PROBLEMS

1. Compare and contrast the meanings of the terms aquifer, aquifuge, aquiclude and aquitard. What is a water table aquifer as compared to a confined aquifer?

2. What is the "piezometric surface"? How is it related to the water table? Explain.

3. A long column of initially saturated soil drains at a rate of $5 \times 10^{-4}$ cm/sec over a three-hour period. During this time, the water level in a manometer attached near the base of the column changes in elevation from 170 cm to 116 cm above the column base. Determine the average $S_{w}$ for the soil.

4. In water table aquifers, explain why $S_{w}$ increases with increasing water table depth.

5. A two-foot diameter drainage well is operated such that the water level in the well is 20 ft below the regional water table elevation of 30 ft. above an aquitard. The region of the well receives a steady irrigation recharge of 4 ft/yr. If $K = 200$ ft/day, estimate the radius of influence of this well on the water table.

6. A well located in an unconfined sandy aquifer lowers the water table by 1 m below the initially slightly flooded ground surface. If $r_w = 30$ cm, $r_o = 450$ m, $K = 20$ m/day and an aquitard exists at 15 m deep, estimate the flow rate (gpm) from the well.