European engineering firm have contracted to build a gas engine of 1,000 h.p., which it is expected will run with ½ lb. of coal per h.p. per hour. Tangyes, of Birmingham, England, advertises gas engines of 40 h.p., which are guaranteed to work with less than 1 lb. of coal per h.p. per hour—a remarkable result for so small an amount of power.

If gas engines can be successfully constructed and set to work of 1,000 h.p., why not of 2,000 or 3,000 h.p., if wanted? Downton gas can be manufactured for 20 to 25 cents per 1,000 cubic feet. This gas is largely used in gas engines of large power; this is about one-half the cost of the fuel for the most economical steam engines. The combination gas works and lighting by both gas and electricity ought to be a profitable investment, as the power plant by gas engines is less costly than that of steam power, and will still become less as the movement goes on. Gas engines in some forms have been in existence, to the writer's knowledge, for forty years or more, and have only been a commercial success of late years. In Croydon, a suburb of London, England, gas train passenger cars are using them on their local line, some miles in length; they have been pronounced a complete success, and are run at about one-third of the cost of the horse cars previously in use. It is claimed that power costs less than two cents per mile run by cars with the ordinary loads. The gas is compressed to 150 lbs. to the square inch in a tank, by aid of a gas pump and an 8 h.p. gas engine. This rig will easily compress sufficient gas to keep ten cars in full motion, equal to the work done by one 150 h.p. engine on electric trolley roads. It is expected that twenty cars will soon be running on this road. The cost of running these cars, it is claimed, is about one half that on a trolley road, while the amount of capital need not be more than one half. The gas tanks in the cars under the seats hold sufficient to run for ten miles; they can be recharged in two minutes These cars have this advantage in addition, that no expensive power-plant, central station, including engines, boilers, or electric generator, are required; no wires, poles or trolleys, or danger from electric shocks. Not only have the gas cars been a success, but, in addition to these, gasoline or petroleum cars are also largely coming into use in France and Germany. For some three years past petroleum road carriages have been in use in France. Recently a large number have been built and put into operation. In July last a competitive test took place for prizes of from $1,000 downwards to $100 for the best road car to run over the common road from Paris to Rouen. Twenty-five cars started on the test, two of which were run by steam and the rest by petroleum. The distance run over was 76 miles each way. There are some very heavy grades on this road, as high as one in 12, yet all the cars but one, which met with an accident, went over the whole course, the average speed being for each car from 7½ to 12 miles per hour. The first prize was divided between two of the kerosene cars with what is called Damier Motors, after the name of the German inventor. Not the slightest hitch, in a mechanical sense, is reported by the scientist judges as to the running of the carriages. Now, as to cost of running, the cars carrying 4 persons ran an average of 15 miles with one gallon of petroleum, costing 18 cents in France, or about 11 cents here. This small amount can be accounted for by the fact that the impulses running the cars are generated from a mixture of 12 parts of air to 1 part of petroleum vapor. The carriages have storage for petroleum for a run of 100 miles. There is scarcely any attendance wanted after the motor is started, further than to oil it and steer it on the road; in other respects they are automatic in their action. A very large number of these cars are now running on the common roads in France and Germany, the demand being continually on the increase. It is thought in the near future that they may become as common as bicycles, being so much cheaper than any other method of travelling. It can be easily understood that a motor that will cheaply run a road car can be applied to a boat or any other kind of machinery. I think that there is an excellent opening in Canada for some speculative machinist or capitalist to go into their manufacture.

Allow me to say a few words about electric cars in Paris, France. In that city they have a line of storage battery cars thirty in number, that have been in operation nearly two years, which have been an electric, mechanical, and commercial success, the storage cells never having given the least trouble during the whole time. It is claimed that these cars, taken collectively, have run over 1,000,000 miles, and are now in perfect order, with a prospect of making another million. Similar, or storage battery cars, have not been a success commercially in America.

Referring to my communication to you on the Portsmouth electric lighting plan, I wish to state that the English *Engineer* has illustrations and descriptions of this plant in two of its July numbers.

A FRENCH engineer has a simple plan for preventing hard deposits in steam boilers. Each boiler is allowed to go on working for about 500 hours before being cleaned, when it is stopped, with the water in it, and allowed to cool down for about a week; the masonry is allowed to become cold, and then the tap is opened, also the safety valve, so that the water runs naturally out of the boiler, the latter, when empty, being entered and simply swept—the deposit, being in the form of damp mud, is easily swept away, leaving the boiler as clean inside as if it were new. This method has been in use some five years, and might seem to show that the accumulation of deposit is due to the emptying of boilers under pressure while they are yet warm, the crust being thus hardened. It is obvious that this method cannot be applied to every boiler, nor can it be applied where an establishment has only one boiler and that in constant use.

A CORRESPONDENT of THE CANADIAN ENGINEER writes that since the tariff has been settled business in the American manufacturing centres has taken a spirt. Many of the factories are now running night and day, and numbers that were closed down for a year or more have resumed operations. One good result to Canadian trade, apart from the improvement in the export of produce, will be that the American makers of machinery who have been selling their products in the Canadian market at less than cost, will now have their hands full at home and will leave this market alone. An instance is cited in which an American boilermaker sold an upright boiler to a Canadian firm at $80, the lowest price quoted in Canada being $120. The American admitted that this was much below cost, but said it was his only way of realizing on his stock. Now this slaughtering will cease, as the American manufacturers will have, for a time at least, all they can do to supply their home market.