

the pressure as the liquid is removed until, from some of the same reservoirs from which the tools were ejected and stones and mud thrown into the air for hundreds of feet, the same wells have now to be pumped to obtain their contents of oil or gas.

Therefore, explanations and theories which have been advanced from time to time, relying upon a hydrostatic internal pressure, are now held to be fallacious, since drillings in close proximity have revealed great differences in pressures at the same depth, divergences represented by 340 to 2,370 pounds per square inch. But where gas is found in the several superposed strata, there is usually a gradation of pressure increasing with the depth so that these indications taken into conjunction with the evidence previously referred to of the gradual loss of the enormous pressure initially encountered, would appear to lead to the conclusion as a "sine qua non" **that all these products, gas, oil, salts and hot waters,** originate from volcanic source and that the exhibitions of eruptive effort when first struck give an idea of the force which compressed them into their present reservoirs in the Paleozoic and Mesozoic formations, and which having now generally no connection with the internal source of pressure—the energy is simply subsiding as the reservoirs are tapped, though, as previously stated, there are cases where a more or less intimate contact with the interior magma is apparently still maintained, which undoubtedly ought to be classed with volcanic craters, just as their contact with the interior is demonstrated in appalling manner from time to time; though, so far as I can ascertain, there is no evidence that the gas or oil reservoirs in the stratified rocks are any longer being supplied from the interior. However, in the event of a sudden subsidence of the ocean or a "qua qua versal" movement of the sea bottom, during which the ocean might be admitted to the interior Magma, one could imagine, after the resulting eruptive forces had subsided, that there might again be new pockets of gas, oils fixed therefrom by the sea water **and hot thermal waters all stored up** until resistance was sufficiently reduced to enable them to gush forth as they at first did as Geysers and latterly more commonly as hot springs bubbling up frequently in the old Tufa Basin, created by the playing of the original great Geysers.

It would extend this paper beyond its scope to attempt to trace any recorded evidence of the decrease in temperature or flow of the various hot springs known, but it appears to me that