

little cones of whitened and scorified earth. Beyond these places, indications of active and extinct igneous action are only found on the right bank of the Athabasca and Mackenzie system, reappearing all along this immense fluvial artery with an intermittent activity and inaction difficult to explain. In some places these "boucanes," after having vented fire and smoke for decades, entirely disappear, only to show themselves without apparent cause elsewhere.

Traces of the subterranean bituminous veins that keep up these fires can be followed to the shores of the Arctic Ocean, in the cliffs of Franklin Bay and Cape Bathurst, where Sir John Richardson took them to be active volcanoes.

These "boucanes" are usually found on the line of imperfect coal, *i.e.*, of deposits of lignite incompletely carbonised, and consequently unfit for the forge or fuel. They are so along the Boucanes River, one of the affluents of the Peace River, as well as above Fort Norman on the Lower Mackenzie; but here there is no outer trace of coal or lignite, though it is probable that there are subterranean veins of those substances, and that the phenomena mentioned are owing to the protocarbonated hydrogen of the coal deposits. Nevertheless (although fire-damp explodes on contact with oxygen, as is often found at the beginning of winter in some of the lakes of the north-west), the capability of spontaneous illumination which Richardson attributes to the identical exhalations of Fort Norman, has not been found to exist in this gas. It is impossible to attribute to the Indians the extinction of the fires of bituminous schists in the Athabasca-Mackenzie system. Their ignition is intermittent, without apparent cause, and unstable. It is, moreover, accompanied by a strong smell of petroleum, whilst hydrogen is inodorous. But the carburets of hydrogen, of which petroleum is composed, do not make it, any more than they do fire-damp, spontaneously inflammable, even on contact with air,—in spite of received popular opinion. We must, therefore, consider them as one of the effects of igneous action, materially connected with the fire of the volcanoes; for the Boucanes occur under similar conditions to the vents of these subterranean fires, being found on the river banks, on intermediary strata inclosing schist, bitumen, lignites, thermal sulphurous or saline waters, rock-salt, &c.