psi \sim r^2 f_2(\theta)$ being dominant only for $\alpha < \alpha_c$.

Acknowledgements. I am grateful to Dr Kyle McKee (ETH Zürich) for his careful reviewing of my recent paper (Moffatt 2026), and who, in the course of this, drew my attention to the second of the above errors.

References

Moffatt, H.K. 1964 Viscous and resistive eddies near a sharp corner. *J. Fluid Mech.* **18**, 1–18.

Moffatt, H.K. 2026 Note on flow structure near the corner of a wedge. *J. Fluid Mech.* **1042**, A43. doi: 10.1017/jfm.2026.12016

Moffatt, H.K. & Duffy, B.R. 1980 Local similarity solutions and their limitations. *J. Fluid Mech.* **96** (2), 299–313.

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https://doi.org/10.1017/jfm.2026.12298