Correction
of the paper

Particle Motions in Sheared Suspensions

XVIII. Wall Migration (Theoretical)

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In a paper with the above title we gave a theory of migration of liquid droplets away from a wall bounding a Couette flow. However, as kindly pointed out to us by Professor A. Arceivos and Mr. N. A. Frankel of Stanford University, the solution contains certain numerical errors. These are corrected below.

We have repeated the calculation of (1), using a method less liable to error, and we find that among the numbered eq. (12, 16, 18, 19 and 21) are incorrect. Eq. [12 and 16] should read:

\[
\begin{align*}
[Dy]'_{\lambda} - [Dy]_{\lambda} &= DG b \left( i \frac{-10 \lambda + 4}{\lambda + 1} \frac{x^2 y^2}{r^4} ight) \\
&+ i \frac{6 \lambda + 2}{\lambda + 1} \frac{x^2 y^2}{r^2} + j \frac{4 \lambda}{\lambda + 1} \frac{x^2 y^2}{r^4}
\end{align*}
\]

\[
[Dy]'_{\lambda} - [Dy]_{\lambda} = DG b \left( i \frac{-6 \lambda}{\lambda + 1} \frac{x^2 y^2}{r^2} \\
&+ i \frac{\lambda + 7}{\lambda + 1} \frac{x^2 y^2}{r^2} + j \frac{\lambda + 5}{\lambda + 1} \frac{x^2 y^2}{r^4} \right)
\]

In eq. (18, 19 and 21) the factor \(79 A_{\lambda} + 77 + 54\) should be replaced by \(54 + 102 + 54\). The slope of the dashed line (\(2 = 0\)) in fig. 1 is thus correct, but the line in dots and dashes (\(2 = 1.40\)) should be redrawn: the correct line for \(2 = 1.40\) intercepts the upper edge of the fig. 1.24 cm. from its left-hand margin which increases the deviation between the theory and experiment.

References