PETROLEUMS AND COALS.

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eums ulate wide allow hot sand pereory are supposed to be the source of the petroleums, and if they can travel freely through the shales which are the most impervious rocks of the sedimentary series. I repeat, what is to prevent them from getting out into the atmosphere?

12th.—It cannot account for the continual absence of petroleums in the hard parts of organisms preserved in the sedimentary strata.

13th.—It cannot explain the evident non-connection of petroleum deposits with coal-beds.

14th.-It cannot account for the continual association of petroleums with strong salt and sulphur waters.

The origin of the petroleums, therefore, is not organic; that it is volcanic is absolutely proven by:—

1st.—The fact that volcanic emanations of hydrocarbons are the only natural geological process of petroleum production of today, abundantly verified and witnessed in actual operation in volcanic eruptions and phenomena all over the world.

2nd.—By the presence of petroleums in volcanic rocks, igneous rocks, metalliferous veins and meteorites.

3rd.—By the rock pressure of the natural gas in the petroleum deposits. This pressure always increases with depth in each field; it has been well proven that it is not an artesian water pressure from above, and it cannot be explained in any other way than as a remnant or spark of the volcanie energy forcing the petroleums through the crystalline rocks and all the sedimentary strata from below.

4th.—By the products associated with the petroleums in their reservoirs, principally salt, sulphur, hydrogen sulphide, gypsum, calcite, dolomite and silica, which are also the products associated with hydrocarbons in the volcanic emanations of today. This association is the unmistakable solfataric volcanic seal which I pointed out before (5°) .

5th.—By the hot oils, gases and waters in some of the more recently formed petroleum-fields.

6th.—By the fact that the petroleum deposits are located along the faulted and fissured zones of the crust of the earth,

50. Trans. Am. Inst. Min. Eng., Vol. XXXV, pp. 290-294.