wards. Anticlinal arches, are therefore the most favorable for the collection and storing of gas and oil filtering upwards through porous strata until checked by the impervious anticlines. Sometimes these anticlines are long ridges several miles in length, and sometimes are dome-shaped. Unfortunately for us, however, the anticlines are often broken across (or "faulted") near their summits, thus allowing the oil to escape, whilst in other cases the erosive action of streams gradually bites through the impervious cap into the porous oil rock below it. While seeking evidence of the existence of anticlinal arches and quaquaversal domes, a sharp outlook must be kept for tar springs and oil-soaked rocks, as oil often occurs in sandstone and limestone sufficiently solid for building purposes.

As mineral waters always accompany the bitumens, mineral springs are, or the geological evidence of former mineral springs, are, to a limited extent, indications of the accumulation of bitumens. In this connection it should be remembered that "marsh gas" or "carburetted hydrogen" or methane is a much better sign than sulphuretted hydrogen. Methane burns with a yellow flame; sulphuretted hydrogen with a blue flame, blackens a silver coin, and is easily recognized by its unpleasant odor.

Probable Origin of Petroleum.

As regards the probable origin of petroleum and bitumens, the most widely accepted theory is that advanced by the late lamented Professor Joseph Le Conte, (Agassiz's most brilliant pupil) and Mr. A. L. Cooper, (formerly State Mineralogist of California). Their theory is that "they are principally derived from terrestrial and marine vegetation deposited in sedimentary strata, then changed to carbonaceous matter and afterwards distilled by the heat of metamorphism." In plain English the intense heat due to the pressure of the rocky strata of this old earth has manufactured hydrocarbons from the hydrogen and carbon present in large percentages in all plants, and the anticlinal arches of impervious strata have collected these mixtures of gaseous and liquid hydrocarbons and prevented their escape. When we bore through the top of these reservoirs we "strike oil."

Petroleum has very little to do with coal deposits, which were formed by ancient peat mosses and land vegetation, but occurs, for the most part, in strata and periods of strictly marine origin, and with few or no coal beds. Everyone who has peered into the ocean depths, knows the vastness, size, rampant growth, and great abundance of the seaweeds in those "wild ocean moorlands." Whilst terrestrial vegetation formed the coal beds, the unctious, gelatinous seaweeds, after undergoing various geological and chemical changes and distillations, gave us the petroleum, bitumens and asphaltum we find in the rocks. It is therefore of practical importance to the prospector to become acquainted with the geological occurence and positions of rocks and strata of periods or groups principally of marine origin, and usually characterized by fossil sea shells, gypsum, and occasional beds of limestone and calcareous matter.