

SPRIT OF THE COMMERCIAL AND INDUSTRIAL PRESS.

COMBUSTION AND VENTILATION.

We find the following sensible remarks upon a most timely subject in the *Boston Journal of Commerce*. There are few of our readers who do not use anthracite coal in heating their dwellings and offices, they are fewer who do not realize that their yearly expenditure for fuel is vastly disproportionate to the amount of heat obtained from the stoves and furnaces in which the coal is destroyed, for "consumed" is a term that can scarcely be applied to a system which enables the utilization of but from light to ten per cent. of the heat in the fuel, or at the best of less than one-half of it. There is much to be said on this subject and there is a growing disposition among intelligent people to investigate the utility of a system which, as the author of the following article justly asserts, results in simply cooking the coal, and to which he might properly have added, sends the heat up the chimney into the outside atmosphere, in a volume limited only by the capacity of the stove pipe. If our readers would test the correctness of his cooking theory, they have but to try the experiment one day, to satisfy themselves that it is in their power to obtain at least double the heat from the same quantity of fuel. To do this, let the stove fountain remain empty, and as the coal in the fire pot gets low, shovel on from one to two inches of fresh coal. This involves a little more labor, but the thermometer will show results which cannot but convince a candid mind that the labor is more than compensated in the smaller quantity of coal required to produce greater volumes of heat than attend the fountain or reservoir system. The writer says: "Although the discovery and use of anthracite coal dates back about 90 years, there is something yet to be learned about its management, at least in our dwellings, judging by the construction of our cooking stoves, ranges and heating furnaces, and parlor stoves. Invariably the fire box is improperly proportioned; the object appearing to be to get a deep mass of coal on fire at one time. The slightest knowledge of the process we call combustion would show that the present plan of deep fire boxes in stoves, ranges, and domestic furnaces is radically wrong. Why do not the builders of steam boilers construct their furnaces in a similar manner? If they did, the fire box for a boiler 50 inches diameter and 14 feet long would be about six feet deep, and all the air that was allowed to enter the mass would be forced to come in at the bottom of this pile of coal. Now, nothing of the sort is attempted under steam boilers; there is a great grate surface extending the entire width of the full diameter of the boiler, and it is so contrived that the fireman cannot possibly get over four inches thickness of coal on the grate; and he is the better fireman who runs with three inches or even less. Then the air—the outer atmospheric air—is admitted to the entire under side of the grate and also over the fire itself. Sometimes the upper or surface draught is admitted by the doors themselves, and sometimes by openings in the sides of the fire box back of the doors, and sometimes by perforated pipes open at the ends and allowing and inducing atmospheric air from outside to the top of the fire inside. This surface draught is worthy of notice. Properly managed, it does not deaden the incandescent coal, nor diminish the combustion. Of course, it is acknowledged that a favorite mode of cooling down a kitchen fire is to uncover the fire—that is, remove the covers and saddle, allowing the entire atmosphere of the room to enter the stove at the top of the fire. But if only a proper proportion of the air was admitted to the top of the fire the combustion of the coal would be hastened, and, what is equally important, the unconsumed carbonized gases would be burned, adding greatly to the effective value of the coal consumed—the coal coked and wasted, rather. This is the system pursued by boiler makers; and this is the foundation of all the attempts and successful results of improving the fuel service of the steam boilers. The justly celebrated Jarvis furnace is based on giving the fuel and its liberated products sufficient oxygen to consume them. It is the basis of all the improvements reached within the last 25 years in the production of heat force from carbon. If half as much sense were shown by our stove builders as by our boiler makers, very heavy reductions might be made in our domestic coal bills. Of course their fires require attention—does anything that is of present value—but while a pot of green coal ten inches deep and 8 by 12 square may live unattended for twelve hours, it will give out but little heat. The coal cokes, gradually disintegrates, turns to unburned coal in small particles, some of them flying off into the outer air on the wings of the upward draught and others falling into the ash-pan or clogging the interstices of the uncracked coal. All the visible debris is called ashes and thrown away, and all the swayer fuel is not called—it is lost as much as the "ashes." This present method of coal burning is illustrated every day—or every night. Fill the cylindrical, or oval, or rectangular receptacle of the stove or furnace to the top at bedtime. Next morning the room is not overwarm—everybody knows how chilly it seems in the morning and how cheerful it is to "start the fire up." Yet when the attempt is made to start up the fire, it is found that the coal is all gone; sometimes kindling fuel is necessary. Now if that coal has been burned why is not the room warm? A similar amount of coal in the day, when it received occasional attention, was sufficient to keep the room even uncomfortably warm. The facts are that the coal was not burned and the heat was not evolved. There is little warmth in the room, but a feeling of unpleasant atmosphere, too much carbonic acid gas for comfort. This sketch is a common case, and it shows plainly that our present method of burning—or rather using—anthracite coal is wrong. We do not burn the fuel; we simply get rid of it; we do not get the heat, the flame, the genial warmth, but we use the heat to coke, and disintegrate and use up the coal, permitting the gases to go unconsumed up the chimney and relentlessly shoveling out upon the ash-pan our true solid fuel. One of the biggest wastes in domestic stoves is that of the self-feeding parlor stove. It is a device to encourage idleness and the coal dealer's business. Not one-tenth of the coal poured into the top of these gas furnaces is ever used as heat in our dwellings; most of the heat is used up in cooking the coal in the open funnel, and the resultant fine fuel is carried off as ash. In some of these self-feeding heaters the combustion and the resultant heat is so confined that what does not go unconsumed up the chimney is expended in coking and destroying the coal. The process is simply that pursued by our gas men with bituminous coal; only our gas men are sensible enough to collect and purify the gas and use it again for light and heat. We, in our houses, waste the gases and throw away the coke. Proper combination of fuel and good ventilation are closely allied.

THE MERCHANT MARINE.

An American contemporary publishes official statistics on the subject of the merchant marine of the world, from which we collect the following:

July 1st	Tonnage	Registered Tonnage		Unregistered Tonnage	
		Tons	%	Tons	%
1877	1,002,000	145,914	14.57	856,086	85.43
1878	1,002,000	145,914	14.57	856,086	85.43
1879	1,002,000	145,914	14.57	856,086	85.43
1880	1,002,000	145,914	14.57	856,086	85.43

But this decrease in sailing vessels varies under each flag for all nations do not have the same means for buying or building for building vessels. The result is that a great revolution is taking place in the carrying trade of the world; it is being more and more concentrated in the hands of a few leading maritime nations. The following table exhibits this—

Flag	Sailing Vessels		Steamers		
	Increase	Decrease	Increase	Decrease	
British	42	206	571	608,284	
American	1	2	2	2,101	
Norwegian	1	1	1	1,308	
German	1	1	1	1,308	
Italian	1	1	1	1,308	
French	1	1	1	1,308	
Russian	1	1	1	1,308	
Swedish	1	1	1	1,308	
Dutch	1	1	1	1,308	
Spanish	1	1	1	1,308	
Greek	1	1	1	1,308	
Austrian	1	1	1	1,308	
Danish	1	1	1	1,308	
Portuguese	1	1	1	1,308	
South American	1	1	1	1,308	
Turkish	1	1	1	1,308	
Central American	1	1	1	1,308	
Asiatic	1	1	1	1,308	
Roumanian	1	1	1	1,308	
Total	221,64,047	1,190	50,638	682	749,910

Increase	Sailing vessels		Steamers	
	No.	Tons	No.	Tons
Decrease	1,190	26,638	7	3,397
Increase	93	411,761	123	716,003

The increase of sailing vessels under the German and Russian flags is due to transfer from Peru and Chili on account of the war between these countries; the Turkish increase to the closing of the war between that country and Russia, Turkey's vessels having taken refuge under the Greek flag. The great increase of steamers is the most notable fact exhibited. Since 1879 the increase in steamers has been 223 per cent. under the British flag, 25 per cent. under the French, 27 per cent. under the Norwegian, and 174 per cent. under the German flag. Most of these steamers have been built in England, but in Germany and France a good many large steamers have been constructed and fitted out during the last few years. In the German yards there are now nearly all the time some twenty iron steamers building, some of them of 2,500 tons measurement, for the transatlantic trade. In France the building and buying of steamers are likely to receive a great impulse, in consequence of the premium which the government allows henceforward. In Italy there are some facilities for building them, but there is a lack of capital, and, besides, Italy has no coal of her own, which is a great drawback. The next few years are likely to exhibit some further great changes in the sense indicated by the above statistics. The world's mercantile steam fleet is at present the following—

Flag	Tonnage	
	Steamers	Net
British	3,287	4,265,619
American	544	654,280
French	319	429,787
German	277	289,429
Spanish	299	378,428
Russian	106	129,728
Dutch	115	148,297
Italian	107	146,470
Swedish	254	324,929
Austrian	82	105,142
Danish	108	148,297
Norwegian	148	187,430
Belgian	87	111,199
South American	82	105,142
Asiatic	73	93,984
Egyptian	58	75,212
Portuguese	1	1,225
Greek	26	33,227
Turkish	10	12,898
Central American	10	12,898
Tunisian	10	12,898
Roumanian	10	12,898
Sundry nations	6	7,822
Total	6,434	8,745,176

LOOK ABOUT YOU.

(Commercial Gazette.)

People go through the world in different ways. Some with their eyes shut—not absolutely, but figuratively. The lid is raised, a picture is formed on the retina, but the inner sense is closed. What they see makes no impression. They never look about them. A man, for instance, returning from a continental tour, will tell you about the hotel where he had the best dinner, and the railway that took him quickest over the ground, and the shop where he made his cheapest purchase, and the rascal who cheated him out of a five franc piece; but to the Alps, with their snow capped summits, and the green valleys where the tinkling brooks make perpetual music, and the Rhine on which the gray old castles frown, and the battle-fields where the destiny of nations was terminated, and the gorgeous palaces in whose halls gallant knights, warriors and kings reeled, and the stately cathedrals full of memories, and the galleries and museums radiant with beauty and crowded with all the treasures of art, and the glorious mornings and crimson sunsets, and the mighty storms that diversified the way—all this appears to have made about the same impression on his mind as it would upon the brain of an ox. No one can tell how much the world is indebted to those who look well about them. Thousands of persons have seen the old lamp swing in the cathedral of Pisa, and nothing came of it; but when Galileo, who was always looking about him, watched its regular oscillations, the thought of the pendulum came to him, with all the scientific results which it involves. Montgolfier sees the smoke rising from a chimney, and the thought comes to him that, by confining the heated air in a bag of paper or cloth, he might be able to lift a weight in the air, and a rival navigation is the result. By watching the habits of insects, birds, fishes and other living creatures, many a valuable lesson has been learned. The beaver has taught us how to build dams; in the tail of the fish we find the propeller;

the nail made the first tunnel, and the beam was a paper model long before you went into the trade; the birds know how to sew, weave and cement, glue and plaster, long before the human eye had any tools to work with. For the rich and delicious fruits and vegetables which load our tables, and for the beautiful flowers that adorn and beautify our gardens, we are indebted to men who looked about them, to see what was growing wild in the fields and forests, and the wit to transplant and cultivate the crude apple and the bitter walnut to a mellow and richer flavor so pleasant to the taste. Many persons will wander all day in the woods and bring nothing, because they have seen nothing worth bringing, while others return with their arms full of the most exquisite wild flowers and sweet-scented shrubs, and delicate ferns and sward ferns. Paddy, rocky and earthen may be very dull and sterile things to most of us, but not to the skilled and keen-sighted geologist. His eyes are open, and he reads the records of the world's earliest days in these ledges of rocks, sands and clay; he strikes with his hammer the found rough pebbles, and reveals a little world of reality hidden there, with his magic key he unlocks the chambers of the earth, and opens to our view untold treasures of carbon, copper, silver and gold. What lessons nature teaches us; her laws are terrible, but just. There is no weak mercy in them. Cause and consequence are inseparable and inevitable. And perhaps it would be well for our race if man were as unerring in his judgments as nature. What a beautiful lesson we have in the silent play of lightning; it is but the rent and wounded air that waits in thunder. The greatest vigor of thought or act is not violent, it breaks no law of courtesy, it is strong in moral courage. And all young men just starting in life must look about them if they would hope to find remunerative employment. There are two classes of human beings in the world, and they may be designated as *water and wheels*. The former are all the while wondering why somebody does not find them something to do; he waits and doubts; he hesitates and consults his brother and his uncle, and all his particular friends, until one fine day he finds he is sixty years of age; and that he has lost so much time in consulting his first cousin and particular friends that he has but little courage to follow their advice. It will not do in this age to be perpetually calculating tasks and adjusting nice changes. It did very well before the flood. The fact is, to do anything in the world worth doing, men must not stand back shivering, thinking of cold and danger, and ever remain in obscurity, because their timidity prevented them from making a first effort in the world of fame. While the seekers go to work somewhere and somehow, and make employment, they are ever on the look-out, and know that it does not matter much from what round of the ladder a man starts, because, if he keeps a good look out, and has his feet ready, he is sure to rise. And it is very important to have the faculty of looking in more than one direction. There are people whose eyes appear to be fixed in the sockets, so that they can only see straight ahead—being unable to perceive what is going on to the right or the left, without turning round the whole body. All the side lights are, of course, lost to such men as these. He who knows but only one thing, or one set of things, cannot be a wise man. Every individual judgment needs to be modified by other judgments. For we understand nothing except by comparison. What we should cultivate then is a sharp, comprehensive *outlook*, and a correspondingly keen *insight*, without which all that the eye discloses will be of very little account. And, in plain English, we may end as we began, by saying, "Look about you!"

COMMERCIAL COURTESY.

(U.S. Economist.)

There is an unwritten law of courtesy in business intercourse which is well understood among all merchants of good standing, and which is invariable in its application. No matter how earnest the competition may be between rival houses, there is never a valid excuse for unbecoming conduct, or for any violation of the tacitly admitted rules of business ethics. The men who are rude enough to set at naught or bid defiance to time-honored regulations that affect mercantile intercourse are very rarely successful in the long run. They create a whole-some distrust against themselves, and excite an antagonism that is more detrimental than any degree of legitimate rivalry can be. One of those laws is that which relates to the understanding between the merchant and his clerks. It is always flagrantly wrong to interfere between a house and its employees in such a manner as to weaken the force of the compact between them. It is not decorous under any circumstances to offer inducements to any expert salesman for example, to quit the service of one house to enter the service of another. It is an invasion of another's rights, quite as improper as the effort to entice a domestic servant of your neighbor's would be. You are no more entitled to bribe a clerk by the offer of higher pay, or of superior advantages, than you are to entice a cook or housemaid from a private household by the offer of increased wages. There is no law on the statute book against either offence, but the man must be entirely oblivious of ordinary moral obligations who can gain his own consent to commit the meanness. Hence, there is an explicit law in force that forbids this practice: "Thou shalt not covet thy neighbor's man servant, nor his maid servant." It needs no violent stretching of this command to make it applicable to the case of a merchant and his clerk. This is true of the offence as applied to the employer. But it may involve damage to the employee also. A clerk may use his influence to entice away a brother clerk, under the impression that he is performing an act of disinterested friendship. Whereas he cannot possibly know what progress his friend is making in the estimation of his present employer, or what plans of advancement that employer may have in his mind. For the sake of a few dollars increase in the monthly pay of his friend, he deprives him of the chance of future advancement and of a larger salary, it may be. Very few things testify so emphatically of the substantial prosperity of a salesman as the fact that he has kept his position through a long course of years, resisting all temptations to "make a change." He becomes identified with the house he serves, and if reduction in the force of an establishment should become necessary, it is not the old clerk, who has been tested through many prosperous seasons, that is discharged. Sometimes (and examples of this sort of meanness will occur to any reader whose life has been spent in commercial pursuits), the effort to seduce a clerk from his allegiance is induced by a malignant dislike of the house to be defrauded. Sometimes the effort is made by a man who was himself once in the service of the same firm, but who has begun business on his own account. He needs salesmen of special talent, and he coolly selects them among the clerks he knew in

the old establishment where his own talent was formerly tested. If he can gain an efficient salesman, he is greater if he at the same time damages the old employer. Consideration of this sort is always highly to be feared, and to man who maintains a good reputation who is guilty of the offence.

THE AMERICAN CIGAR TRADE.

(New York Times.)

Very few persons are aware, unless personally interested in it, of the magnitude of cigar-making in the Republic, particularly in this city, where it is so old and rapidly increased. The American trade in cigars, selling at 15c, is said to be superior to any other market. A factory here is reported to be the largest in the world. It has only 60 customers and employs 500 of the number because it cannot fully supply the demands. Some 1,500 persons—men, women and children—are in its employ, and the firm is building another factory which will need as many more. It even with their enlarged facilities they will not get another customer. This is a statement of their success last October. Cigars delivered during the month, 1,434,550; wages paid, \$104,000; amount for the Government for revenue stamps, \$28,500, amount of duties paid on foreign tobacco, \$1,174; paid for cigar boxes during the month, \$9,805.27; leaf tobacco worked into cigars, 25 lbs. to the 100 cigars, \$12,000. The rapidity of the growth of our cigar manufacturer is asserted to be greater than can readily be imagined. Millions of our cigars are now annually exported to Europe, and the number of Cuban cigars is but a trifle comparatively. The American product in this branch of enormous industries must be counted by thousands of millions.

IRON vs STEEL FOR BOILER PLATES.

(Iron Age.)

The question of iron vs steel for boiler plates continues to be the subject of an animated discussion in England and on the Continent. Both sides of the controversy are being conducted with considerable skill, and some facts of interest are elicited from various sources. It will be remembered that attention was again directed to the subject by the failure of the steel boilers of the *Livadia*. After the plates had been passed as excellent in quality by the shipbuilders, by the Russian inspectors and by the officials of Lloyd's, the finished boilers broke down under a test which was by no means severe. It was naturally concluded that there was something radically wrong. The case does not, however, by any means sufficiently justify a wholesale, indiscriminate condemnation of steel as a material for that purpose. It would be, on the other hand, to be wise to pass by such a failure in absolute silence. The present and great prospective value of steel is fully admitted by all who have had occasion to test its merits. We have, however, the testimony of too many intelligent and disinterested constructors a proof that the material "ingot iron" or "mill steel" is subject to sudden and apparently unaccountable failures. The interests of promoters of steel and of their customers are not well served by any attempt to pass by these failures in silence, and it is certainly a poor arrangement on the part of the friends of steel to urge that iron is worse. What is wanted is a full and clear statement of facts, so that it may become possible to fix with certainty the dangers to be avoided and settle upon the best treatment to be adopted. Whether and under what circumstances open hearth or Bessemer steel is permissible or preferable, is also a matter which will come up for early decision. As yet there is—justly—an inclination to adhere to the milder qualities of metal turned out by the open hearth process, and as we have had occasion to state, the result has been very favorable to it in this country. It has been urged that the favor which steel has been gaining in England is due, to a large extent, to the liberality of the rich steel making firms in the matter of credit, and the promptness with which they are willing to replace defective plates by new ones. As a business measure, in introducing an unknown material, such a course is evidently a wise and prudent one, but we doubt whether an attempt to keep occasional failures as quiet as possible, by taking back rejected plates, is still the correct one. Boiler makers have sufficient confidence in the new material, and consumers will not now be frightened off by a free discussion of the matters relating to its use. Little can be gained and much lost by undue reticence, and we hope that in the next few years the questions relating to the treatment of steel boiler plates will be freely and fully entered into. The failure of the *Livadia* boiler is a case in point. All that can now be said can only be general in character, until specific and detailed facts are forthcoming to form a sound basis for argument.

HALIFAX SHIPPING.

A Halifax despatch says:—Of the vessels registered at this port, the following have been struck off during the past year: twenty-one of three thousand six hundred and eleven tons, that have been wrecked, foundered, destroyed by fire, or are missing; four of two hundred and seventy-one tons, that have been broken up or otherwise destroyed as unseaworthy; four of five hundred and twenty-nine tons, that have been sold to foreigners, and twenty of nineteen hundred and thirty-three tons that have been transferred and registered elsewhere in the port and transferred to other ports. Fifteen new vessels of ten hundred and thirty tons have been registered at the port during the year, and twenty-five of two thousand four hundred and twenty-five tons registered elsewhere on account of purchase, transferred from other ports, or otherwise. Three vessels measuring three hundred and thirty-one tons were added to the registry of the port of Liverpool within the year, nine registering fifteen hundred and forty-five tons were lost, and seven of three hundred and sixty tons transferred to other ports.

CONTRASTED PRICES OF GRAIN AND PRODUCTIONS.

The following table shows the highest and lowest prices of the undermentioned articles during the past 21 years:—

Wheat, highest in May, 1867	52 1/2
Wheat, lowest in July, 1879	50
Corn, highest in November, 1864	1 1/2
Corn, lowest in October, 1861	1 1/4
Oats, highest in June, 1867	25
Oats, lowest in June, 1861	24
Rye, highest in April, 1868	1 1/2
Rye, lowest in August, 1868	1 1/4
Barley, highest in March, 1864	4 1/2
Barley, lowest in November, 1861	4 1/4
Potatoes, highest in July and October, 1864	45
Potatoes, lowest in December, 1873	35
Lard, highest in September, 1875	50
Lard, lowest in December, 1878	35