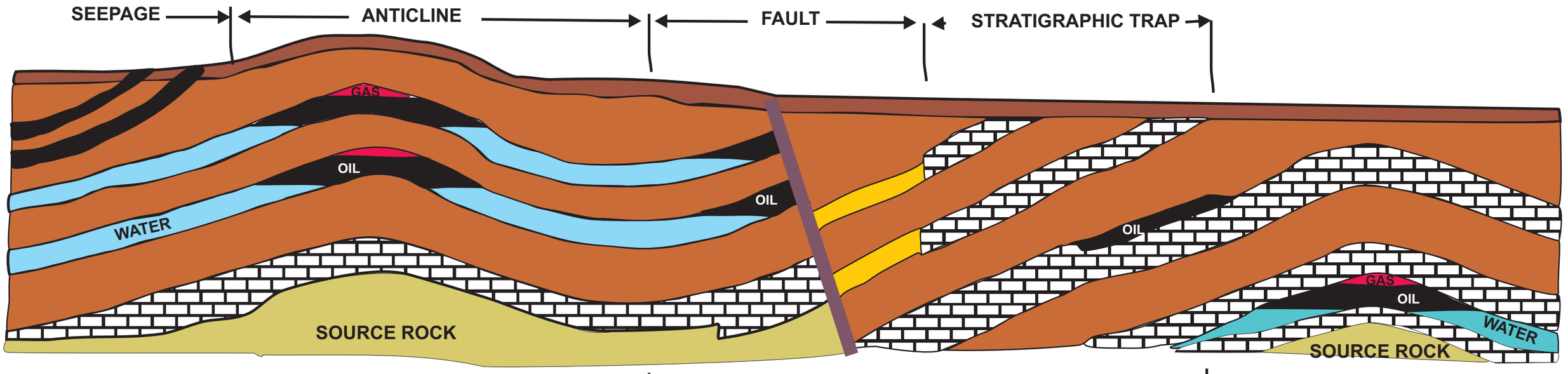
Porous rocks such as sandstone and limestone, act as reservoirs for gasses and liquids if their escape is prevented by some geological condition that acts as a seal. Gas, being the lightest, accumulates at the top of the reservoir . Lighter that water, oil will in time separate from the water with which it was mixed at the time of origin and slowly accumulates above and apart from water that underlies and surrounds the oil. When porous rocks are tilted or folded, reservoir conditions suitable for the accumulation of petroleum is provided.



Surface seepages and oil springs locates the sites of the first oil wells at Aripero, Guayaguayare and La Brea.

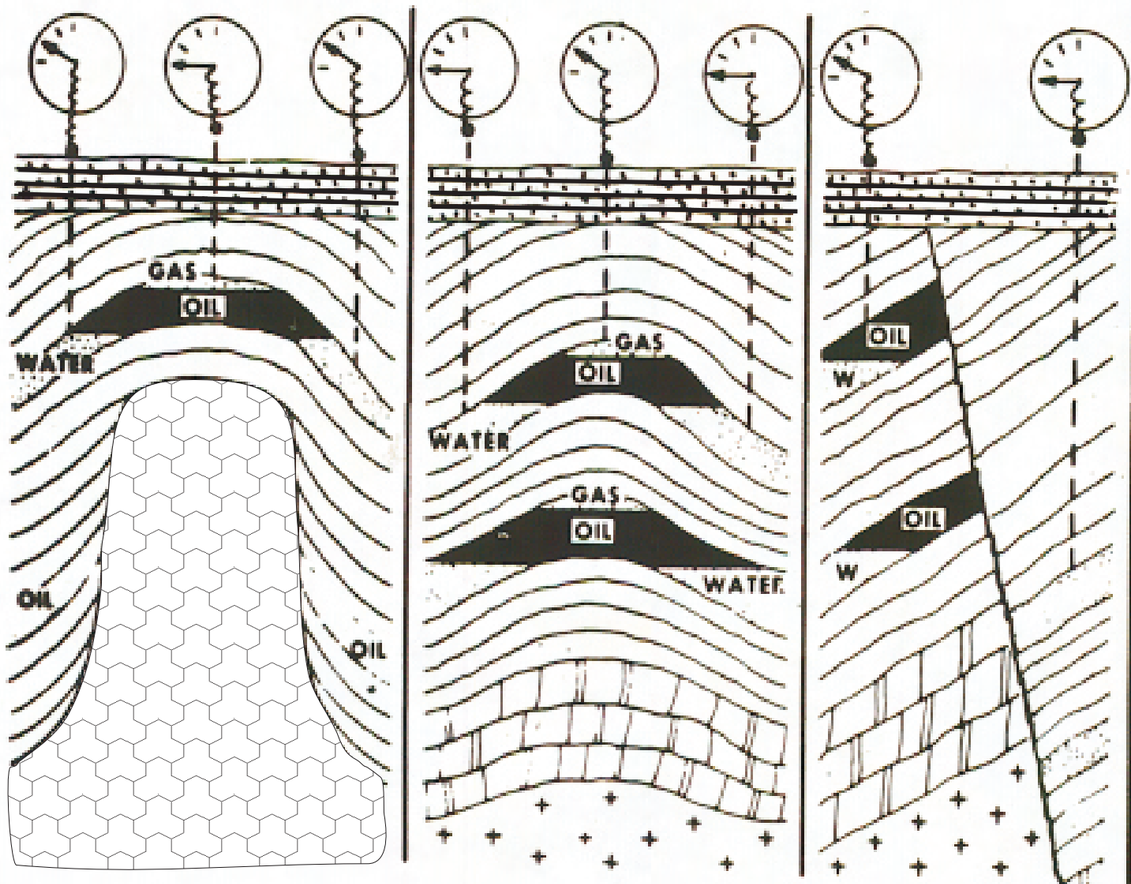
The anticline is in its simplest form a dome caused by upfolding rock strata. Oil and gas are trapped in porous zones at the top of these domes, with impervious strata (seal) above and below the porous rock layer. In most reserviors the oil floats on salt water, which prevents the dispersion of the oil downward.

When stress builds up in rocks and they eventually break faults are formed. Where movement places a porous rock against an impermeable one, a trap is formed. Hydrocarbons may be found on either or both sides of the fault.

Most difficult of the oil breaing structures to locate is the stratigraphic trap. No pronounced folds are present, the trap being formed by changes in the porosity and permeability of the rocks. They are located only afterexhaustive geological and geophysical studies.

Earth In The Ceaseless Quest For Oil.

GRAVIMETER



SALT DOME

Gravity is slightly less over the salt dome because salt is lighter than the surrounding rocks.

ANTICLINE

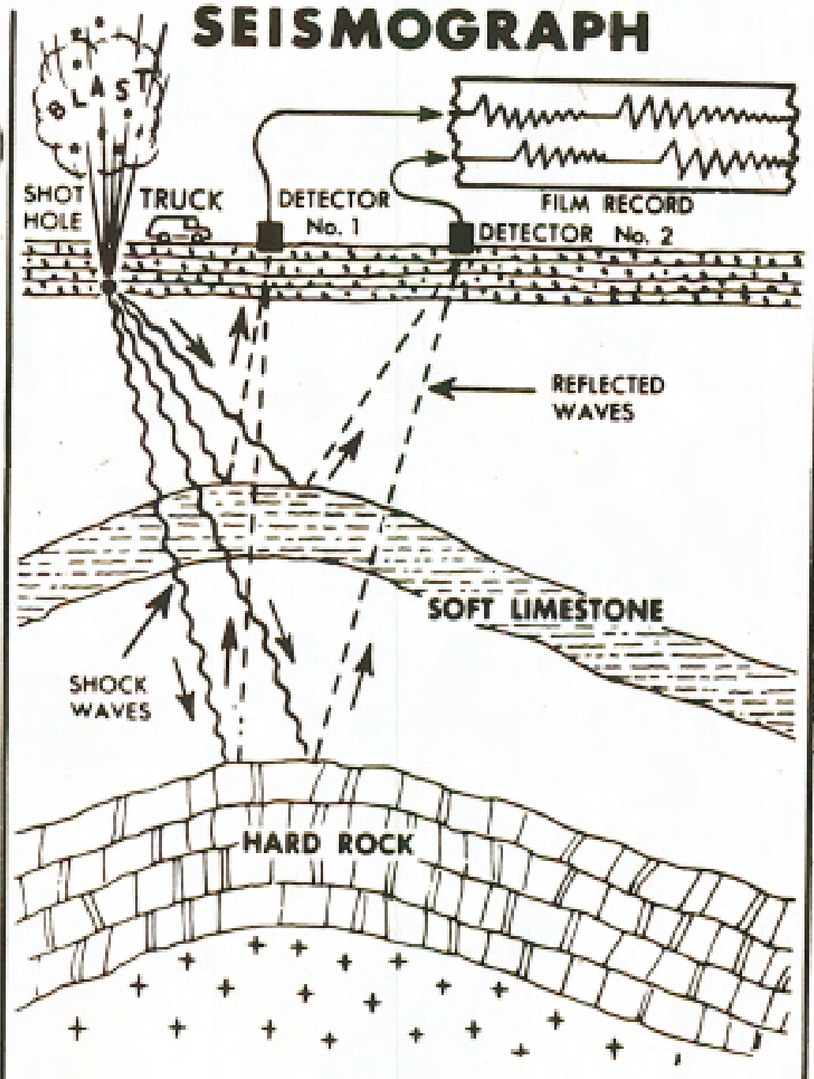
Gravity is slightly stronger over the top of the anticline because the denser basement rocks are nearer the surface.

FAULT

Gravity is slightly greater on the raised side of the fault because dense rock is closer to the surface there.

Geological structures such as those shown above cause slight variations in the force of gravity. The gravimeter detects these minute variations and therefore discloses the presence of possible oil-bearing structures. The latest models can detect variations as small as one one-hundred-millionth of the total force of gravity. While the principle of the gravimeter is well understood, the actual mechanism is an expensive maze of delicate parts and jewel bearings. The salt dome, shown at left is a prolific source of oil accumulation along the Gulf Coast of Texas and Louisiana.

SEISMOGRAPH



The seismograph is the foremost scientific instrument now in use for the location of hidden structures which may contain oil or natural gas. Since its adoption in the mid-1920's, millions of acres of land in the United States have been mapped from its findings. The seismograph was originally devised to record earthquakes. In oil prospecting, a dynamite blast is set off which sends shock waves down into the earth. As they strike rock formations, the waves are reflected back to sensitive detectors. Soft formations reflect weakly on the recording film and hard formations make larger jogs. The elapsed time between the blast and the return of the shock waves to detectors measures depth.

DRILLING IN SHALLO

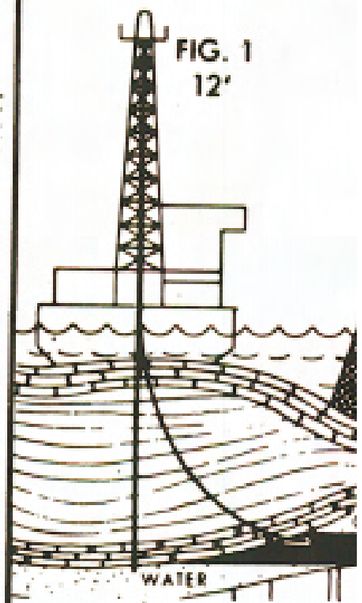


FIG. 1
12'

Modern geological study, by
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island (50'); Fig. 6, offshore su
F g. 7, pier. And for drilling in
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