This follows at once from the fact that A and B differ only by $V/2R$ and that as a linear approximation $V = V_S$. Thus as a linear approximation, *the potentials of the original and of the condensed topography are equal, but the attractions differ by the terrain correction.*

8.2.4 Effect of Compensation

We shall now consider a crustal density model by which the linear correlation of the free-air gravity anomalies with elevation can be explained and which at the same time is simple. Obviously, isostatic compensation must in some way be taken into account.

If we look at the Airy–Heiskanen isostatic model, we see that the compensation is given by the mountain roots which are some 30 km below sea level. The effect of this type of compensation on the earth's surface is thus quite similar as that of a surface layer of density $(-\rho h)$ on the sphere of radius $R - T$, where T may be identified with the normal thickness of the earth's crust of about 30 km, formerly denoted by T_0; see Fig. 8.13 and Fig. 8.10 above. The idea of regarding, for mathematical simplicity,

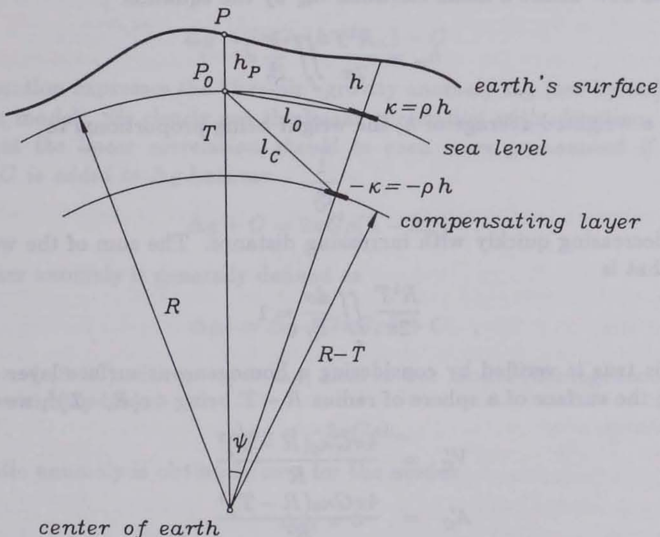

FIGURE 8.13: Spherical equivalent of Fig. 8.10; note again the dipole character

the isostatic compensation as a surface layer on a sphere concentric to the terrestrial sphere, was also used by Jung (1956, p. 590); we are following (Moritz, 1968c).

Let us now consider potential V_C and attraction A_C of this compensation layer. Since $h << T$, these quantities are almost the same whether referred to P or to P_0