

and gas-fields and of the Northwestern Ohio oil- and gas-fields published by the respective geological surveys of these States illustrate this last feature most eloquently and demonstrate that these fields form two parallel oil and gas belts to the Appalachian range of mountains, each belt being several hundred miles long. Many other illustrations of this may be found in the maps of the oil- and gas-districts of California, Galicia, Rumania, Russia and other regions. The oil- and gas-fields in these last mentioned countries are always found ranged in belts at the foot and on each side, respectively, of the Coast Range, of the Carpathian mountains and of the Caucasus mountains. It is most marked in Galicia and Rumania where the Carpathian mountains form, as is well known, a semi-circle and the oil- and gas-fields also form the same semi-circle on both sides of the mountains and along their foot hills or ranges. This reminds one of the metallogenetic provinces referred to and indicated by some geologists in regard to the incoming of particular metals into the strata at various periods of the earth's history in connection with certain volcanic manifestations and intrusions of that particular period, and along the great orogenic uplifts of that period. De Launay, Lindgren, Spurr and others have, in several of their writings, pointed out clearly some of these metallogenetic provinces. The alignment of the petroleum-fields in every region in parallel belts to the orogenic uplifts or to the tectonic fissuring of that region shows conclusively that there are also in nature "petroliferous provinces" or petroleum-bearing belts, no doubt due to causes similar to those which have given us the metallogenetic provinces, namely:—tectonic disturbances accompanied by volcanic emanations. As De Launay remarks, in his "Science of Geology"⁽³⁰⁾, "the dislocations of the earth are more and more observed to have taken place, not alone in mountainous regions but even in regions of plains;" he also remarks⁽³¹⁾ that "all the regions of the earth, probably without exception, have been subjected to dynamic movements to which are connected igneous manifestations of internal origin." These remarks will explain how petroleum-fields even at long distances from mountainous ranges and in flat plains, such as the Northwestern Ohio, Ontario, Indiana,

30. La Science Géologique, L. De Launay, Paris, 1905, p. 229.

31. La Science Géologique, L. De Launay, Paris, 1905, p. 351.