

Gas Motors for Tramways.—The Lenoir gas-engine has been improved by Otto, with a view to its employment on street railways. It is stated, as the result of several comparative trials, that the Harding steam-engine effects a saving of from 10 to 25 per cent. over horse-power; Mevasky's compressed air-engine, a saving of from 33 to 37 per cent.; and the Otto gas-engine, a saving of from 61 to 67 per cent.—*La Gaceta Industrial*. C.

Transformation by the Simple Addition of Oxygen.—Demole has succeeded in transforming bromates of the ethylene series into bromides of the fatty series, by the simple agitation with oxygen in closed vessels. Dry oxygen and ethylene dibromate united with the liberation of heat; the product was not the oxide of ethylene dibromate, but the bromide of bromacetylene. Ethylene tribromate rapidly absorbs dry oxygen, and is changed into bromide of dibromacetylene. Berthelot compared these results to his own experiments upon the direct oxidation of free ethylene by chromic acid, with the formation of aldehyde. Propylene and camphene furnish, by the simple fixation of oxygen, propylic aldehydes and camphor.—*Comptes Rendus*. C.

Test of Woody Fibre.—Dr. Wiesner recommends phloroglucin as an extraordinarily delicate reagent for woody fibre. Place a drop of a half per cent. solution of phloroglucin upon a bit of pine, and moisten the spot with a drop of hydrochloric acid, and there immediately appears a beautiful lively red stain, verging upon violet. On drying, the violet tinge becomes still more marked. Even if the solution contains only one-hundredth of one per cent. of phloroglucin, the red color is very decided; and if there is not more than one-thousandth of one per cent., the reaction can be recognized, under proper precautions. If a strip of pine is allowed to remain in such a solution for twenty-four hours, hydrochloric acid gradually draws out a perceptibly reddish stain. The slightest traces of woody substance in vegetable tissues can be readily detected in this manner. The tenderest germs, by means of this reaction, show a woodiness in the cells. Every trace of woody substance in hemp and flax can be detected by the phloroglucin. Dr. Wiesner suggests that it may be used to distinguish hemp from flax, and also as a means of dyeing fabrics woven from vegetable fibres.—*Dingler's Polytech. Jour.*

C.