FIGURE 7.12.

A common trap for oil and gas. The original organic matter from which the petroleum was derived may have migrated many miles into the porous formation that constitutes the fossil fuel reservoir. Note that the lighter gas is on top. Water is denser than oil and therefore on the bottom. The example shown is known as an anticlinal trap. Traps may also be formed by faults or by stratigraphy wherein the porous layer thins out to an impermeable one.
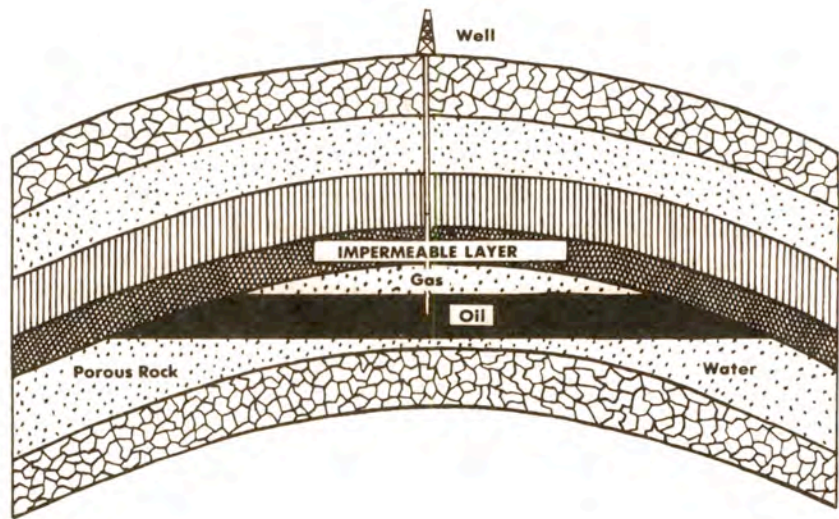


disappear? As with the increase in oxygen supply, the decrease in carbon dioxide is due to both biologic and chemical processes involving the sedimentary rocks of the Earth.

*Biologic Processes*. In the process of photosynthesis plants convert carbon dioxide to carbohydrates and release excess oxygen as a byproduct. This is one way that carbon dioxide is removed from the atmosphere. However, this process is not a completely effective one; for as the plant dies and decays, its carbon products are recombined with oxygen (oxidized) to again produce carbon dioxide. Only the dead organic matter that is partially buried in the muck of swamps or in the depths of the oceans (where oxygen supply is greatly reduced) escapes this oxidation process. It is this unoxidized carbon that has helped to reduce the $CO_2$ and to add oxygen to the atmosphere.

Exposed sedimentary rocks testify to the ancient burial of dead organic matter. The carbon-rich shales of Colorado and Utah contain layer after layer of these carbonaceous formations that alternate between layers of other types of sedimentary rocks (sandstones and limestones) laid down in ancient seas. Where organic material from swampy vegetation has been buried in volume, it often forms commercial deposits of coal. Beds of coal are accumulations of fossil plants that thrived in swamps millions of years ago.

Petroleum products such as oil and gas also owe their origin to once living biologic life. Since all life is based on carbon compounds, small amounts of hydrocarbons occur in organisms of all kinds, from