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years if the consumption increases at

Wealth is produced by the expenditure of energy, by the work of men, beasts or engines, by the oxidation of food or fuel. The vast increase in wealth in recent times is due solely to the utilization of external forms of energy, for man's in-ternal energy, his own muscular power, has not increased and he is no more inclined to use it to the utmost than he used

In 1776 two revolutions occurred in English history. The American colonies declared their independence and James Watt set up his first steam engine to run the bellows of Wilkinson's iron-works. From a financial viewpoint one event offset the other. By utilizing the energy of her coal beds Great Britain was able to bear with ease not only the burden of the bear with ease not only the burden of the billion dollar debt that the American war had placed upon her but the three and a half billion dollars that the Napoleonic wars had added to it. It has enabled her to spend \$30,000,000 a day on the present

The Age of Steam lasted just a century, for in 1875 its supplanter was invented. In that year Dr. Otto put his gas engine on the market.

The modern historian devotes more attention to the Industrial Revolution due to the invention of the steam engine than he does to the American Revolution, which was merely a division of administration. The revolution effected by the invention of the internal combustion engine we do not need to be told about, for we are living in the midst of it. We can all remember the day when we first

can all remember the day when we first saw the horseless carriage come puffing down the street and that other day, perhaps ten years later, when we first saw the biplane rise buzzing in the air.

We have heard how the battle of the Marne was won by the mobilization of the motor cabs of Paris for sudden shifting of troops to stop the German invasion. We read every day how many ships have been sunk by the Diesel-driven submarine. We have watched the rise of a new industry and a new amusement. new industry and a new amusement. We have seen the revival of the country inn and the improvement of country roads. Every shop, however small, can now afford its own engine. now afford its own engine. Every man-and many a woman—becomes an engineer. This means independence for the individual.

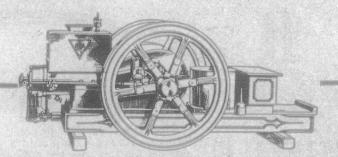
The gas engine was speedily adopted and improved in England, for gas is an English invention and she has plenty of coal to make it from. But when it came to petroleum as a fuel, England was at a disadvantage, for she had no oil at home and comparatively little in her colories. and comparatively little in her colonies. It would seem that Nature was in her most capricious mood when she dis-tributed the pools of petroleum, for she gave this, the most valuable of all fuels for shipping, to the countries that had least shipping. The leading producers of petroleum before the war were the United States, Russia, Mexico, Rumania, Dutch East Indies and Galicia. The leading nations in transoceanic shipping are Great Britain, Germany, Norway and France. The countries that produced nearly ninety-nine per cent. of the petroleum possessed only about ten per cent. of the vessels most in need of it.

Some of the fiercest fighting of the war has been over the oil fields of Galicia, Rumania and Mesopotamia, and Germany in dictating her first peace treaty stipu-lates that Russia shall surrender Batum, the outlet of the Baku oil fields; that

formerly produced half the world's supply.

The introduction of the automobile into England was hindered not only by English conservatism but by the law. Up to 1896 English law prohibited any self-propelled vehicle from running on the highways unless a man walked in front of it waving a red flag. This precaution certainly kept the speed down to the limits of public safety, but did not encourage motoring as a pastime. Consequently it was in France and the United States that the automobile industry was first developed.

The introduction of the internal combustion engine for motor cars and motor boats and stationary power brought a demand for gasoline, which formerly had been a waste product. Suddenly the laws that had been passed in every State prohibiting the sale of kerosene of too low a fashing point became a dead latter for flashing point became a dead letter, for there was no temptation to violate them. Instead of trying to work off some of the surplus gasoline in the kerosene the oil man devoted his energies to getting as



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