spheres

D.J. Jeffrey

...resolution of the fundamental difficulties until a higher order in ϵ.

...does so by postponing the...

...of two nearly touching... the convergence of numerical calculations and are worth...

The nonaxisymmetric motions...

the obvious extensions of these equations given in Jeffrey and Corless. When they are solved, it is found that the pressure functions have asymptotic behavior for large R as follows.

$$\frac{5+18\lambda-453\lambda^2+566\lambda^3-65\lambda^4}{140(1+\lambda)^3}$$

TABLE I. Revised convergence properties of series for [illegible]. The columns compare the convergence of infinite series expansions that do not use the $\xi \ln \xi$ terms obtained here with ones that do. The improvement in the convergence with the number of terms n is clear.

	M		M	
n	without new term	with new term	without new term	with new term
100	0.719 27	0.716 80	−0.141 94	−0.145 52
200	0.718 58	0.717 33	−0.144 24	−0.145 98
300	0.718 15	0.717 31	−0.144 80	−0.145 97
350	0.718 05	0.717 33	[illegible]	[illegible]

$$X^M_{11} = [illegible]\xi^{-1} + \tfrac{27}{200}\ln\xi^{-1} + 0.7173 + \tfrac{353}{2800}\,\xi\ln\xi^{-1} + 0.07\xi, \qquad (17)$$

$$X^M_{12} = [illegible]\xi^{-1} + \tfrac{27}{200}\ln\xi^{-1} - 0.1460 + \tfrac{493}{2800}\,\xi\ln\xi^{-1} + 0.15\xi, \qquad (18)$$

where $\xi = \epsilon$ when $\lambda = 1$. As further tests of the new results, the convergence tests of Jeffrey and [illegible] and were done again. Some results are shown in Table I, where it can be seen that the convergence is improved using the new values.

$421(-65\lambda^4 + 832\lambda^3 - 1041\lambda^2 + [illegible]$

[redacted] at rest in an ambient rate-of-strain field,[4] we expect the [redacted]

[redacted] see that they were correct for the X [illegible] functions, but incorrect for the $X^M_{\alpha\beta}$ functions. The corrected expressions for $\lambda = 1$ are

[7]R. M. Corless and D. J. Jeffrey, J. Appl. Math. Phys. 39, 874 (1988).
[8]J. Happel and H. Brenner, *Low Reynolds Number Hydrodynamics* (Nijhoff, The Hague, The Netherlands, 1983).
[9]D. J. Jeffrey, Utilitas Math. (in press).