

one could not explain why the petroleums did not escape to the surface instead of travelling so far laterally.

9th.—By the fact that the sedimentary strata of the oil-fields are so highly impervious that the volcanic fracturing and fissuring and the volcanic force of the natural gas alone can explain how so many small porous receptacles at different horizons between these impervious strata, have been filled with petroleums, salt and sulphur waters, and how these small detached petroleum-reservoirs are found to-day under a gas pressure which increases with depth in each district but is nevertheless a stored energy which will dissipate gradually in the utilization of the oil-field, the volcanic energy which brought it there at one time being now dead and inactive.

Before concluding permit me to insist on the fact that the recognition of the solfataric volcanic origin of the petroleums not only removes every difficulty in the way of a full comprehension of all the chemical and geological facts established to-day with regard to the nature and mode of occurrence of these products, but it fully harmonizes also with the physical laws governing the circulation of gases and liquids through great thicknesses of very impervious strata before being able to reach to and accumulate in a few small separated receptacles in the midst of these. The volcanic origin of the petroleums forms, therefore, a complete chain of evidence, with none of the links weak or missing. The very reverse is the case, as I have shown above, when one attempts to explain the origin of the petroleums by means of organic sources;—in doing so, well known chemical and geological facts are set aside and ignored and physical laws are distorted and abused. The geologists who still hold these views should seriously reflect on this, and I am confident that if they do they will soon abandon and relegate to the past the old unsupported notion of the derivation of petroleums from organisms and that they will come to the conclusion that this idea is now unworthy of the progress made by the geological science of today.

When one considers that there were produced in the United States alone last year 184 million barrels of oil and fifty-three million dollars worth of natural gas, he can fully appreciate the great economical importance which petroleums have attained. It is essential, therefore, even leaving aside the purely scientific