

exercises, but beware of catching cold; always change a damp under-garment before sitting down to dinner, and, previously to re-dressing, it will be found most refreshing to rub the body with a cold wet sponge, then to dry with a rough towel. Never eat when fatigued. Dine early, live plainly, taking nothing that is in the least likely to disagree with you.

Take a last good walk about an hour before retiring for the night.

Look upon narcotics in any shape as poison.

And now a word or two about the bed-room itself. The room should be large, most cleanly and free from dust, with a proper system of ventilation by door and windows.

The temperature should be as equable all through the night and through the year as possible—from 50° to 60° according to age; the old and very young requiring more warmth than the young and middle-aged.

As to beds, the best sleep I think is obtained on a wire mattress over which is placed a bed of horse-hair, several inches deep. On the top of this may be spread two or three blankets, then the sheet. It will thus be even and smooth.

There is no doubt that many people will find it far better for their permanent health to sleep altogether in wool, especially those who are of a rheumatic or gouty diathesis, or subject to colds and coughs.

The night-shirt should in these cases be wool, light wool bed-socks should be worn, and the sheets should also be of wool. Not so the pillows, however, because

I advise the head to be kept cool during sleep, and would not counsel the wearing even of night-caps, far less the drinking of them.

No more bed-clothes should be worn than suffice to keep up the temperature of comfort.

The pillows should be large and springy and not too yielding. They ought to be covered with the softest and finest of linen.

Curtains right round the bed are objectionable, for the air one breathes at night cannot be too pure.

The bed should be raised about two feet from the floor. We must not forget that carbonic acid which we expire, if not carried away by a judicious system of ventilation, lies low, being heavier than air.

The system adopted by some of reading in bed has been, I think, too universally condemned. If perusing the pages of a magazine, or newspaper, for a short time before putting the light out (due care being taken to keep the light in a safe place), serves to calm the mind and brain and prevent the thoughts from recurring to the scenes of the day that has passed, or being troubled by the probable events of the coming morrow, I maintain that it can be productive only of good.

In conclusion let me warn all brain-workers who are troubled with wakefulness to see to their condition without delay. To remain in health is a duty one owes not only to himself, but to his friends and relations; and want of sufficient sleep is more productive of bodily trouble than insufficient food, or meals taken at irregular hours.

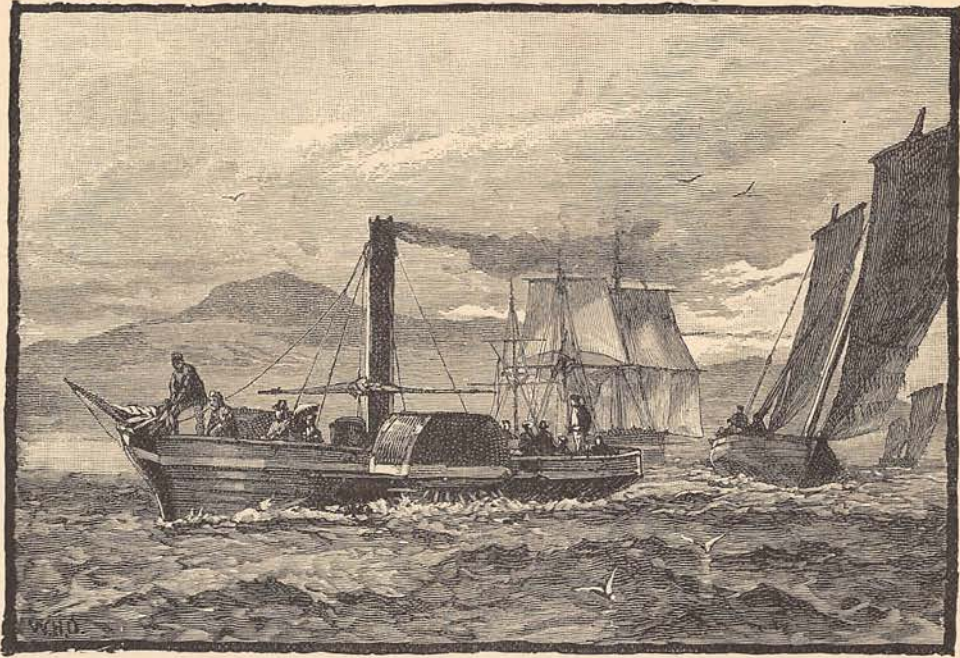
THE BUILDING OF THE SHIPS.



IF we go "over the border and away," like the fair Ellen did, of whom Lady Heron sung in Holy Rood, there is between the land of Burns and that of the lochs, the great city of Glasgow, which began a prosperous career with tobacco and sugar, and has increased it with ships. The industrial history of Glasgow is a varied and honourable one: the names of Watt, of Bell, of Neilson, and Tennant come readily to the mind—of Watt, whose discoveries made quick travel possible; of Bell, whose monument at Dungleigh is a reminder of the little vessel which "was the first steamer;" of Neilson, whose hot blast experiments in Glasgow changed the fortunes of the British iron trade; and of Charles Tennant, whose bleaching powder discovery made him fame and fortune, and gave a new future to the chemical trade. By road, river, and rail, almost incomparable facilities are afforded for the traveller to and from the Clyde; and thus it is that many imitate the old song, and "go to Kelvin-grove."

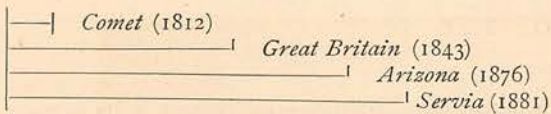
The four chief commercial rivers of Britain have

different characteristics—the Thames in its aggregation of trade and traffic from all parts of the world; the Mersey in its great American passenger traffic; the Tyne in its coal trade; and the Clyde in its shipbuilding. There are other characteristics of each, but to the stranger those named are the most apparent. The Clyde, as a commercial river, is the outgrowth of this century, for in that time the revenue of the Clyde Trustees has risen from £3,000 to close upon £300,000 yearly. The river has given birth to great lines of steamers; it is the point of departure for gigantic vessels—those for goods, passengers, emigrants are well known. Around Glasgow are coal and iron, and the application of these, and the outgrowth of great shipbuilding industries, have of late years given to the Clyde the first place amongst the ports where the "building of the ships" is carried on. On the Clyde, in 1812, Bell launched his *Comet*, and gathering greatness has since, in naval construction, distinguished the river. But the vessels now built are far other than those of seventy years ago, and before we go farther it may be well to indicate to the eye the change in the ships of to-day and the past.



THE "COMET" (1812).

An interesting work on Modern Shipbuilding, by Mr. David Pollock, of Glasgow, contains diagrams drawn to scale, showing the dimensions of steamships, and we may indicate the *length* by lines thus:—



Concurrently with the increase in length there has been an enlargement of the breadth and of other dimensions; and within the past five years as remarkable a change in the material of the vessel has taken place—from iron to steel. Passing on to the volume of the work done on the Clyde, it may be remarked that, with occasional fluctuations, the last twenty years have been years of progress, for whilst in 1863 the tonnage launched on the river was 123,000 tons, it had risen in 1883, when the maximum was attained, to 419,000 tons. Most of the visitors to Glasgow take in one form or another the popular trip called "Doon the Watter," and those who do may see the yards of the great shipbuilding firms of Glasgow—that of John Elder and Co., at Fairfield, whence the *Alaska*, the *Arizona*, the *Austral*, the *Umbria*, and the *Etruria* have been launched; the yards of Robert Napier and Sons, of J. and G. Thompson (builders of the *America*, the *Aurania*, and the *Servia*); and that at Dumbarton, of Messrs. William Denny and Bros. (builders of the *Arawa* and *Tainui*).

And here it may be interesting to notice that the competition between the great Clyde builders has led to a development of the industry, to a perfection of the establishments, and to the introduction of improvements, such as could not have been dreamt of a few years ago. To give some idea of the extent, it may be said that the yard of Messrs. Elder occupies seventy acres of land and of dock area; that of Messrs. Thompson, thirty-five acres; and that of Messrs. Denny, nearly fifty acres! And whilst in the past the Clyde was dependent upon other districts for part of the material employed in the building of the vessels, it now produces the whole of the steel needed, it erects the ships, builds the engines, casts the anchors, and may be said, with slight exceptions, to fabricate all that is needed in the building of the ship. Largely to it and to its men is due the change from iron to steel in shipbuilding, the use of "triple expansion" and even "quadruple expansion" engines, and a mass of improvements which, in the main, have contributed to the raising of the speed on trans-Atlantic voyages from seven or eight knots per hour to eighteen and a half knots per hour! By this the Atlantic is bridged almost, and the two great nations are literally brought within a week's distance of each other. Of late the Clyde has begun to build war-vessels, and the *Scout* and others have acquired a high repute, but it is probable that the reputation of the river will be kept up more by such floating palaces—if the expression is applicable with such rapidity of movement—as the *Alaska*, the *Etruria*, and the *Columbia*. On the rivers and lakes, across the Irish Channel, over the

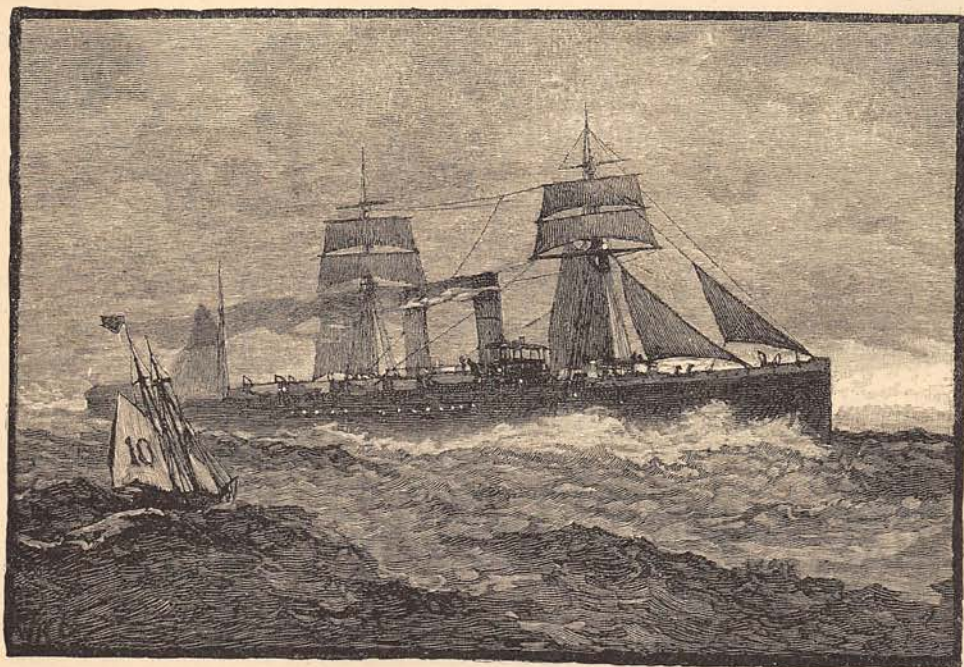
Atlantic, and to the far Orient, these greyhounds from the Clyde are coursing, bearing on business and pleasure the mails, the peoples, and the goods of the world.

We may now descend to the particular from this generalisation, and may glance at two of the yards of the Clyde. Here is that of Clydebank, the extent of which we have stated. There are in it eight launching or building berths, a "basin" for fitting vessels, shops, foundries, engine works, sheds and stores. Railways pierce the yard, electricity lights it, and hydraulic power has displaced steam for many purposes. At the tidal dock, shear legs to lift 120 tons are placed; in the engine rooms, weighing machines capable of weighing up to 100 tons are found; and a large portion of the rivetting work in the yard is done by hydraulic power. The arrangements of this magnificent establishment have been pronounced perfect by many judges; and even the inexperienced will be able to appreciate the results when it is stated that the vessels launched from it have been valued at more than £8,000,000; that from it the *Scout* was launched, and that in it six more unarmoured cruisers of the *Archer* type are being constructed now. This *Scout* is the first of the vessels built at Clydebank for the Government, and the placing there of the order for six more vessels is an indication of Governmental approval.

Down the Clyde a few miles, under the shadow of Dumbarton Rock, is the yard of Messrs. W. Denny and Bros. For forty years the firm has been a shipbuilding firm of extending fame; and for no small part of the time it has occupied a place which is unique in the annals of shipbuilding for the com-

pleteness of its scientific arrangements, for the precision of its work, and for its attention to the comfort and the elevation of its workpeople. It is impossible in moderate space to describe this notable yard; the eye finds curiosities from the entry to leaving—from the notice board, on which printed reports of "Conferences" between the partners and the workmen, as to trade matters, are ranged, with notices and awards of prizes given by the firm to workmen for approved inventions, to the experimental tank designed for speed experiments with ships' models, which is believed to be the only one privately owned in this country. Long lines of portable railway traverse the yard to the extent of about seven miles. Electric lights pervade the place; the telephone is extensively used; and it is a noteworthy feature of the yard that, in the draughting offices, a portion of the work is done by young ladies. As we have said, the firm has had honourable repute for its attempt to foster the use of steel instead of iron as the material for vessels; and increasingly it has used that material. Finally, all the vessels it has recently built have been constructed of that "mild steel," which is increasingly preferred.

Over the shipbuilding industry of the Clyde, as of other ports, dulness settled in the year 1884, and it has not been removed. There were in the year named considerable contracts for large vessels for the great lines, and when these were worked off the numbers of workmen employed became much fewer than for the previous six years. That depression shows itself to the observer on the passage "doon the watter," for some of the yards are bare of work, and others have less



THE "SERVIA" (1881).

than they have had for a long period; whilst in one or two instances Governmental orders make up the deficiency. But the Clyde has the advantage of many ports in the fact that it builds vessels from the yacht, and the dredger, and barge, to the largest and most magnificent "liner" or to the man-o'-war. And hence the period of prostration will not be very long—the experience of the past being a declension for a few years, and then a longer period of prosperity. And those who know the importance of the industry to the Clyde, first directly as an employer of labour, then indirectly in stimulating the iron and steel trades, and who recognise the importance nationally of our mercantile navy being kept efficient in point of speed, of strength, and of comfort, and who feel that it is desirable that the ocean-divided nations should be brought near, will desire the revival of the great industry to the Clyde. There is less of the picturesque about the ship-yard than there was

when it was of the kind that Whittier has sung of, when the "ship's white timbers" showed "spectral in the river-mist," and when her ribs were of oak, and her white sails gave power, but still the craving of the poet for her that "helps to bind the silken chain of commerce round the world" remains. Year by year adds its improvements to the ships, to the engines, to the boilers, and to the equipments, with the tendency of increased speed, and lessened consumption of fuel, with the ultimate aim of cheaper ocean transit. It is very difficult to predict the speed of the future; but to the goal that may be reached the Clyde will send many competitors; and those who pass down the waters of the stream, and hear the clang of the rivetters, and see the great iron walls of our merchant navy springing up on the margin of the waters, will long that they may be staunch and strong, and conduce to the comfort of those at home and the safety of those who "go down to the sea in ships."

J. W. S.

SYBIL'S SECOND COUSINS, AND WHAT THEY DID FOR HER.

A STORY IN TWO CHAPTERS. BY THE AUTHOR OF "A WILFUL YOUNG WOMAN," "WHO IS SYLVIA?"
"A RUSTIC MAID," ETC. ETC.

CHAPTER THE FIRST.



IN a pretty room sat, one May afternoon, a girl as fresh and spring-like as the day itself.

Music unheeded, one rounded arm rested on the piano, harmonies enough evolved from her own thoughts, judging by the song-notes that broke from her smiling lips as she turned the pictured pages of a journal on her knee.

But little enough attention she gave to these. Now and again with a quick breath of impatience she watched the door, and when it opened admitting a lady double her own age, graciously beautiful as she herself was winsomely fair, up sprang our maiden, and welcomed the house-mistress with an impetuous hug, and—

"Ah, cousin, what a while you have been! No"—interpreting a glance piano-wards—"I could *not* practise, because I can think of nothing sensible till you have heard the news."

"In your own interests, then, tell quickly," said Cousin Mary, keeping her girl-friend's hand in her own as both sat down. "Now begin."

"Well, you know whom I mean by Mrs. Stafford?"

"Yes, your mother's cousin, your other nearest relative."

"Who," with the suspicion of a curl about the corners of her lips, "forgot all about me for years,

while you"—stealing two arms about Mary Rimmington's waist—"were teaching and taking all the trouble of me. Now she writes that she has breathing-time in a busy life to remember the coming generation, meaning me! Dr. Stafford has a practice in London. They live in some fine square. She wants me to go and stay two whole months, and can you imagine anything more dreadful?"

"Indeed, Sybil, I can. You will have to go."

"Mary!" in protesting astonishment.

"But why not?"

"Because I should want dresses, hats, boots, and quantities of things. Now, ought pounds to be spent on me when papa has to teach the boys because we have not enough to send them to school? Mistress Mary, you can't say 'Yes.'"

"I must, though, if your mother does."

"Oh, but," coaxingly, "you know if any one goes out it should be mother. Do persuade her to let me stop at home."

"Why, no; it would be more pleasure to her to know you were having a holiday, child."

Alas! Sybil's persuasive smiles began to flicker. The forecast of a shower came over her beseeching eyes. She laid her head on her friend's shoulder with a pathetic—

"But I don't *wish* to go!"

That was her weightiest argument, but Mary Rimmington steeled herself to common sense, and compounded with her favourite.

"We will talk to your mother then, and if we are to have no music we had best go directly."

"Very well," ruefully, "but you will remember I