

on his lands are a sure indication that here the petroleum existed in the greatest abundance, and nearest to the surface.

The material penetrated is a very stiff light-colored clay—in some cases almost pure white—no doubt chiefly derived from the ruins of decomposed rocks similar to those underlying the clay; unequivocal evidence of which is found in the fact that the clay contains numerous fossils identical with those embedded in the rocks, which are found at various depths, alternating with beds of clay, and consist of thin strata, more or less of a shaley nature, plentifully charged with the fossils peculiar to what is called the Hamilton group of the Devonian system of rocks. No rock of a bituminous nature seems as yet to have been struck; although detached masses of bituminous shale, identical with that which crops out at Kettle Point, on Lake Huron, and containing about fourteen per cent. of volatile matter, are frequently met with in forming the wells.

The depths hitherto penetrated vary from 40 to 120 feet; and in this respect little advantage seems to be obtained by commencing operations on the low grounds, as along the flats of the creeks; for at Mr. Williams' wells the depth is only about 40 feet, while at others in the immediate vicinity, on the flats of Black Creek, where the ground is at least 40 feet lower, although the depth penetrated is three times as great, the supply obtained is as yet inconsiderable. The strength of the oil, also, as indicated by the hydrometer, varies to a considerable extent in different wells, even although they may be very near together; and the supply to each well, at least in the southern part of the township, seems to be independent; these facts indicating the deep-seated origin of the oils. Here also the oil seems to be diffused throughout the clay, penetrating through numerous vertical cracks or fissures both in the rocks and clay, evidently in obedience to some force from beneath; no doubt due to the pressure of gas, which invariably issues in great quantities with the oil, giving to the wells the appearance of boiling caldrons of pitch. These gases produce a remarkable effect on the men who work in the wells, greatly resembling that caused by the inhalation of nitrous oxide or laughing gas; and, in order to the continuance of their operations, it is necessary to clear away the gas from time to time by exploding it. It has recently been ascertained that the vapours of naphtha, anilene, and other hydrocarbons produce physiological effects, resembling those of chloroform and other anæsthetic agents.