

aspect of the question, that the origin of these products should be understood in order to afford a basis or guide for the intelligent exploration of the many new fields yet undiscovered and which are to supply the world with even vaster quantities of petroleum in the future. The correct understanding of the volcanic origin of the petroleum furnishes us at once, as a matter of fact, with the solution of this problem of how and where to look for new fields; we must follow, as I have pointed out before⁽⁵²⁾, the structural or tectonic lines of disturbances and fissuring or the fractured belts along which the solfataric hydrocarbon emanations came up from the interior. The outward manifestation of these tectonic disturbances may be a fissured anticline, as it often is, but the fissuring may also have occurred at any other part of the structural folding of the strata whether in the syncline, at a monocline, along a slope or terrace or at other parts of any form of structure. The so-called anticlinal theory, as heretofore explained and understood, namely, as a favorable place of accumulation under an arch of the supposed products of decomposition or distillation of organisms, is absolutely untenable and without any meaning. Such products cannot and do not travel through impervious strata as well demonstrated by the fire damp and choke damp of the coal mines which are always found today right in the beds of coal from which they originated. If hydrocarbon gases and fluids could travel through the shales below the producing sands which in this organic theory are supposed to be their source, these hydrocarbon fluids would also travel just as freely through the shales and other strata above the sands and therefore would have escaped out into the atmosphere long ago instead of stopping under the anticlines. There is absolutely no difference between the degree of perviousness of the strata above or below the "sands," in fact very often a shale which is above a producing sand is also below another producing sand. All these strata are highly impervious, including even the "sands" which are porous only in occasional comparatively small spots. It has been impossible, therefore, for gases and fluids to travel through the strata except when they were fissured by profound dynamic disturbances which permitted the tremendous volcanic

52. Trans. Am. Inst. Min. Eng., Vol. XXXV, p. 297.