

plied, will give both a safe and good illuminating oil. In order to ascertain whether an oil be safe or unsafe, different countries have adopted different tests. One is known as the flash or vapour test, and determines at what temperature the oil will emit a vapour which, when mixed with atmospheric air, will ignite and cause an explosion. The other test is known as the burning test, and determines the temperature at which the body of the oil itself will ignite. Oil does not ignite when brought in contact with flame at so low a temperature as that at which explosive vapours are evolved. The difference in temperature between the point at which explosive vapour is emitted, as indicated by the flash test, and that at which the body of the oil ignites, as indicated by the burning test, ranges ordinarily from 20° to 30°. An oil which would stand a flash test of 105° would commonly stand a burning test of 125° to 130°. In Canada we use the flash test, while some of the United States use the flash and others use the burning test. As an explosion is not without danger, even if the oil does not ignite, the flash test indicates danger with more certainty than the burning test. In fixing the test it is important to ascertain the temperature at which oil is ordinarily exposed in lamps, and to prevent, if possible, the sale of any oil which would emit an explosive vapour at that temperature, or at a temperature consequently above it. I have consulted authorities and obtained the opinions of experts on this point. In the last edition of "Appleton's Cyclopaedia" (1877) I find the following:—

"As the temperature of this oil in a burning lamp seldom or never exceeds 100° Fahrenheit, it is obvious that such an oil is perfectly safe, as it would never yield any vapour below 110°, which, by mingling with the air above the oil in the lamp, would form with it an explosive mixture."

The point here fixed is a flash test of 110° as the safety point. I am able to lay before the House another authority entitled to weight. It was found at New Orleans, in the State of Louisiana, that oil considered to be safe in New York, when taken to the higher temperature prevailing there, proved unsafe. Exhaustive experiments were made by the Board of Health of New Orleans, under Dr.

White, the President, and the result of the investigation was the enactment of a flash test of 110° Fahrenheit, as the safety point in that latitude. The ordinance prescribed that every vendor of kerosene oil, or other illuminating oil or oils, or any illuminating fluid or fluids, derived wholly or part from coal or petroleum, shall, before actual delivery thereof, attach, or cause to be attached, securely, to the cask or vessel containing the same, a card, label, or tag, upon which shall be printed in plain type, not less than one-eighth of an inch in height, the correct name and brand of such oil or oils, fluid or fluids in such cask or vessel contained; also, the words and figures following: "Inflammable at —° Fahrenheit" (naming the degrees), or "Inflammable at any temperature" (as the case may be); also, the words and figures following: "Explosive, at —°" (naming the degrees), or "Non-Explosive" (as the case may be); also, the words following: "Board of Health Standard Flashing Point, 110°." I find that this ordinance was subsequently approved by a very high authority. I have had placed in my hands by Mr. Young, Chief of the Fire Brigade in this city, a report of the proceedings of a Convention, held in New York, in 1876, of the Chief Engineers of the Fire Department, representing over sixty different cities in the United States and Canada; by which you can see that it was a largely representative body of men specially conversant with such subjects. There were also present a number of underwriters and fire insurance delegates, and others greatly interested in these problems. Among the subjects discussed was that of "Regulating the sale of petroleum." The question was referred to a Sub-Committee which, after giving it the fullest consideration, reported to the Board, and the Board adopted the report, upon which they based the following recommendation:—

"We cordially recommend to the Convention the resolutions adopted by the Board of Health of the City of New Orleans, and would commend to the cities and towns of the country the ordinance regulating the sale of petroleum in said city of New Orleans."

Thus, the conclusions of the New Orleans Board of Health, and the city ordinance establishing a flash test of 110°, were, after a trial of seven years, cordially en-