THE FUEL OF THE FUTURE.

THE DISCOVERY AGAIN CLAIMED WHAT IS SAID ABOUT ATOMIZED PETROLEUM AND SUPER HEATED STEAM

Reports current among engineers and others interested for some months past were only the prelude to disclosures which must excite the industrial world. The main fact is the production of a new fuel, from the combination of petroleum and steam, from which intense heat is instantly generated, under perfect control, and at an expense so insignificant, compared with coal, as to promise results of an importance not easily exaggerated. This is the conviction of all present to-day who witnessed its practical operation at the smelting works of G. D. Mackey, in Grand street, Jersey City, where he has had liquid fuel in use for a considerable time, but meanwhile avoiding observation. The explanation of the methods and principles was volunteered by Colonel John C. Rose, of the Pennsylvania Railroad Company. But the simplicity of the arrangement was not the least remarkable of the whole. To produce combustion, nothing more is necessary than

BY MEANS OF AN ATOMIZER

to unite dry steam and crude petroleum, only a common inch pipe being used for this purpose, one for steam, the other for oil, with cocks to regulate the flow. The junction is made within six inches of a perforated brick retort, which the nozzle enters, and instantly, on a match being applied, the whole interior of the furnace (an ordinary reverberatory smelting furnace) becomes intensely heated, so much so that all the exposed surfaces may be easily fused. If applied to a steam boiler, on a locomotive, or on shipboard, it is only necessary to place the retorts, made of fire clay, on the grate bars, thus protecting the boiler plates from injury. Said Colonel Rose: "We can now run a locomotive from New York to Philadelphia for four dollars instead of an expense of some $25, as at present, with coal." More than this, the fuel creates no gas, smoke, ashes or cinders—in corroboration of which statement the spectators were asked to observe the interior of the furnace and the opening of the flue above the roof. Mr. Mackey reminded the spectators of what liquid fuel might do for the elevated railways, and of the revolution to be affected in steam navigation. Said he: "We have the system in perfect working in a boiler at the Jersey City water-works in Belleville, and have demonstrated more than what we have said to be true." "Why," said he, "we have only to make a retort full of holes, where the gas is generated, and placing it on the grate bars of any furnance nothing else is required but to turn on the steam and oil, or as for that matter, coal tar or the refuse of an oil refinery will do just as well, and one fireman can tend to a dozen furnaces just as easy as one, for all he has to do is to keep up steam." He affirmed that the new motive power could be used at

ONE-EIGHTH THE COST OF COAL.

Indeed, the cost was so trifling for ordinary purposes as to be too small for easy calculation. The gentlemen present engaged in a general conversation, expressing themselves in reference to the great changes to take place in running engines and machinery, all seeming to be firm in the faith that great results are in the immediate future.

Mr. McCrae, superintendent of the motive power on the Pennsylvania railroad, said immediately, "This is just the thing we want and have been long trying for." The only difficulty heretofore has been in the combustion—in the mode of applying the fuel. On the New Jersey Midland railroad, not long ago, they thought they had the right thing beyond a doubt, and went so far as to organize a company, with $2,000,000, to apply it, but the plan did not work. Several of the steamship lines, too, have tried it, with no better success. The atomizing process, however, with super-heated steam in combination, is accepted as the true solution of the difficulty. It is observed that the dryer the steam the greater is the power, and so the present purpose is to turn the pipes supplying steam directly through the furnace, so that the combination with the oil shall take place after the steam has been heated to the highest degree attainable. As yet the mechanicism employed is of a very crude character, but is susceptible of a perfection which shall set at rest all questions concerning the feasibility of a practical application.—*N. Y. Commercial Advertiser.*

THE CHICAGO LUMBER TRADE.

At the recent meeting of the lumber dealers of Chicago, B. L. Anderson gave the following resume of the lumber trade of that city during the past 20 years, with some sensible deductions therefrom.—

"Lumbermen of 1881, what is our duty at this time? To rightly understand and appreciate the true condition of our trade. To do this, facts must be ascertained, and after we have made the correct deductions therefrom, it is our duty to outline and follow the policy that shall most surely remunerate us for the investment of our time and capital. Facts and figures, I am aware, are rather dry food so soon after lunch; but it is for our present and prospective good to look at a few of them. From 1861 to 1865 the average receipts were 425,000,000 feet, and the average stocks on hand Jan. 1, 86,000,000; from '66 to '70, the average receipts were 931,000,000, and the stocks 215,000,000: from '71 to 75, the receipts averaged 1,110,000,000, and the stocks 306,000,000, and from 1876 to 1880, the receipts were 1,263,000,000, and the stocks 394,000,000. In 1860, the total receipts were 262,000,000 feet, and the stock on hand Jan. 1, 1861, 36¼ per cent., or 94,000,000 feet; in '65 the receipts were 647,000,000, and the stock on hand Jan. 1, '66, 137,000,000, or 21¼ per cent.; in 1870, the receipts were 1,018,000,000, and the stock at the end of the year, 298,000,000, being 34 per cent. of the receipts; in 1875 the receipts were 1,147,000,000, the stock 352,000,000, and the percentage 30½; and in 1880, the receipts were 1,564,000,000, the stock at the close 497,000,000, and the percentage 32. Prior to 1876, there were no monthly accounts taken of the stock in the yards, and I cannot, therefore, show the average percentage during the year, before that time. In 1876, however, we find that, with receipts aggregating 1,039,000,000 feet, the average stocks, as shown by the inventories taken on the first of each month, were 303,000,000, or 30 per cent., while the stock on hand Jan. 1, was 352,000,000, or 33⅞ per cent. of the receipts; in '77 the receipts were 1,065,000,000, the average monthly stocks 305,000,000, or 30 per cent., and the stock Jan. 1, 369,000,000 or 34½ per cent.; in '78, the receipts were 1,180,000,000, the monthly stocks 333,000,000, or 28½ per cent., and the amount on hand Jan. 1, 385,000,000, or 32½ per cent. of the receipts; in '79, the receipts were 1,468,000,000, the average stocks 407,000,000, or 27¾ per cent., and the 1st of January stock 410,000,000, or 28 per cent., and in 1880, with receipts of 1,564,000,000, the monthly average of stock was 404,000,000, or 25 per cent., and the amount on hand Jan. 1, 451,000,000, or 28½ per cent. of the total received.

"To appreciate correctly these figures, there is one very important element to be borne in mind; namely, that previous to 1876 considerably more than 50 per cent. of our receipts were shipped green from our yards and railroad docks, whilst now, 25 per cent. of green shipments would be a very liberal amount to estimate. My own opinion, however, is that from 15 to 20 per cent. of green shipments is more nearly the correct amount, which fact, of itself, necessitates a largely increased stock of dry lumber, over and above what the yards have carried hitherto. Hence, in view of the receipts of 1880 being 1,564,000,000, I estimate that we ought to have had on hand on Jan. 1, a stock of not less than 600,000,000, taking into consideration the largely increased demand of 1880 and the prospective demand for 1881; instead of which, all we had on hand Jan. 1 was 497,000,000—fully 20 per cent. less than we ought to have had. Hence arises the unwisdom of any alarm about the stock on hand being excessive.

"The fact is, if we want to hold the trade we have acquired, and increase it, we must of necessity have a largely increased stock of dry lumber all the time on hand for shipping to points where we come into direct competition for the trade of those points. Which of these policies we shall pursue will determine whether we are as wise in our day and generation as our worthy predecessors were in theirs."—*Lumberman's Gazette.*

LOSSES BY FOREST FIRES.

We some time ago stated that the Superintendent of the Census had placed all that relates to Forestry, including lumbering, and whatever concerns forestry as a source of national wealth, in the hands of Prof. C. S. Sargent, of the Arnold Arboretum of Harvard University. How thorough his investigations would be, those who know him need not be told. In a general way we may say that his own journeys to the Rocky Mountains and to the Pacific, as far as the forests of Washington territory, his employing of local agents, and the sending of experts to important localities, have been but a part of his labors. To show how every ramification of the subject is provided for, we may refer to the circulars sent out to collect information as to forest fires. We often see articles in the journals lamenting the destruction of our forests by the demand for railroad ties and fuel; the wanton waste in clearing for farms, and the rapid destruction by lumbermen. It is believed, by those best able to judge, that the destruction of our forests by fires, is greater than from all other causes together. It is also known that such fires are annually increasing in number. It is believed that these fires are mainly due from avoidable causes, and that proper legislation is needed to prevent this useless waste of national wealth. For proper measures of prevention to be taken, it is an important point to know just the extent of the evil, and this it is proposed to learn by means of the Tenth Census. Prof. Sargent has prepared a circular to be addressed to the town officers in all parts of the country where forest fires may occur. This blank form, which can be readily filled, asks for the number of acres, or square miles of forests destroyed by fire in 1880, the value of the property thus destroyed, causes generally producing such fires, and any suggestions relating to the general subject of forest fires and how they may be prevented or diminished.—*American Agriculturist.*

FOREST PRESERVATION.

The Brantford *Telegram* says that much has been written lately in reference to the preservation of our forests, but still the reckless waste of fire and axe goes on. Notwithstanding the statutory laws for the prevention of forest fires, there is no effectual check to prevent our valuable forests from being willfully or accidentally swept away by fire during the dry summer months. The Orillia *Packet*, referring to the subject, calls attention to the scarcity of fire wood in some of the older settled townships, which, heavily wooded a few years ago, now, with the exception of their hilly condition and line fences, look like prairiee. Farmers within the radius of twenty miles from cities and large towns are commencing to burn coal, so that the question of fuel supply is a serious one, and will have to be faced within a few years. But apart from this the absence of forests will produce a deleterious effect upon our climate—creating, as the experience of other countries shows, atmospheric changes, anything but beneficial either to the crops or conducive to the comforts of living. We should see to it that at least our tracts of woodlands, which represent thousands of dollars, are not mercilessly left to the incendiary or criminally careless sportsman, but that Forest Rangers be appointed to take charge of our back forests and other non-resident wooded lands, and see to it that in case of fire the flames will not be allowed to devastate, without opposition, vast tracts of country, leaving nothing but a ruined waste. Probably the best plan would be for the Local and Dominion Governments to appoint a joint commission to investigate the subject, and submit proper regulations on Forestry in general.

Got Up in the Very Best Style of the Art.

We have to thank the publishers, Messrs. Toker & Co., of the Peterborough REVIEW, for a specimen number of THE CANADA LUMBERMAN, hitherto published at Toronto, by Mr. Alex. Begg. It is got up in the very best style of the art, and speaks most favorably for the enterprise of its new proprietors. Published semi-monthly, at $2 a year; 16 pages. The only work of its kind published in the Dominion. In our next we purpose giving extracts from its "Introductory" articles, which will more fully explain its mission.—*Millbrook Messenger.*

TIMBER RESOURCES.

The forestry division of the Department of Agriculture, national Government, has been engaged in attempting to ascertain the timber resources of the country, in connection with the tenth United States census. The work in the States of Michigan, Wisconsin and Minnesota, has been under the supervision of H. C. Putman, of Eau Claire, Wis., whose researches have so far progressed that an approximate estimate of the amount of standing pine in the three States has been reached. From what we learn of the method pursued in obtaining the figures it is judged that the result will be a nearer approach to a knowledge of the actual timber resources of the country than has ever before been obtained. To be sure, there has been a reliance upon estimates, but they have been more closely scanned and compared and have gone more into particulars. The results secured in the three States named are these:

Minnesota will be credited in the census reports with containing 6,150,000,000 feet of standing pine, distributed as follows: Rainy Lake and tributaries, 350,000,000; Red River and tributaries, 600,000,000; St. Louis and Choquet rivers, 1,700,000,000; Mississippi and tributaries, 2,900,000,000; North Shore of Lake Superior, 800,000,000.

The State of Wisconsin is credited with 40,500,000,000 feet, distributed in districts as follows. St. Croix river and south shore of Lake Superior, 6,000,000,000; Chippewa and tributaries, 12,500,000,000; Wisconsin river and tributaries, 11,000,000,000; Lake Superior district east of range 11, 2,000,000,000; east of the Wisconsin river, 9,000,000,000.

Michigan is credited with having 35,000,000,000 feet of standing pine—6,000,000,000 in the upper peninsula and 29,000,000,000 in the lower peninsula.

The aggregate in the three States is 81,650,000,000 feet.

This is much less than the amount of pine supposed to be standing in these States, but there is no means of ascertaining whether the figures given include only the bodies of pine which in the present condition of lumbering operations are regarded as profitable to lumber, omitting lands which have been culled but which still contain a considerable amount of pine which will eventually be cut, when the decadence of timber shall sufficiently advance the price of lumber.

There is quite a probability that there will be a goodly quantity of pine cut in the three States after the reports show the 81,650,000,000 feet of the census bureau's finding have been manufactured, which will be in about 11 years at the present rate of cutting.

At the present rate of cutting the pine in Michigan will last 10 years, if the figures above given are proper representatives of the amount now standing.—*Lumberman's Gazette.*

Important Function to Fulfil.

THE CANADA LUMBERMAN.—We have received from Messrs. Toker & Co., Peterborough, a copy of this semi-monthly published by them. It is a sixteen page quarto, and its typographical appearance and make-up are exceedingly neat, such as one would expect the REVIEW establishment to turn out. The prospectus announces that the LUMBERMAN will be a "purely trade organ and entirely non-political." "All information of value to the trade at large will be diligently collected and matters of interest to them will be discussed and advocated." And judging by the number before us this promise will be faithfully carried out. This journal as the guardian of one of the most extensive interests of the Dominion has a most important function to fulfil and the promise of the initial numbers is a good indication that this important duty will not suffer at the hands of THE CANADA LUMBERMAN. The single number before us appears for its varied and interesting contents to be worth the price of subscription ($2.00) for a year to anyone to whose interests they appertain. We give it our best wishes for success.—*Napanee Standard.*

THERE are now six European countries who refuse to allow the importation of pork from the United States, viz.: Russia, Italy, Spain, Portugal, Greece and France.