SALT and SALT DOMES

NaCl Sodium Chloride

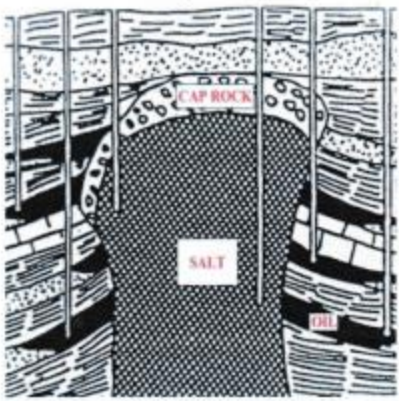
Rock salt is a particularly interesting mineral, with which we are all familiar, as common salt. Through a lens, table salt can be seen to consist of beautiful cubic crystals, mostly of a uniform size. Rock salt, as mined in Cheshire, has been through a crusher and is less ideal, consisting of irregular chippings, although on higher magnification the cubic cleavage can be seen. It's other properties are more geologically important. Compared with other minerals it is

A Very light (s.g. 2.1 - 2.2).

B Plastic (In the same way that ice is plastic, as in a glacier).

C Although it is soluble in water, it is very impermeable.

Another fact about salt is that there is an awful lot of it about. It is contained in the oceans, and has been laid down as a sedimentary rock when sea water evaporates. It occurs in salt lakes as in Utah -- In underground sedimentary rocks as in Cheshire . - - and as salt domes, as in Texas and the Gulf coast. The salt dome is an interesting structure, of economic importance. They occur in the Gulf coast, Germany, Spain, Romania, and Iran. In the U.S.A. they are associated with prolific oil wells. Most were located by geophysical methods, using the gravity anomalies created by the large volume of light material, and proved by drilling. Fig 1. shows a typical cross section. The salt plug may be several thousand feet thick, with the top from near the surface to several thousand feet down. Usually there is a cap rock overlying the salt, consisting of salts such as anhydrite or gypsum, left after the more soluble salt has been leached by groundwater. It is considered that originally salt was deposited as sedimentary beds, which was then covered by several thousand feet of deposits. Due to it's being lighter than the surrounding rocks and somewhat plastic, it was forced up as a bubble towards the surface, rupturing and bending the overlying beds. In the Gulf area these were alternately sandstones and shale. Oil which was formed in the sandstones could find it's way into traps (shown black) between the salt and the shale which were impermeable. Due to it's very impermeable nature, projected future uses for salt domes include such uses as repositories for radioactive residues, and for storage for imported oils and similar products.



SALT DOME

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