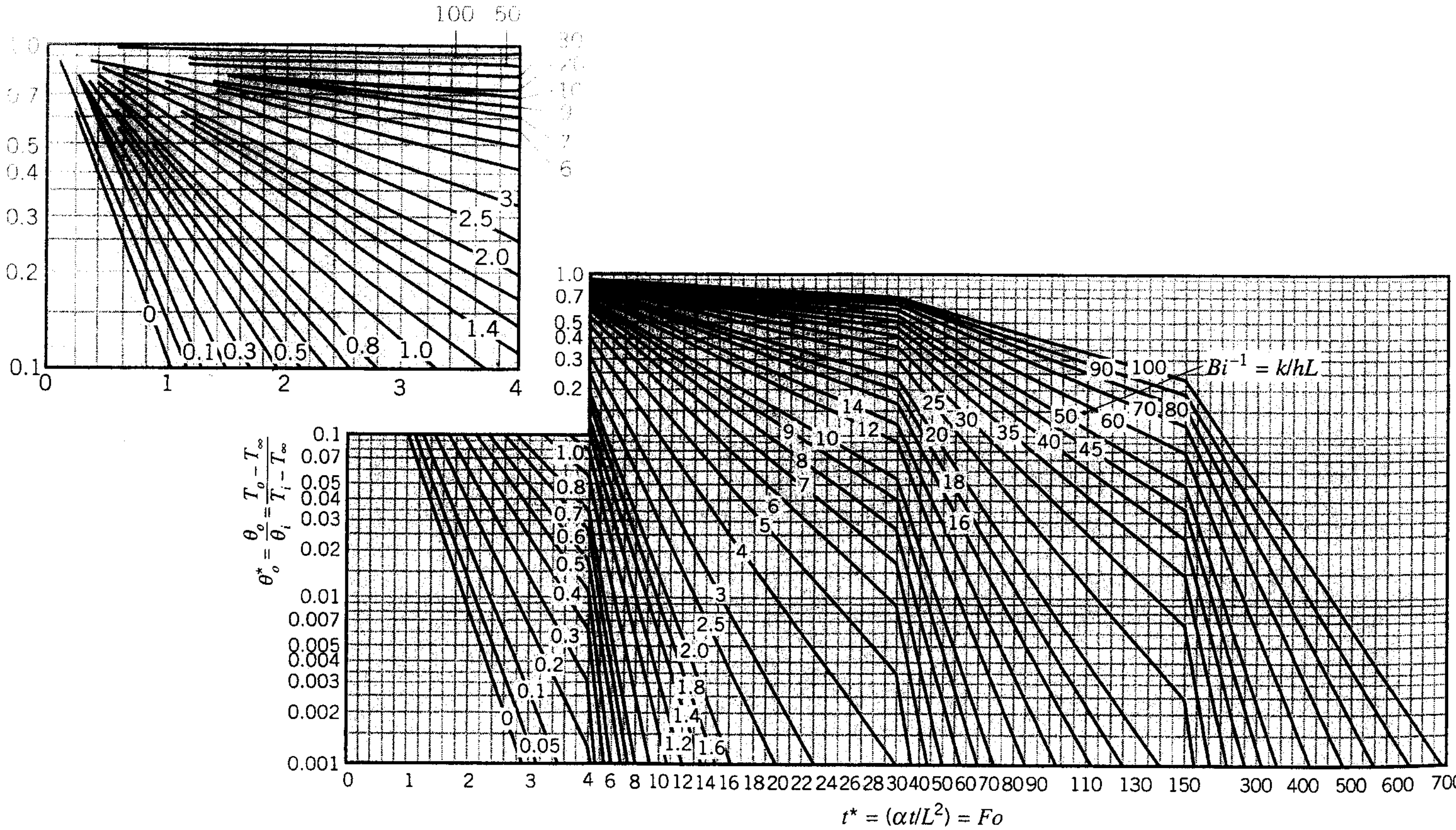

FIGURE D.1 Midplane temperature as a function of time for a plane wall of thickness $2L$ [1]. Used with permission.

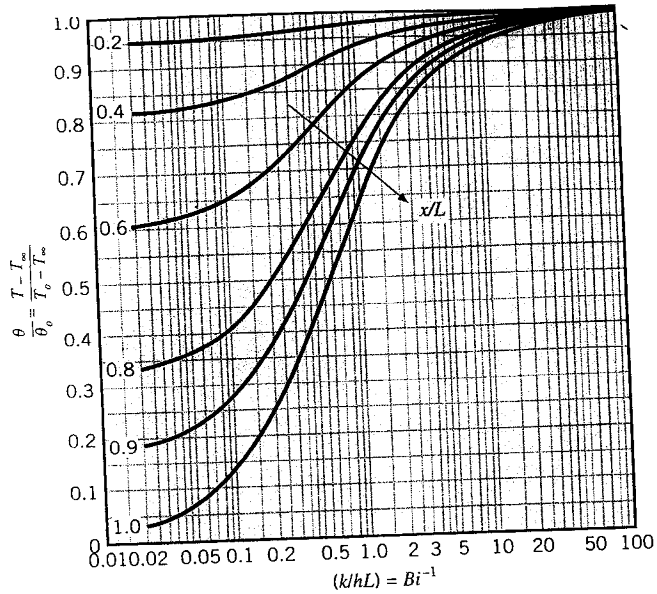

FIGURE D.2 Temperature distribution in a plane wall of thickness $2L$ [1]. Used with permission.

The foregoing charts may also be used to determine the transient response of a plane wall, an infinite cylinder, or a sphere subjected to a *sudden change in surface temperature*. For such a condition it is only necessary to replace T_∞ by the prescribed surface temperature T_s and to set Bi^{-1} equal to zero. In so doing, the convection coefficient is tacitly assumed to be infinite, in which case $T_\infty = T_s$.

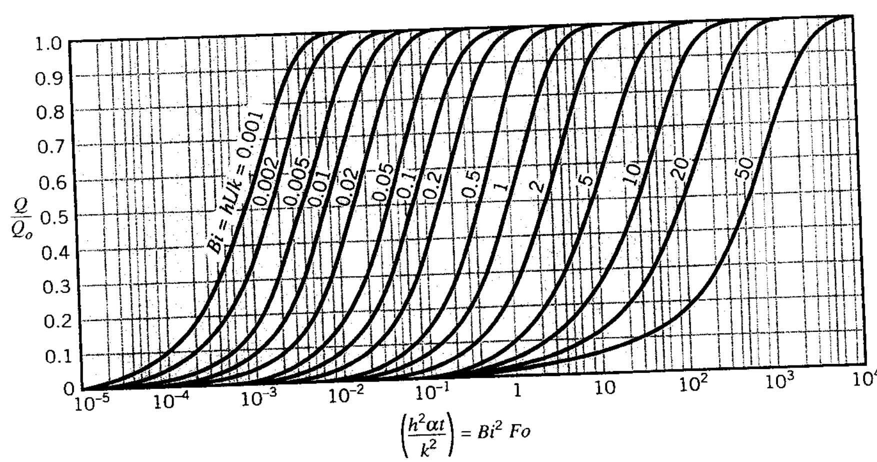

FIGURE D.3 Internal energy change as a function of time for a plane wall of thickness $2L$ [2]. Adapted with permission.

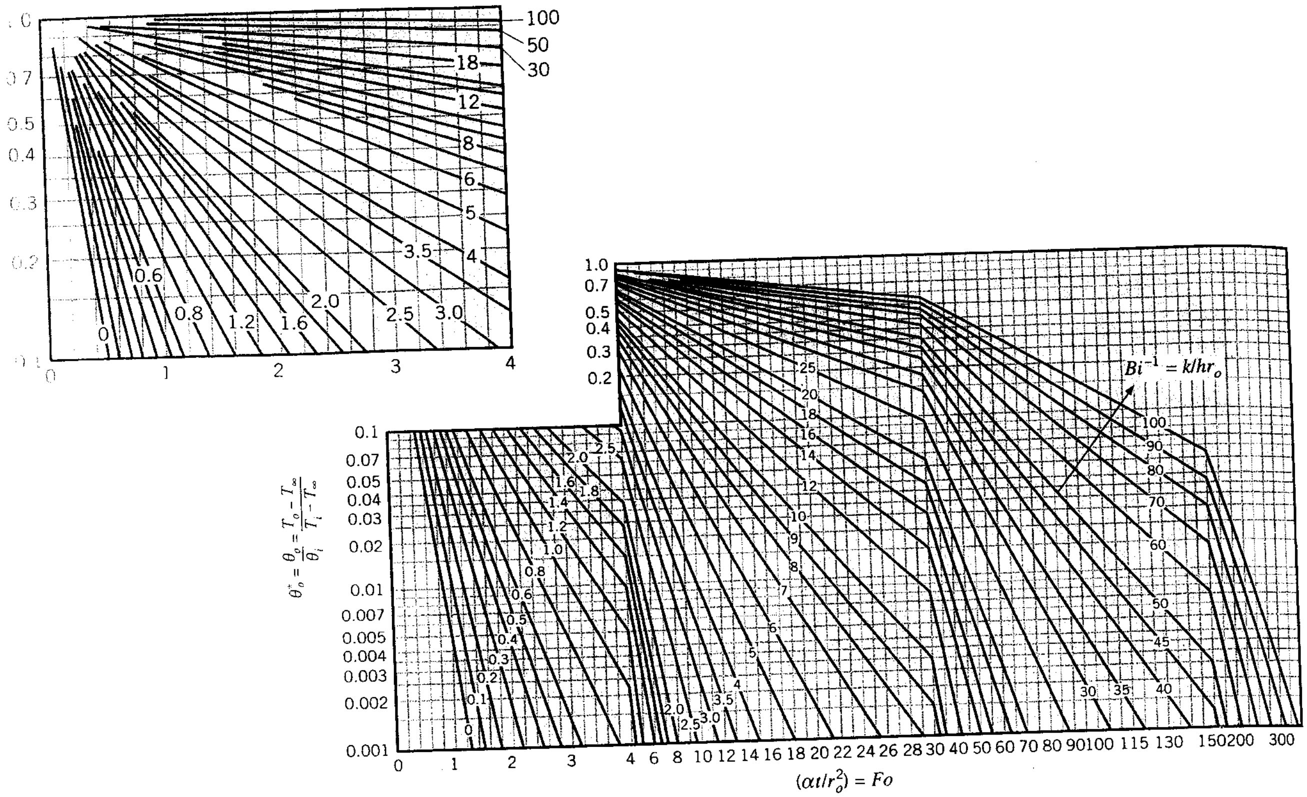

FIGURE D.4 Centerline temperature as a function of time for an infinite cylinder of radius r_o [1]. Used with permission.

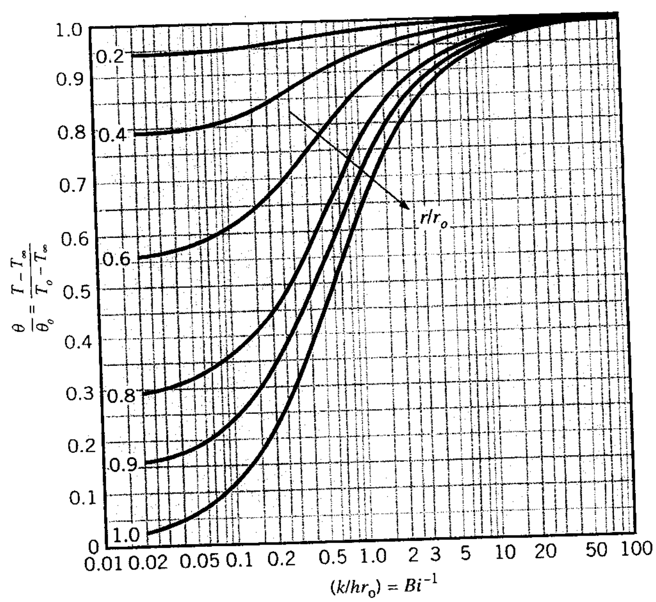

FIGURE D.5 Temperature distribution in an infinite cylinder of radius r_o [1]. Used with permission.

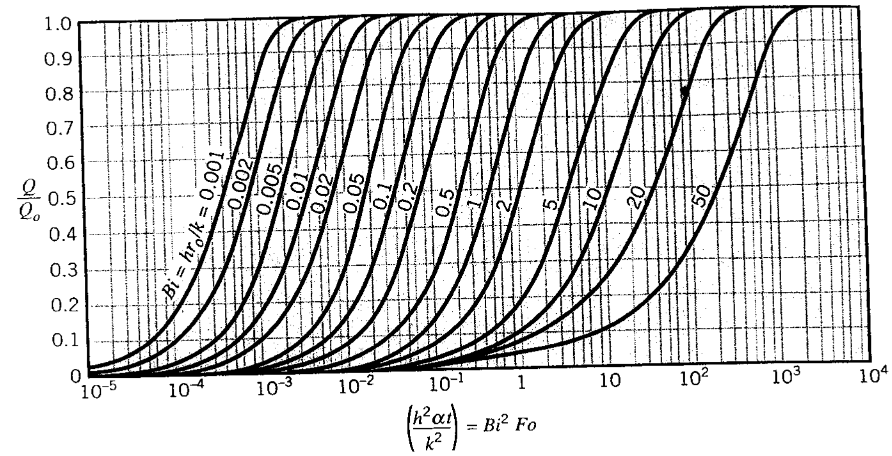

Figure D.6 Internal energy change as a function of time for an infinite cylinder of radius r_o [2]. Adapted with permission.

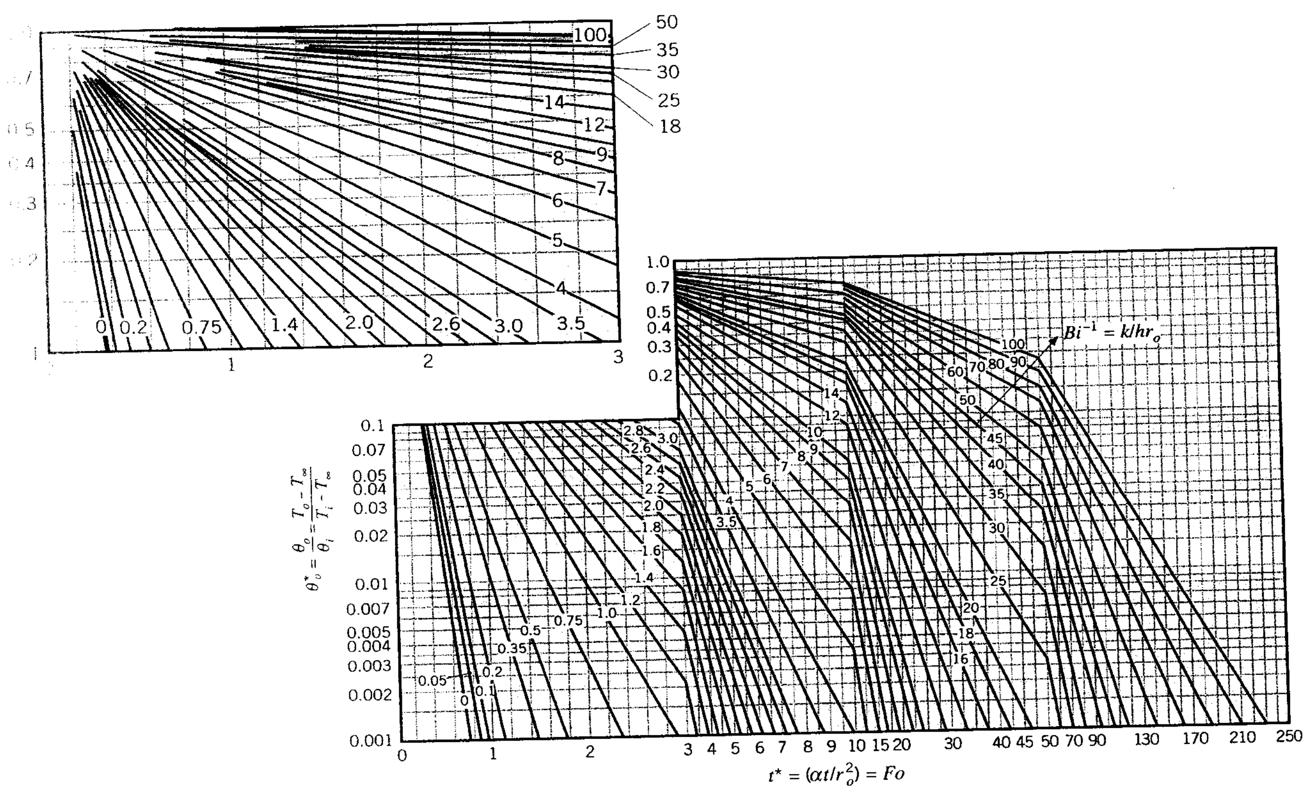

Figure D.7 Center temperature as a function of time in a sphere of radius r_o [1]. Used with permission.

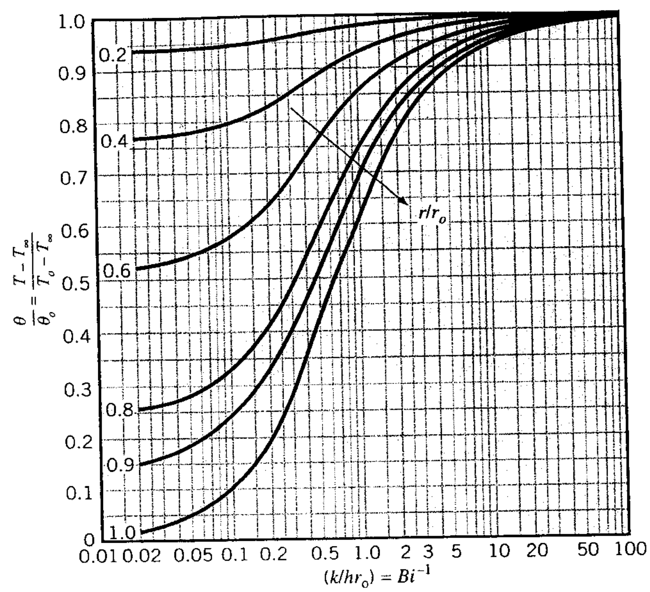

FIGURE D.8 Temperature distribution in a sphere of radius r_o [1]. Used with permission.

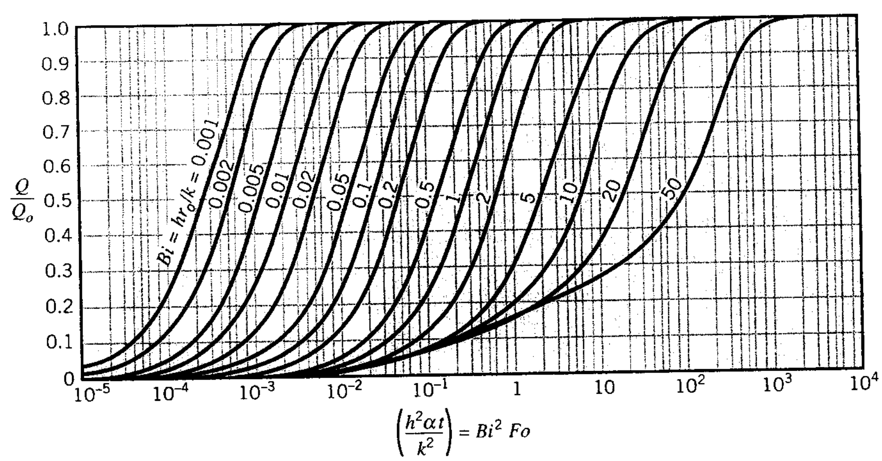

FIGURE D.9 Internal energy change as a function of time for a sphere of radius r_o [2]. Adapted with permission.

References

1. Heisler, M. P., *Trans. ASME,* **69,** 227–236, 1947.
2. Gröber, H., S. Erk, and U. Grigull, *Fundamentals of Heat Transfer,* McGraw-Hill, New York, 1961.