

### COKE AS A SMOKELESS FUEL FOR BOILERS.

Many attempts have been made to burn coke for steam purposes and many of these have failed. There is one case in which it probably will always fail, and unfortunately, this is the case which is most prolific in the production of smoke. Many boilers are entirely too small for the amount of work to be done; the maximum amount of steam must be produced in the minimum amount of space, and additional space is either too valuable to be used for power development, or cannot be obtained at all. The only way in which the owner of such a plant can supply the necessary amount of steam is to burn that quality of fuel which will give the greatest quantity of steam per square foot of grate. This is, in practically every case, soft coal, and, as it must be burned in the most wasteful way, large quantities of smoke result. Coke cannot be burned under these conditions at all, and nothing but rigorously enforced laws will abate the smoke nuisance.

As coke is very largely carbon it requires as much, and often more, air per pound of fuel to actually burn it. The fuel bed must be kept deep or it will be found impossible to maintain the steam pressure and that no fire is more difficult to bring to its proper condition after it has once become low has been the result of the experience of everyone using coke. As the latter will make a heavier clinker, the draft must be very strong after a fire begins to get dirty.

The valuable heating surface in a coke-fired boiler is that directly over the fire, as the gases will not carry flame, and tests have shown that after leaving the fire chamber proper, fifty per cent. of all the heat had been taken up.

The heating surface then can be smaller and the grate should be larger than ordinarily made for coal, which largely accounts for the reduced capacity obtained on trials.

About two-thirds as much coke as coal can be burned per square foot of grate in ordinary running. Grate openings must vary in width with the size of coke used; if the openings are 0.3 to 0.4 of the entire grate area, they are sufficient to admit the proper quantity of air, and it has often been found necessary to water-cool the grates. Boiler plates must be kept cleaner on the water side over the fire to prevent the plates or tubes from burning with the intense flame.—H. W. Spangler, in *Cassier's Magazine*.

### BURKING THE QUESTION.

Aldermen who burk the movement to meet the reasonable demands of the Underwriters in the matter of fire protection are taking upon themselves a great responsibility. The fact must be patent to all, that the only practical scheme is the one for which provision has been made in the estimates. Its rejection means the throwing down of the gauntlet to the insurance men. If that is a wise thing to do; if we are indifferent about our insurance rating; if we can afford to tell the Underwriters to do their worst, well and good.

It is time the gentlemen who are determined to build a new fire hall, or destroy any chance of the permanent settlement of the vexatious question, should cease acting like a lot of disappointed children. A majority of the people's representatives wisely decided on a practical, economical and efficient scheme, by which the necessities of the city in fire protection can be met without incurring any debt. Provision has been made in the estimates for the undertaking, and the Council committed itself to the scheme. But a mistake of \$75 in the tenders is now seized upon by the defeated minority to burk further progress.

The Herald is not concerned about the success of this or that plan. It wants some move made to save the city from disratment and bring about the last performance of that hoary farce, enacted every time the fire bell rings and the hook and ladder truck is dragged out. Aldermen who burk the present scheme know the people will not vote for a \$5,000 fire hall. They know the consequence of their action will be the bringing into operation of higher insurance rates. Are they prepared to assume that responsibility?—*Guelph Herald*.

### ARGENTINA CATTLE EXPORTS.

A detailed statement, showing the numbers and destinations of the live cattle exported, in each of the last three years from Argentina, has been issued by the Agricultural Society of Buenos Ayres. The considerable diminution in this trade which took place between 1895 and 1897 has already been noticed. We have arranged the following table so as to show the number of head of cattle exported from Argentina, firstly, to European countries; secondly, to Africa; and then to South American countries:

Destination.	1895. No.	1896. No.	1897. No.
United Kingdom	49,537	65,906	82,565
France	1,640	3,663	3,196
Belgium	1,945	4,401	1,985
Portugal	371	1,444	520
Italy	171	1,517	343
Germany	130	1	....
Spain	....	1	....
Africa	....	....	334
Uruguay	158,663	130,949	52,537
Chili	97,417	64,707	54,929
Brazil	80,745	97,059	24,612
Bolivia	17,270	6,626	5,647
Paraguay	147	3,422	1,455
Antilles	90	....	....
Other Countries	....	2,843	....
	408,126	382,539	228,123

It is noteworthy that, though the total export has so largely declined over the three years, the export to Europe has simultaneously increased. Thus, the total receipts of Europe, which were 53,794 head in 1895, rose to 76,933 head in 1896, and to 82,565 head in 1897. This increase of 34,815 on the two years is, however, practically accounted for by the expansion to the extent of 33,028 in the imports into the United Kingdom. In fact, of the total cattle exports from Argentina, the United Kingdom took 12 per cent. in 1895, 17 per cent. in 1896, and 36 per cent. in 1897. The decline in the exports from Argentina to the adjacent countries—and notably, Uruguay, Chili and Brazil—is noteworthy, and is clearly shown in the table. We should observe that the figures given for the United Kingdom do not exactly coincide with those in our own trade returns, which show an import from Argentina of 39,494 head in 1895, of 65,699 head in 1896, and of 73,867 head in 1897. Moreover, according to *El Comercio Exterior*, the total export from the Argentine was 238,121 head last year, the difference probably being due to unrecorded shipments to "other countries."—*Times*.

### THE GLASGOW FIRE.

The fire which occurred in Glasgow on the 25th April was one of the most disastrous that ever took place in the city. The loss, according to the insurances, works out at about £120,000, but probably the actual loss will be much greater.

Viewing the result, it is no exaggeration to say that the efforts of the Fire Brigade were nearly fruitless. With the exception of two tenements, which were very seriously damaged, the whole large collection of buildings bounded by East Howard St., Dunlop St., Great Clyde St.,

and Ropework Lane was completely destroyed. If there is evidence in this deplorable result of incapacity on the part of someone connected with the Fire Brigade, the position of affairs is serious for the fire insurance companies not less than for the public. We are compelled to say that a feeling of dissatisfaction exists, and that this fire is not the only one which has seemed to afford ground for complaint. There appears to be a want of good judgment. Too much attention is concentrated on buildings which are hopelessly lost, to the neglect of buildings which might be saved. Onlookers at a fire are inclined to applaud the errors of firemen, and it is unusual to find them criticising adversely the arduous and dangerous work of fire extinguishing; but in this case uncomplimentary remarks regarding the arrangements were heard on all sides. We do not wish to give more weight to those remarks than they deserve, and we merely make mention of them as something quite uncommon. The expression of disapproval took a more emphatic form in one case than mere words. Sixty men and six steamers were at work, and practically nothing was saved. Should a fire take place in some dense mass of buildings, such as we have in Buchanan St., what the result might be is frightful to contemplate, in connection with similar management. Discontent is springing up, and is spreading, and we venture to suggest that a searching enquiry ought to be made.—*Scottish Critic*.

### NICARAGUA CANAL.

Senator Morgan has reintroduced in a modified form his bill of the last Congress, amending the act incorporating the Maritime (Nicaragua) Canal Company, says the *Railroad Review*. The capital stock of the company is fixed at \$100,000,000, the principal and interest to be guaranteed by the government, which is to have a lien on the assets of the company. The canal is to be completed under the supervision of the United States engineer officers within six years, and is to cost not exceeding their estimate of \$115,000,000. A new section declares the neutrality of the canal, with a proviso that it being a necessary connection between the eastern and western coasts of the United States the right is reserved to protect it from all interruption at all times. At a meeting of the stockholders of the Maritime Canal Company, held May 5th, in New York, Charles P. Daly, Daniel Ammen, Horace T. Hotchkiss, Henry E. Howland and Robert Sturgis were elected to succeed themselves as directors of the company for a term of three years "class 1891." At a meeting of the board of directors, which followed the stockholders' meeting, the present officers, who have held their offices since the organization of the company, were re-elected: Hiram Hitchcock, president; Charles P. Daly, vice-president; Thomas B. Atkins, secretary and treasurer.

—Few people are aware, says an exchange, of the fact that in a watch they are always provided with a compass, with which, when the sun is shining, the cardinal points can be determined. All one has to do is to point the hour hand to the sun, and south is exactly half way between the hour and the figure 12 on the watch. While the sun is passing over 180 degrees (east to west), the hour hand of the watch passes over 360 degrees (from 6 o'clock to 6 o'clock). Therefore the angular movement of the sun in one hour corresponds to the angular movement of the hour hand in half an hour; hence, if we point the hour hand toward the sun the line from the point midway between the hour hand and 12 o'clock to the pivot of the hands will point to the south.