

remedies for external injury and pain. Water may be applied externally, but should not be taken internally.

Another objection to the use of carbolic acid in the concentrated form is that it is apt to be wasted, for many persons are ignorant of or incredulous as to its powerfully destructive effects on animal life, and are sometimes so forgetful of principles of economy in this matter as to use carbolic acid in an undiluted form, and in quantities far in excess of what is required.

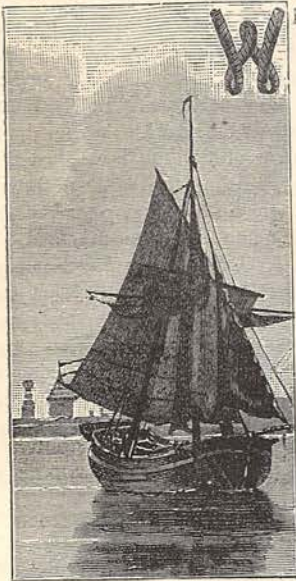
To prevent waste, the acid is used to form the basis of what are known as "carbolic disinfecting powders," which consist simply of chalk, or some other cheap substance, in a finely divided state, to which from ten to twenty per cent. of carbolic acid has been added, and sometimes from five to twenty per cent. of the bisulphites of lime and magnesia, together with some colouring matter, to give a pleasing effect to the eye.

Powders are an expensive form of disinfecting by carbolic acid; and a considerable saving might be effected by persons who use it largely if the mixing were done by themselves instead of by the manufacturers, and the same tins used over again, while the article so made would have many advantages. It could, in the first place, be made as strong as the necessities of any particular occasion might require, and in the next place, the pure acid may be used for house disinfection, and so lessen the disagreeableness of the smell, while the commoner kinds may be em-

ployed for yards, stables, fowl-houses, &c. The method of making powders is very simple. About four ounces of the acid, by weight or measure, should be added to one pound of precipitated chalk, or fine sand, or mould, or any other harmless substance in a finely subdivided state, and thoroughly mixed in a large bowl. This powder will be suitable for all ordinary purposes, and will be far superior to many of the disinfecting powders sold at twice the cost.

Why, it may be asked, cannot our chemists discover some pleasant and non-poisonous disinfectant? Why are we under the necessity of substituting an intolerable smell for a bad one? The answer is that nothing but poisonous substances can be good general disinfectants, as the dangerous matter which it is the aim of disinfectants to destroy is chiefly organic, of which too, though of course in a far higher degree, the vital parts of the human being consist. Of disinfectants, charcoal is perhaps the least objectionable; it is neither dangerous nor mal-odorous; but though extremely valuable as a deodorant, its usefulness as a disinfectant is very limited. A disinfectant must be capable of destroying the lower forms of organic life, some of which constitute disease; and the province of the chemist is to find out that substance which is most destructive to these lower organisms, and least dangerous and objectionable to man. Carbolic acid best answers these requirements, and on this account has recently come into extensive use.

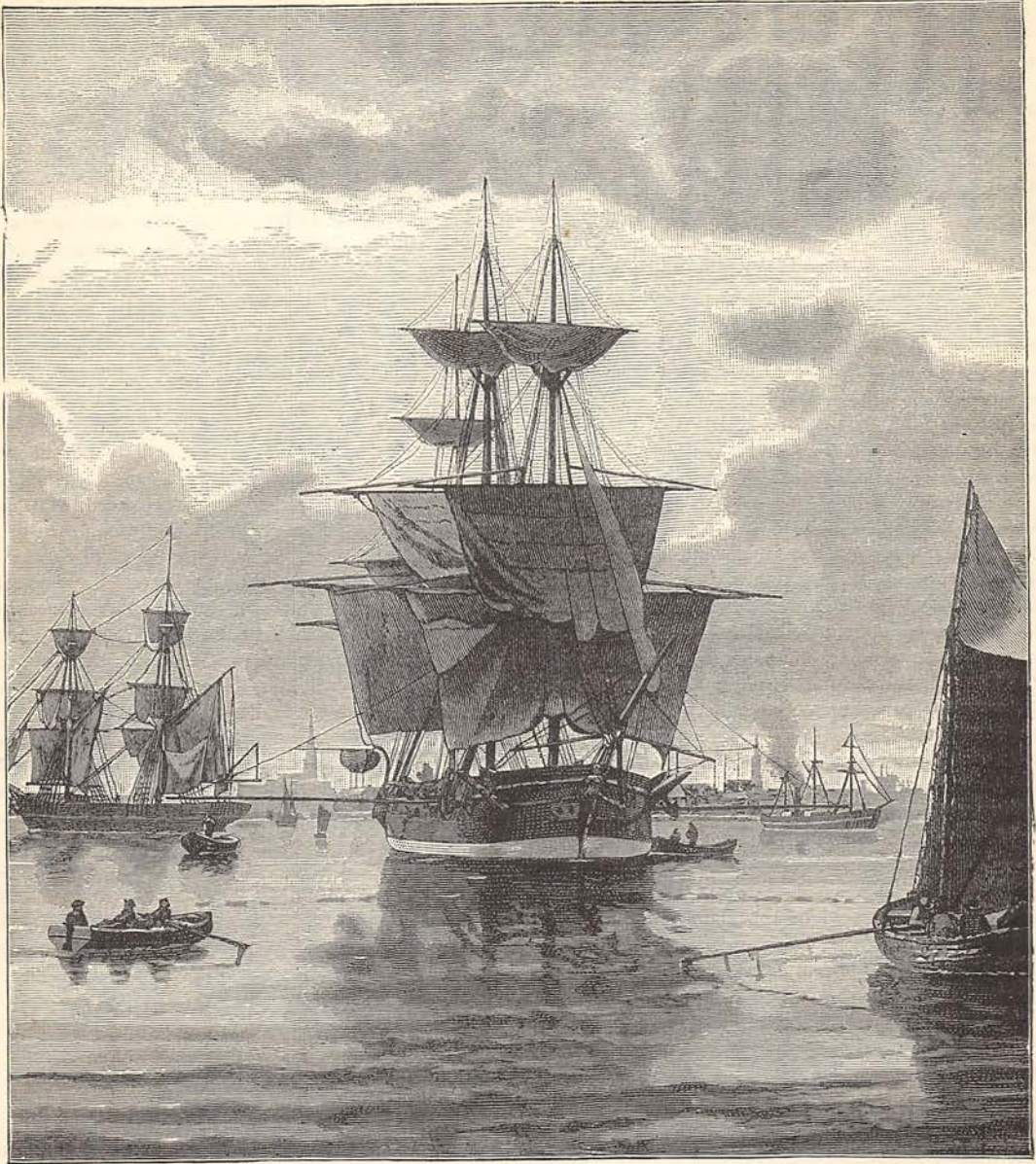
## OUR SAILORS AND SHIPS.



lars of the numbers of ships and sailors. Recently some of these particulars have been presented to Parliament in very elaborate tables, and some of the

WITHOUT venturing to decide where doctors disagree, let us look if possible to some of the indications of changes that have of late taken place in our ships and our sailors. It may be premised that during the past few years Government has supervised sailors as it has no other class, defining where they shall be engaged, the space they shall have to live and sleep in, the food they shall eat, how and when they shall be paid, and other particulars; and from the knowledge thus obtained, we gather authentic particu-

figures may be given. The merchant navy of the United Kingdom was in the year 1850 composed of vessels the tonnage of which was 3,504,944, and only 167,000 tons of that was "steam tonnage." Since that time the proportionate number of sailing vessels has been dying off, and the steam tonnage has been growing, and last year we had a merchant navy including 7,196,401 tons, of which more than half—or 3,725,229 tons—was that of steamships. For years we have been building from 200,000 tons of vessels up to 900,000 tons annually, and increasingly these have been of iron, until wood as a material for vessels is almost extinct. But we have not added to the number of the sailors in the same ratio in the same time, for a reason that will be shortly stated. In all in 1851 there were 141,937 seamen employed (captains or masters being excluded), and out of that number only 5,793 were foreigners. In the last year, 1883, 200,727 seamen were serving, and the number of foreigners was 28,313—or, in other words, rather over *four* per cent. of the seamen employed were foreigners in 1851, and over *sixteen* per cent. were foreigners last year. The cause just referred to, as that which has prevented the number of seamen increasing concurrently with the increase of tonnage, is that thirty years ago the sailing vessels em-



ployed 4·97 men to every hundred tons of ships on the average ; but the steamships have in many cases made machinery do the work of men, and in consequence there are employed on the average of the sailing ships and steamships only 2·86 seamen for every hundred tons. And whatever may be the other causes of the growth of the employment of foreigners in our British ships, an important one is that of the lessened number of apprentices. In the year 1850 there were 5,055 apprentices enrolled; last year the number had dwindled to 2,524—one-half, that is—and the number of indentures of apprenticeship in existence had been falling for years. This falling off is singular when it is

known that the official returns show that the wages of seamen and firemen and the salaries of engineers have, generally speaking, increased in the three last decades.

One other fact should be borne in mind—not only has the steamship grown in tonnage, and the sailing vessel declined, but the change represents an increased *capacity*—the steamship being able to do, ton for ton, about three times the work done by the sailing vessel. It is largely to the determination of our merchant navy to steam that we have been able to do more of the work in ocean carriage to and from our ports and the ports of the world. In the year 1860, of vessels entering and leaving our own ports, 13–24ths

were British ; in 1883 that proportion was increased to 47-64ths ; whilst a still greater proportional growth had been known in our vessels that brought and carried cargoes only. And the general remark may be made, without the citation of figures in support, that our vessels now do a larger proportion than ever of the trade of other nations, especially of the United States.

Of our sailors it must be said at first that they have gained in thrift in these decades. The amount received by the Board of Trade in the Seamen's Savings Banks established in 1856 is more than five-fold what it was in the first complete year, and the money orders sent by them are much more numerous and for larger amounts than a few years ago. And though the vice of drunkenness is far too common, the morals of the merchant seamen have improved greatly in the past three decades—so greatly that the seaman is changed in disposition as completely as in appearance, and in nature of work, from that of the type pictured by Marryatt and Cooper as the Tar of past generations.

But it cannot be said that the seamanship or the physique of the seamen has improved in that period. There were, in the past, training schools of service ; there are many who remember how the coal trade, for instance, trained up sturdy sailors—not skilled in the learning of the schools, but especially taught by experience in all the duty of a sailor. And there were many such trades. But the introduction of steam has lessened the need for part of that knowledge. For instance, there are in every steamship certain workers whose duty is that of attention to engines and fires, who *need* not be practical sailors, whatever the desirability of that knowledge. The steamship moreover lessens the distance between ports, and so lessens the length of the experience of storms and of dangers that called out the skill of the sailor, and thus the skill in some has rusted by disuse. And the disuse to some extent of apprenticeship has lessened the

number of the able seamen brought up to the profession here ; whilst the dependence at times on a "scratch crew" has drawn into the trade some unskilled and not always most orderly men. Yet, on the whole, as complete as the difference between the first steamship that crossed the Atlantic in nineteen days and the floating palaces that now course across in less than seven, is that between the "sailor" of today and his ancestor.

To secure the safety of our ships and sailors the nation has, in the language of the Board of Trade, "poured out like water" both knowledge and money ; in the last dozen years the sum spent on the surveying of ships has been multiplied fourfold, but the result has not been what the authors of the legislation would have desired. Yearly from 1,200 to 1,300 British vessels are lost—the majority sailing vessels ; and though there has been much discussion as to the exact figures of the loss of life, it may be said that the loss of life at sea in British vessels (including fishing vessels) has in recent years varied from 2,000 to 3,000 yearly. That terrible toll of men taken by the sea must in fairness be said to be chiefly from the sailing ships that are growing older yearly ; and it may be believed that it includes some whose lives might be saved with lessened speed in fogs, better lights, and other appliances. Whether the law needs alteration, and whether there is responsibility, and where, for the loss of life, need not be here discussed, as it is a strongly controverted question. But that there is need for greater care at sea, that there is need for crews shipped more soberly, and of officers who will rise to the occasion with practical knowledge in times of danger, as well as of greater vigilance on shore to secure the detention of vessels overladen or dangerous—these things cannot be doubted, any more than the fact that there are times as of old, when "sailing was now dangerous," and when it is well if the crew, like Paul's, can escape "all safe to land."

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#### A YEAR AGO.



YEAR ago, my darling, we wandered hand-  
in-hand

Down Moira Vale, as sunset cast its splen-  
dour o'er the land ;

The world was bright before us, green leaves and  
tender flowers,

Young summer breathing warmth and love through all  
her pleasant bowers,

And oh, our hearts so rarely beat, and oh, 'twas sweet  
to be,

For I was all to you, *ma belle*, and you were all to me.

A year ago, my darling !—it seems a weary while,  
And Moira Vale is gloomy now, and fading summer's  
smile ;

The green leaves wither on the boughs, the tender  
flowers are blown ;

And passed for ever from the world the glory it has  
known.

And oh, my heart is sad to think that time no more  
may be

When I was all to you, *ma belle*, and you were all to me !

A year ago, my darling ! and where is now your troth ?  
The vows that bound not me alone ?—the love that  
linked us both ?

Tush ! what were vows or feelings to stay the light  
coquette ?

Enough that you no more recall what I can ne'er  
forget !

But oh, my heart is sad to think *that* time could cease  
to be,

When I was all to you, *ma belle*, and you were all to  
me !

J. H. D.