

Enough Coal Wasted To Offset Shortage

Data Compiled by Experts Show Where the Fuel Goes and How Industrial Plants Easily Might Effect Enormous Saving

By F. F. UEHLING.

UNLESS there is a marked improvement in the fuel situation the Government will undoubtedly revive the Fuel Administration as the most practicable means of coping with the present fuel situation. If that happens doubtless the Fuel Administration will start in where it left off by enforcing the rule that needless waste of coal in power plants shall cease. This rule and the effective penalty of withholding fuel from persistent wasters were adopted by it just prior to the armistice. Enormous fuel savings can easily be made in power plants, which would not only benefit the plant owners themselves but would also help all classes of coal consumers by reducing the demand.

aggregation of domestic or other consumers to burn a smaller quantity. The 240,000,000 tons consumed in industrial and public utility plants, costing say \$8.50 per ton, totals over \$2,000,000,000. Of this gigantic amount about 50 per cent is dissipated in various ways, leaving but a remnant of 10 per cent of the energy originally in the fuel to be delivered in the form of light and power.

Biggest Waste Is Up the Chimney.

The United States Bureau of Mines states that 35 per cent of the coal is wasted up the chimney alone in the average boiler plant. When heat worth more than \$700,000,000 escapes yearly from the chimneys of industrial plants alone it is time to sit up and take notice. My own experience convinces me that the Government's estimate of 35 per cent chimney waste is most conservative, for I believe it to be nearer 50 per cent. Some waste is inevitable, but a material reduction can be effected; in fact, in very efficient plants the chimney waste is less than 15 per cent, instead of 35 per cent, a saving of 20 per cent, by simply preventing some of the unnecessary stack waste.

Where the Coal Goes.

Much greater savings can be made in general industry than in homes, because most of the coal is used for other than domestic purposes. The table illustrates this fact. It will be noted from the chart that domestic consumption is only about 17 per cent of the total, whereas 25 per cent is utilized by the railroads and over 30 per cent by industrial plants.

COAL CONSUMPTION IN UNITED STATES DURING 1917, NET TONS. BITUMINOUS COAL. Railroads 153,700,000. Industrial plants 176,366,000. Electrical utilities 31,493,000. Used at mines 12,117,000. For making beehive coke 52,247,000. For making by-product coke 31,558,000. For making coal gas 4,860,000. Ocean steamers 16,884,000. Exports 23,840,000. Domestic purposes 57,104,000. Total bituminous 554,417,000.

ANTHRACITE COAL. Railroads, approximately 6,500,000. Industrial, approximately 20,000,000. Domestic, approximately 50,000,000. Exports, approximately 6,000,000. Total anthracite 82,500,000. Total consumption bituminous and anthracite 636,917,000.

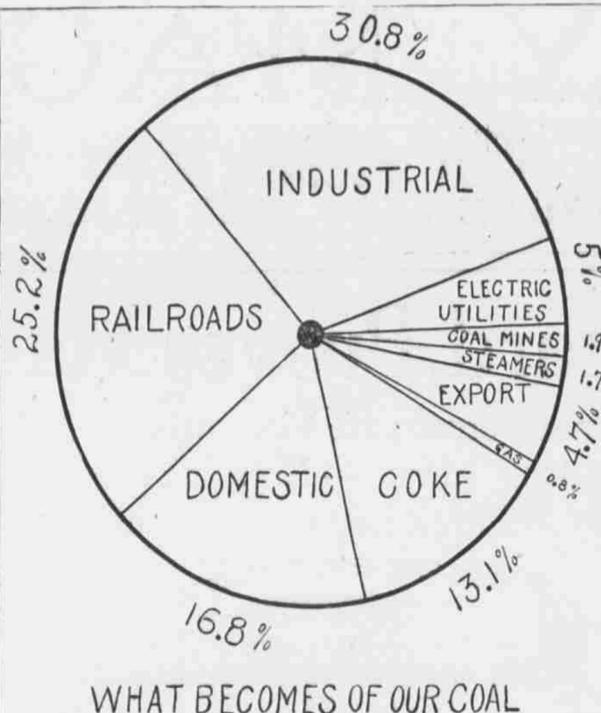
This saving is accomplished primarily by burning fuel with the correct quantity of air. Maximum fire temperature requires a definite amount of air for every pound of fuel burned. Too much air reduces this temperature to an astounding degree and is responsible for most of the heat wasted up the chimney. A 15 per cent saving, which is easily obtainable in the average plant, would represent 35,000,000 tons, or more than \$300,000,000. Let us now see how far this saving alone could go in meeting our present fuel shortage.

Production Little Below Normal.

In 1870 the average consumption per person was 0.86 tons, whereas in 1918 the per capita consumption was 6.44 tons. Production of coal has been increasing rapidly to meet this demand as shown below until the year 1918, when a deficit of nearly 20 per cent resulted, largely owing to the miners' strike.

Production of Coal in the United States. Year. Anthracite, Tons. Bituminous, Tons. 1913 91,525,000 478,435,000. 1914 90,821,000 422,704,000. 1915 88,995,000 442,624,000. 1916 87,578,000 502,820,000. 1917 89,612,000 551,790,000. 1918 98,524,000 579,384,000. 1919 86,200,000 458,043,000.

The termination of the strike found us with a very small reserve supply, and ever since we have led a hand to mouth sort of existence. Present production is really not as bad as represented; in fact, it is considerably higher than during a corresponding period last year and is less than 10 per cent below normal. Still the lag in production is enough to prevent getting caught up and refilling our bins.



This year's difficulties are due principally to the unusual shortage of cars. The Government contemplates spending \$75,000,000 shortly for new freight cars. Coal constitutes one-third of the total tonnage transported by rail, hence if one-third of the above amount is used for purchasing coal cars this sum would purchase 8,333 cars at \$2,000 per car, not counting locomotives to haul them. There are nearly 1,000,000 cars suitable for transporting coal; therefore such new cars would not help much because they represent less than 1 per cent, whereas 10 per cent increase or more is required. Furthermore, new cars cannot be delivered in time. The alternative solution is, therefore, the reduction of waste in using fuel. This can be put into effect almost immediately. Furthermore, it would not be necessary to disarrange commerce through embargoes in favor of coal shipments, nor would it be necessary to adopt heatless days and lightless nights in order to accomplish the desired result. I do not mean by this that the idea of new cars should be abandoned; we must have them. Better transportation facilities are essential. All the needless waste in this country of coal alone has been calculated to be more than 100,000,000 tons per year—enough to meet the entire fuel requirements of all gas and electric utility companies in the United States for about three years, or to keep all the railroads in this country running for nearly eight months, or to keep every home fire burning for about a year. Specific instructions for saving fuel need not be gone into here. They are available to all who seek them. The entire contents of many text books, Government bulletins and technical periodicals are devoted to this subject. To-day it is compulsory by law to equip every boiler with a safety valve and gauge determining the amount of water. These precautions are necessary to prevent explosions. Plant owners are not, however, compelled to install appliances for saving fuel. Our present as well as our future prosperity involves this principle, for it is indisputable that nearly every necessity and pleasure of modern life is entirely dependent upon fuel.

Marvels of a Real Soundproof Room

It is said that the Physiological Institute of the University of Utrecht possesses what is probably the most remarkable room in the world, a chamber about seven and a half feet square, which is claimed to be absolutely noiseless, as far as the entrance of sounds from outside is concerned. It is on the top story of a laboratory building and is an inside room, but is so arranged that it can be ventilated and inundated with sunshine. The walls, floor and ceiling each consist of half a dozen layers of different substances, with air spaces and interstices filled with sound deadening materials. Some persons when in the room experience a peculiar sensation in the ears. While every effort has been made to exclude sounds that are not wanted, of course the object of constructing this singular room was to experiment with phenomena connected with sound. Some of the sounds employed are made in the room itself; others are introduced from outside by means of a copper tube, which is plugged with lead when not in use.

Pilgrim Mothers Gain Recognition at Last

Women's Bravery Equal to Men's in Perils of the Mayflower's Voyage and Hardships of the Wilderness

THE Pilgrim Mothers are about to come into their own. For generations the descendants of that doughty little band who came over on the Mayflower, and the people of the United States who are wont to trace back to the Plymouth Colony the beginnings of free institutions in America, have given honor to the Pilgrim Fathers, and this year are celebrating their tercentenary. But with that they are about to pay tribute to the brave women who came with the fathers and shared their bitter struggle with the wilderness.

No sooner had the Mayflower swung to her anchor and those aboard given themselves up to a Sunday spent in prayer of thanksgiving for their safe arrival than the women began to pick up the thread of their broken domestic routine under conditions which none of them had ever faced before. One of the early chroniclers related: "Our people went on shore to refresh themselves and our women to wash, as they had great need."

When the Pilgrim tercentenary was first planned by the Sulgrave Institution, which is conducting both the celebrations now going on in England and the early celebrations in this country, the people of Provincetown, where the Pilgrims first landed, decided to give belated recognition to the women of Elder Brewster's church.

Tribute to Their Courage.

Their courage is to be commemorated by a great memorial that will rise near the monument to the Pilgrim Fathers at Provincetown. The local committee at Provincetown has announced that it has asked Congress and the Massachusetts Legislature for appropriations of \$300,000, and will raise \$50,000 more from among the descendants of the Mayflower women, with which to build the monument and construct a stone pier and approach to the two pillars that will mark the curving sandbanks which were the Pilgrims' first sight of the new world.

They must have, after two months in a tiny ship scarce big enough to hold them and their goods. The first tragedy among them came only a few weeks later, when, during the cruise of a shallop and before landing at Plymouth, Dorothy Bradford, wife of William Bradford, fell overboard and was drowned. And but a short time later sickness claimed many and deaths came fast. In January Rose Standish, wife of Capt. Miles Standish, died. Mary Allerton, the wife of Isaac Allerton, died in February, and Elizabeth Winslow, wife of Edward Winslow, died in March. John Carver and his wife also died that month, just before their fortunes began to turn with the coming of warm weather.

Death's Heavy Toll.

It was in March that a despairing entry is found in the chronicles of the settlement: "This month thirteen of our number die. And in three months past dies half our company; the greatest part in the depth of winter, wanting houses and other comforts, being infected with the scurvy and other diseases, which their long voyage and unaccommodated condition brought upon them, so that three died sometimes two or three a day. Of the hundred persons scarce fifty remain, the living scarce able to bury the dead, the well not sufficient to tend the sick, there being in their time of greatest distress but six or seven who spare no pains to help them. Two of the seven were Mr. Brewster, their reverend elder, and Mr. Standish, their captain."

How any of the Pilgrim women survived the terrors of that perilous voyage and the famine and cold of the following winter is not the least of the remarkable features of the adventure. In a raw climate, with inadequate shelter and food, with a desolate sea before them and behind them dark woods filled with Indians, they went through privations that reduced their little band to exactly half its numbers in the first few months of their settlement. Only the strongest and those judged most fit to bear the burden of home building embarked on the Mayflower, the others having been left at Leyden until conditions were such that it would be possible for them also to come over with a fair chance of survival. Without these women it is doubtful if the colony would have succeeded, for they helped build homes, sought food to eke out their meagre supplies, tended the sick and sustained the others by their quiet courage, even when their situation seemed hopeless. They had not come without anticipating many troubles, and they met those which came in a way that is the brightest chapter in that hard winter.

On the voyage, which lasted from September 6 to November 11, the women must have suffered severely. They left Southampton in a gale and storms followed them the whole way, until the ship cracked and leaked and much of their food was spoiled. One big plank in the ship was so bent that it was only repaired by the fortunate chance of a

Naturally, where they were so dependent upon each other, those left alone by the death of husband or wife sought another mate for their mutual aid and protection against hunger and sickness. The story of the wooing of Miles Standish, who sent the youthful John Alden to plead with Priscilla Mullings, is an American classic, but it is not so generally known that Alden was a Southampton cooper who had come on the Mayflower probably for the sole reason that he would be able to be near his Priscilla. A bashful youth, indeed, to follow his lady across the sea and then not dare to plead his own cause until she prompted him.

American Financiers Invade Pall Mall, Historic Street of Leisure

LONDON, July 27. To open a new American branch office in London is no great achievement. Every one is doing it. But a historic, philosophic and artistic guidebook of the new office's locality is apparently going beyond the powers usually attributed to the soulless banking corporation. Incidentally the Guaranty Trust Company's little brochure on Pall Mall will clear up the origin of the street's name and the names of the various austere and magnificent clubs which line its walks. Their descriptive matter speaks thus: "Pall Mall! It sounds like no other street, and it is like no other street in the world. Its name came from a game played by Stuart princes near their palace, and it is been a street of gallant leisure to those nearest the court for nigh three hundred years. The Palace of the Tudors is at one end and Trafalgar Square at the other, Marlborough House, where the great Duke lived, and where the eldest son of Queen Victoria took up house on his marriage, and remained until he became king, has its gates entering on its western end. Peppy's wrote of it as a place for clubbing, and even to-day it is virtually a street of clubs. The club is an English institution, and although it has spread all over the world there is no city except London that has a whole street of clubs. They set the tone and pace of the street.

New York Bank Sets Up London Branch in Thoroughfare Famed for Three Hundred Years as Centre of Clubdom--Recalls Traditions of Its Magnificent Neighbors and the Romances of Nell Gwyn and Emma Lyon

on the most difficult subjects, and guarded by their silence, Sir James writes his fairy stories and his Scots dialect romances. "Next to the Athenaeum is the Travellers' Club. Its membership is limited to those who have travelled at least 500 miles, a much easier qualification nowadays than when the club was formed, but it is still a very exclusive body and keeps out of the newspapers. Then come the Reform, with its grim Italianate exterior that recalls the Farnese Palace in Rome. It looks like a place of secrets, but is really the final gesture of the Whig party, and it now houses such varied and democratic figures as Mr. Arnold Bennett, Mr. Wells, Mr. Massingham and many others. Nevertheless the Reform is still the club of Liberal Cabinet Ministers and the aristocratic families who hold to the Liberal side. "The Carlton Club, separated from the Reform by a little alley, is a more ornate edifice and suggests rather the modern business man than the political and landed gentry whose stronghold it originally was. Every Conservative Member of Parliament is eligible for membership. "The Marlborough Club, at No. 52, was established not long after his marriage by that Prince of Wales who was afterward Edward VII. Every candidate for membership had to be approved by the Prince, who found at this club, a few steps from his own door, a place where he could meet his friends without ceremony. It was the custom in the club that he was treated only as a fellow member, and it was considered bad form if any one put down his newspaper when he entered the room. He often sat in the bow window overlooking Pall Mall, but his favorite place was in a room on the ground floor.

and several other works which 'struck the gong of London' in those days. "In this shop was published in 1759 the first volume of the Annual Register under the editorship of the famous Edmund Burke, a compendium of information and selective taste which had a life of over a century. The shop was one of the sunniest slopes of Par-nassus for many years. Pope, Johnson, Burke, Chesterfield, Goldsmith, Sterne, Horace Walpole, Garrick, Reynolds and other great ones of the period met often at 'Tully's Head,' and stayed late. Dodsley's plays had a good deal of success, particularly 'The Toy Shop,' 'The King and the Miller of Mansfield' and 'The Blind Beggar of Bethnal Green,' and a tragedy called 'Cleone.' He was an amiable, honest and able man, and did much for the advancement of letters. No. 51 must have been at that time a near approach to the Mermaid Tavern in Shakespeare's day.



PALL MALL, LOOKING FROM ST. JAMES STREET TOWARDS THE NATIONAL GALLERY.

"But to return to our clubs. Pall Mall also houses the Junior Carlton, whose windows look out on St. James's Square. 'Junior' does not mean that the members are youths, as any one can see for himself by looking up at the honorable heads at the windows. It only means that, as a club, it is junior to the original club, although the majority of the members may at one time or other be the elder brethren of the senior club members. There is, too, the Oxford and Cambridge Club and the New Oxford and Cambridge Club (which overlooks Marlborough House), for which members of these ancient universities only are eligible. The parent club has a famous staircase and a series of panels over the upper windows that are understood to be in the best classic manner, and it was designed by the brothers Smirke.

house in 1850, let his thoughts stray to that Mistress Nelly and came to the conclusion that mercy would be found for her. On the North Side she lived for some time in a house whose site is now occupied by the Army and Navy Club, and the mirror that reflected her fair and provoking face hung there for a while.

"The United University Club, at the corner of Suffolk street, was reconstructed recently to the designs of Sir Reginald Blomfield, and is an interesting piece of modern scholarly club architecture. The old and the new work in the building bring about some curious results, and there is a legend of a guest who was separated from his host after dinner and is believed to be wandering about the passages there to this very day. The Guards' Club has recently deserted its narrow bow-fronted building in which Disraeli, Ouida and so many novelists of last century loved to depict their heroes. Then there is the Royal Automobile Club, with its 16,000 members, which has swallowed up a dozen old club buildings and is an imperial club in a sense that none of the other Pall Mall clubs are. "It is a man's street—clubs and cigar shops and wine merchants and military tailors and bootmakers, and one shop that sells nothing but swords. But there are women whose memories live in the street, and give it some of its golden light and shade.

Next to Nell Gwyn's house, in a building that still exists, although shorn of one wing, another lost lady of old years held a sort of court. Emma Lyon, a Cheshire village girl, who after many adventures, became Lady Hamilton, figured here as *Hyppis* in the 'Temple of Health' of a quack doctor named Graham. There Gainsborough saw her and in his studio, which was in the same building, he painted her as 'Musadora Bathing,' in the picture that is now in the National Gallery. Conway painted her, too, and later Romney began his great series of pictures with the 'divine Emma' as his theme. It was in Naples that Nelson met her.

"Pretty to think' (as Peppy would say) that to-day, in Christie's auction rooms (which were first in Pall Mall), in Kings street, a stone's throw away, collectors still scramble for the letters of Emma Lyon, and her face in millions of reproductions haunts the world. Nelson loved her. Hers was the face that launched a thousand ships. Some say that she inspired him (Nelson said so) as she inspired Romney. She is lighted down the ages by the blaze of Nelson's fame and the glow of Romney and Gainsborough's art. Time cannot close his shadows over her beauty.

Where Gainsborough Died. "Gainsborough died in that Dutch looking house with its old red brick and stone dressings and its caryatid porch, and according to the story he said to his rival, the great Reynolds, at his bedside, 'We are all going to heaven and Van Dyck is of the company.' The Duke of Cumberland lived here after Colloiden, and in a house somewhere in the street Charles Edward Stuart, 'Bonnie Prince Charlie,' the man the Duke vanquished, is said to have held a secret meeting of his remaining friends four years after the battle. He would not then have had the long spry step of the wanderer in the poor tartans who tramped and hid in the islands after Colloiden, for the lad that was born to be king was already sinking under dissipation and frustrated hopes.

Adventures of Nell Gwyn. "There was Nell Gwyn, orange seller, player, mistress to a king, mother of a duke, a favorite of the people, whose kind thought gave London the adornment of Wren's Chelsea Hospital, which has sheltered old warriors for over two hundred years. She lived at No. 79, on the south side, and at the foot of her garden she once leaned over the wall and had a saucy talk with Charles II., walking in the Mall, as the scandalized Evelyn reports in his Journal. Her house was swept away long ago, and the Society for the Propagation of the Gospel sanctified the spot with its headquarters, but even the godly Bishop, Cox of New York, who stayed in the

"The trumpets and drums from St. James's Palace probably sounded out as they sat at the meeting and the last of the Stuarts would look at the fifty faithful who were there and think of the thousands that lay under the heather. It is strange to think of the disguised figure stepping along Pall Mall, perhaps through the queer narrow lacko haunted passage of Pall Mall Court, that still keeps some of its eighteenth century air, and away to his lurking coach or sedan chair and so farewell to England. "Pall Mall is a street in which history never has a holiday."