Fig. 4.5 shows the distribution of density ρ, mean density $\rho_m D$, Radau's parameter η, flattening f, and deviation κ in the earth's interior, following Bullard (1948) and Jones (1954). The density model is now obsolete, cf. Fig. 1.7, as well as the surface value for f, but the diagrams are nevertheless extremely instructive.

Recent determinations are extensively and carefully discussed in (Denis, 1989). As we have already remarked, instead of solving Clairaut's and Darwin's differential equations, we may also solve corresponding integro-differential equations such as (4–79) and (4–122) by iterative procedures described in (Zharkov and Trubitsyn, 1978, secs. 36 and 37) and in (Denis, 1989); the latter work is an excellent complement of the present book, especially as regards numerical aspects and results; it also contains extensive additional references. A modern counterpart of Fig. 4.5 is Fig. 4.6, following the preprint (Denis, 1985) which was available when the present book was written. The dependence of f on the underlying density model is remarkable.
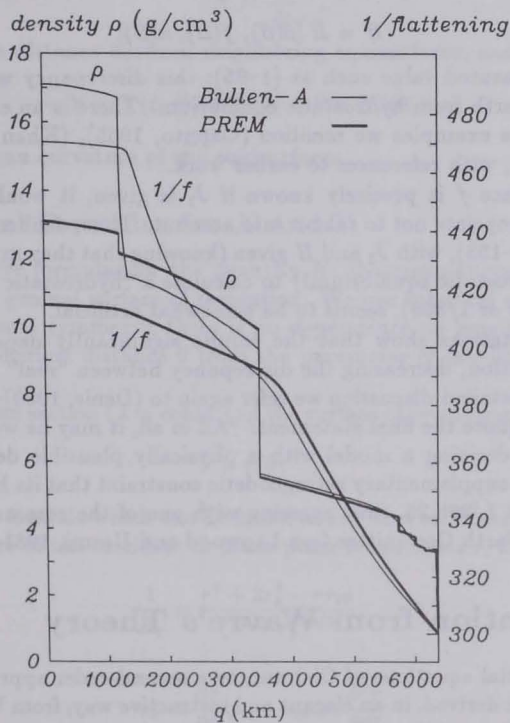

FIGURE 4.6: Inverse flattening f^{-1} for two different models of density ρ

Modern determinations of κ_1, comparable to (4–138), lie between 64 and 78×10^{-8}. So it may be expected that the plot of κ in Fig. 4.5 is still reasonably representative.