Canadian mine operators have merely to borrow from the experience of others.

It may or may not be practicable to create and enforce legislation on this subject. There is no question, however, as to the present duty of all large consumers of mine timber. Apart from other aspects, the fact that the use of preservatives makes for economy is sufficient cause for change in the present attitude of indifference.

## THE ORIGIN OF PETROLEUMS.

That tireless champion of the theory of the inorganic origin of petroleum, Mr. Eugene Coste, contributes to the last bulletin of the Institution of Mining and Metallurgy, a vigorous attack upon the supporters of the organic theory.

After asserting that the advocates of the latter theory persistently start from wrong premises, and that they thus impede progress in the solution of an important problem, Mr. Coste proceeds to flay his opponents in characteristic fashion.

To show that a substantial body of thinkers have given their support to the inorganic theory, Mr. Coste quotes such names as Berthelot, Mendeleef, Moissan, Elie de Beaumont, Humboldt, and others of high repute. Hence, it is incorrect to argue that the inorganic theory is held by chemists only. Moreover, says Mr. Coste, the one fundamental fact that the only phenomenon analogous to the production of petroleum visible to-day is in some phases of volcanism. This is entirely overlooked by the advocates of the organic theory.

Abundant evidence has been furnished by scientists to show that associated with active volcanoes and with ancient volcanic rocks are large quantities of hydrocarbon gases. Massive crystalline rocks contain as much as 0.2 per cent. of carbon. This, Mr. Coste believes, establishes the fact that the source of all carbon was far removed from the organic realm.

The oil-bearing character of strata in "petroliferous provinces" does not depend in any way upon the presence of fossils, but does depend solely upon the fact that faulting and fissuring have provided ingress for petroleum emanations from the interior. In further support of this statement, Mr. Coste cites the facts that oil is obtained even in crystalline schists and gneisses, that productive sands range from the Archaean to the Quaternary, and that the oil everywhere presents the same characteristics.

On the other hand, although the "organics" admit that the process of petroleum production must be operative to-day, they also admit that there is no visible evidence of the fact. Mr. Coste, commenting upon this, asseverates that never in nature did a petroleum production process "coeval with the kingdoms of life" exist. That there is any genetic relation between coal and petroleum he categorically denies. That methane exists both in coal and in petroleum proves merely that methane can be formed in two ways. "Although we "are surrounded . . . . . everywhere with the "death, decay, and decomposition of countless organ-"isms, animal and vegetable, no one has yet been able "to . . . establish one single case in which these "mixtures of hydrocarbons known as petroleums are "found through the natural processes of decaying or-"ganisms, while its constant and abundant production "in volcanic phenomena cannot be disputed any "longer."

On two major propositions Mr. Coste lays strong emphasis. Vegetable organic remains were always transformed into coal, and soft organic tissues were never entombed in sedimentary rocks.

Several quotations from adherents of the organic theory are given by Mr. Coste. These show a surpris ing lack of agreement. The assumption that time and temperature compensate each other in the natural distillation of petroleum, is laughed at. Why, asks Mr. Coste, are coal-beds left undistilled? To believe that the mere passage of time can make up for the absence of heat is as reasonable as to assert "that by leaving a "turkey long enough in cold storage, it will cook it-"self to the most succulent point."

Point after point is scored by Mr. Coste. These we cannot touch upon. Suffice it to indicate the seven positive statements on which he bases his position. These are:—

First, bituminous shales containing bitumens or petroleums, as such, never constitute widely and uniformly spread sheets, nor thick horizons; they are found only as isolated patches of comparatively small extent along faults, fissures, or joints or in brecciated zones of sandy shales, and the secondary nature of their bitumen is as a rule plainly evident.

Second, so-called bituminous shales, forming entire horizons in sedimentary formations, are really not bi tuminous shales, but are black carbonaceous shales containing the carbon as coal.

Third, even very fossiliferous strata contained when deposited only the remains of the calcareous or silicious parts of the organisms, from which no petroleum could possibly be produced.

Fourth, petroleums as a rule are not associated with fossils, which are themselves almost always absolutely devoid of petroleum of any kind.

Fifth, the association of petroleums with sedimen tary strata is one of secondary replacement.

Sixth, not only shales, but almost all other strata, constitute in the unaltered sedimentary formations of the oil fields, saturated impervious beds; and this imperviousness precludes the supposition that oil, gas, and water could travel through the fine pores of the sediments, which from the time of their deposition were already occupied by water.

Seventh, the mode of occurrence of petroleum deposits in the sedimentary strata of all ages, but in certain districts only, and the constant recurrence of