



Ventilator over Cabin door in the *Puritan*.

INLAND NAVIGATION OF THE UNITED STATES.

HERE appeared a few years ago in one of the illustrated papers three curious pictures. The first represented fifty men carrying a large block of stone. The men were arranged in four files and each file carried on their shoulders a stout pole. By means of other poles and ropes the block of stone was suspended in the middle of the group of men, and with terrible strain and labor they were staggering along with their tremendous load. The picture showed how unaided brute force could be used in transporting a weight—or, as we might say to-day, in moving freight.

The second picture represented the same block of stone placed in a rude cart and drawn by a pair of oxen with great difficulty over a very soft and sandy road. The third picture represented the same block placed on a hand-car and easily pushed along a track by one man.

The first picture was an illustration of simple animal power used in the most wasteful and expensive manner. In the second picture the principles of mechanics were applied in a rude way to assist the oxen. The oxen could not carry the stone or even lift it from the ground; but when attached to the cart they were able to haul it a much greater distance than the fifty men. In the third picture the mechanical advantage was used to the utmost by employing a better vehicle and placing it on a smooth, hard track. So great was the gain that one man could do the work of fifty without such mechanical aid or the work of a pair of oxen aided by a cart.

The three pictures were instructive, but the series was clearly incomplete. There should have been a picture representing five blocks of stone, of the same size as the one shown, placed in a boat and easily drawn or poled along a shallow river or canal by one man. The friction would here be so much reduced that one man walking on the bank of the canal could by means of a tow-line do the work of five times fifty men. The four pictures would then tell far more than the first three, and together they would make a graphic statement of some of

the factors of one of the most important commercial questions of the day.

The four pictures could be arranged in another way, and might then serve to show the evolution of the business of moving freight and passengers. No doubt the most primitive method of moving either people or things was to pick them up and carry them. The first passenger was an infant in its mother's arms. The chief of a tribe in prehistoric woods may have envied the babies, and compelled two of his followers to lock arms and carry him over a stream or rough place in the trail. Processions of slaves were the first lines of through freight.

If placed in their historical order the suggested picture of the boat would stand second, for the floating log, the raft, the dug-out, and the canoe probably antedated by hundreds, perhaps thousands, of years any form of wheeled vehicle. The third picture would be the ox-cart, and the last picture would be the hand-car, for this idea of an improved car and a smooth track is essentially modern.

It may be suggested that such a series of pictures, to be fair, should contain a fifth, representing a locomotive dragging fifty blocks of stone along a track and only employing a crew of six men. Such a picture would be suggestive, but could be offset by an equally pertinent picture representing two horses drawing a canal-boat containing a freight equal to the entire load of an ordinary freight train and guided by a crew of one man and a boy—in one case an expenditure of two horse-power and in the other a steam-power equal to, say, one hundred horses.

The instincts of men led them to the water because it meant a road, and this meant contact with others, the gaining of knowledge, and the beginning of trade and civilization. Even to-day the great cities are by the waterways, because they are the oldest and cheapest roads. The great cities of the future will be just what they are now—great ports.

Edward Eggleston, writing upon the commerce of the colonies (see *THE CENTURY* for June, 1884), gives a graphic picture of the great water traffic that grew up between the settle-

ments in Massachusetts and Connecticut, the Dutch towns along the Hudson, the settlements on the Delaware, and the scattered plantations on the Chesapeake, the Virginia rivers, and the sounds and inlets of the Carolinas and Georgia. With the exception of a small district about Philadelphia and another in Georgia there were no good roads in all the colonies. In the province of New York there were only twelve miles of land carriage. Villages, and even churches and court-houses, in Maryland and Virginia were always placed on the shore, for it was only by boat that the people could go to meeting or attend court. The traffic that grew up between the colonies was almost wholly by water, and the great wagon roads that finally stretched westward from Philadelphia aimed only to touch the Ohio. It was down this river that the first emigrants set out for the West. One hundred and one years ago Marietta, Ohio, became the port of departure for the entire North-west. Settlements beyond Buffalo in like manner followed the shores of the great lakes. The freight and passenger traffic between Canada and New York was by way of the Hudson, Lake George, and Lake Champlain, and it was to maintain this highway that one of the great battles of the Revolution was fought.

At the time of Washington's inauguration the President-elect traveled by horse to Elizabethport, New Jersey, and then selected a better route by taking a boat through the Kill von Kull to New York; and the messenger sent by Congress to Boston to inform Adams of his election to the vice-presidency took ship on the East River "with a fair wind for the Sound." Still later the early railroads were designed to be feeders for water routes, and to get to Philadelphia from New York you first took boat to Perth Amboy and then passed by rail along the old post route to Camden. To reach New York from Boston you took rail for Providence to meet a boat on the Sound. Until the railroad came we had no good country roads except in Pennsylvania, because both passengers and freight went by water. To this day the good people of the old State of Ohio complain that they have poor roads, forgetting that the Ohio and the lakes were their great roads until the railways invaded the interior of the State and created a demand for country roads.

From the very first the colonies began to build boats for their waterways, and in time an immense fleet of vessels of all kinds covered our coast, sounds, and rivers. The canoes were the first passenger boats, and from them sprung the flatboats that were poled along the rivers, the Dutch pirogues, the catamaran canoes, the sloops and schooners, and the passenger

canal-boats that made the limited trains on the early Erie. If the colonists rapidly grew rich, it was not alone because of the wealth of fish and lumber they found here, but also because of the wonderful facilities for water traffic they found waiting the enterprising prows of their ships.

Then came Fulton's first voyage on the Hudson. The times were ripe when he launched the *Clermont*. We had skillful and inventive mechanics, the finest boat-builders, and the best wood and iron in the world. Better than all, our mechanics and ship-builders had scant respect for precedent or the traditions of their trades. Fulton had struck the key-note—steam-power afloat. At once appeared an entirely novel system of moving freight and passengers, and by a rapid evolution the modern American steamboat appeared and became, like the American locomotive, a model, and one on which nearly all vessels of its class are built throughout the world. Before Fulton's first voyage the Ohio was only available for flat-boats drifting with the current. The *Clermont* practically created the Mississippi States and opened the West to the immigrant. Naturally enough the first steamboats after the *Clermont* plied on the Hudson, on the Sound, and on the Delaware and the Chesapeake. The steamer *Orleans* was the first boat built for the Western rivers, and was launched at Pittsburg, October 11, 1811. In August, 1818, the first steam vessel was launched on the lakes.

The people seem to have grasped Fulton's idea quickly, for his boat was immediately followed by others. In 1812 we built four steamboats, the next year seven, in 1814 two, in 1815 five, and in the next year seven. In the first ten years we built 131 steam vessels, and by 1832, twenty years after the first boat, we had built 474 steam craft, one hundred being launched that year. In the next three years the building of steamers fell off slightly; then it started up again, 145 being built in 1836 and 158 in 1837. Business depressions appear to have checked building again, and fewer were built each year till 1846, when 225 steam vessels were launched. Through the early fifties, before the railroads interfered with the river traffic of the West, the business increased wonderfully, and we find that in 1853 and 1854 more than 280 steamers were launched each year. The unsettled times before the war again reduced the number; but in 1863 and 1864 great numbers of boats were built, no fewer than 520 steam vessels of all kinds being launched in 1864. After the war the number built each year rapidly decreased for a few years and then slowly increased to 1874, when 404 boats were built. In 1882 we built 502, and since that time the number built has once

more rapidly decreased to 1886. Since that year the business has revived, and it is now active on the coasts and lakes and slowly increasing on the rivers. In all, since we began to build, we have launched, up to 1886, 14,214 steam vessels of all kinds, including naval vessels and a great number of small river steamers exported to South America and other places.

Taking the report of the Bureau of Navigation for the year ending June 30, 1886, we find that 230 steamers with a gross tonnage of 37,080 tons were built that year, distributed through the four great districts as follows: Atlantic and gulf coasts, 95; Pacific coast, 18; Northern lakes, 47; and Western rivers, 70. The chief States interested in building these vessels were Maine and Massachusetts, 6 each; Connecticut, 9; New York, 41; Pennsylvania, 29; Ohio and Michigan, 14 each; Tennessee, 12; Kentucky, 13; West Virginia and Florida, 8 each; Oregon, 9; California, 5, and other States a less number each. Dividing these vessels according to their motive power into three classes, we find that 17 were side-wheel boats, 80 were stern-wheel boats, and 133 were propellers. On the Atlantic and gulf waters, 7 were side-wheel boats, 11 were stern-wheelers (probably for Southern waters), and 77 were propellers. On the Pacific, 8 were propellers and 10 had stern-wheels. On the lakes the majority were propellers, there being 44 of these and only one stern-wheel and 2 side-wheel boats. On the Western rivers there were 8 side-wheel boats, 58 stern-wheelers, and only 4 propellers.

In that year there were 5,467 steamers in use on our coasts, rivers, and lakes, distributed as follows: Atlantic and gulf coasts, 2662; Pacific coast, 425; Northern lakes, 1280; Western rivers, 1105; aggregating over 1,522,983 tons burden. Though there have been many wrecks on all our waters in the past two years, there is to-day probably a somewhat greater number of steamers in commission, this being notably the case on the lakes. When does this great fleet sail, for what ports does it steer, and where can we travel by these five thousand boats?

It is well now and then to take account of stock of our heritage. It is estimated that we have over twenty thousand miles of navigable waters traversed for the whole or for a part of each year by regular lines of steamboats and steamships. We have several great routes on which one can travel for a week without changing his stateroom. There are hundreds of towns where the only means of communication is by water, and probably a million of our people receive their mail by steamboat. It is difficult to make a mental picture of the enormous extent of our available waterways. Were they

improved and made useful to their full capacity in all seasons they would probably far exceed in value our entire railroad system.

Get out your atlas and trace the magnificent lines on which our heritage is planned. It will repay the study if it leads to a right understanding of the splendid opportunities we have for pleasure travel in every climate, in all waters, through all variations of scenery, and in hundreds of boats all flying our flag. No man can fairly be said to know this country until he has seen it from the deck of a Sound or coastwise steamer or from the guards of a Western river boat; until he has looked over the waters of the great Northern lakes, steamed through the Golden Gate, or gazed from his stateroom window upon Alaska glaciers.

Travel is called the great educator. How can it teach at forty miles an hour? No man ever learned much from a car window. He may have a vague notion of trees and farms, squalid suburbs, and union depots, and yet know nothing of great States and great cities. You can enter and leave Baltimore or Cincinnati, Buffalo or Cleveland, by rail and see no more of those notable and beautiful cities than the Boston man reported of a Connecticut town. He had been there a hundred times, yet had "seen only the cellar of New Haven." It is quite possible to ride from New York to Albany and by sitting on the right-hand side of the car not see the Hudson. By taking the wrong chair in the drawing-room car a man may skirt the glorious Sound for a hundred miles and not know that it exists. People are advised to "take the picturesque Baltimore and Ohio," and then engage a sleeper on account of cut rates.

It is not all of life "to get there." Wherein does it profit a man to arrive on time, if he loses all sight of his own country? Who is the happier or wiser or morally better to-day by reason of more speed? Let the drummer and the fugitive from justice take the limited train. Flight is their only aim or salvation. The man who travels to see that he may learn, the wiser people among those who travel for pleasure, go by boat. For the Western man there is all the charm and novelty of salt water. For the Eastern man the great rivers offer new and strange voyages of delight. For the Southern man, eager that his boys and girls learn something of their country, there are the great Northern seas where they may breathe new and bracing airs, spend days and nights in voyages past strange headlands and great cities, and see the sun set behind fresh-water horizons.

Where can we go? Which of all our twenty thousand miles of waterways are the most attractive and convenient, and which afford the

greatest variety of scenery and climate? Not all are equally interesting, and it is not difficult to select from 3000 to 6000 miles of pleasure travel that will not require a "portage," or land travel, of over eight hours at any one time. A vacation of a month will be ample time to travel three thousand miles by water and see something of the three great divisions of our water system—the coast, the lakes, and the Western rivers. On such a trip a man, if he is so minded, can really see the country, travel at ease, sleep in comfort, and dine sumptuously. In place of the dreadful roar of the train by night he will be lulled by the musical swash of the waves; in place of the ill-smelling, diphtheritic car he can have the broad deck, the life-giving breath of the sea, fragrant airs from farms along the banks, and the bracing winds of the lakes. Besides all this, there would be at the end of the trip a comforting sense of economy in expense.

First and most attractive on our Eastern coast is the grand gulf of Maine. The cold arctic current that slips in through the Straits of Belle Isle circles round this noble sea between Nova Scotia and Cape Cod, making a great ice-water cup for the cooling of the nation. The breeze is always chill; but it is an arctic wind, instinct with life, and he who can stand before its cold wins red blood and length of days from its salty winds. From Boston steamboats and steamships skirt the rocky shores, creep up the shining rivers, or invade the inlets of wooded Maine. Here lies Mount Desert, and Thatcher's Island lighthouse points the way to summer homes on Appledore. Picturesque old Halifax is 'cross seas due north-east, and Plymouth Bay invites towards the south. For the Western man short voyages out of Boston or Portland might fill a month of most picturesque and delightful travel, with many pleasant stops along the way. For one trip, to include several points, take steamer from Boston direct to Halifax, and then a few hours by rail through Evangeline's land will bring you by boat across the Bay of Fundy to St. John. From St. John a boat can be taken direct to Portland, past Grand Manan, Mount Desert, and along the shores of Maine. From Portland there is a steamer direct to New York, crossing the beautiful Massachusetts Bay, skirting the whole of Cape Cod, and steering west through the Vineyard, past the summer cities of the islands, and on through Long Island Sound to the East River. Such a trip would take about fourteen days, and would touch three of our most picturesque cities and two Canadian towns well worth seeing, and would include a very remarkable change of climate from the cold winds over the misty hills of Bluenose

Land to the soft airs of drowsy Cottage City. Should you venture farther into foreign seas, there is a boat at Halifax for Newfoundland—a trip of a week along strange coasts.

When we come south of Cape Cod we enter a new climate and warmer waters. We leave the arctic current and feel the influence of the Gulf Stream. The climate of the Vineyard and the two bays which make up into Rhode Island and Massachusetts is quite different from that of Boston, and as a result these splendid waters are lined with pleasure cities. Steamboats from Providence traverse the whole of Narragansett Bay, down to Newport and Block Island. Nantucket and Martha's Vineyard both offer short voyages full of interest, and to the west opens the splendid Sound, perhaps the finest yachting ground in the world. Along Long Island Sound lie the oldest water-travel routes in this country, and to-day are traversed by the finest and largest passenger steamboats in the world. Every Englishman who visits this country includes a trip on the Sound boats as one of the things that must be done, however short his stay. There are several boats for Boston and the East from New York every day, the longest and most famous route being the Fall River one. Another interesting route is by the way of Providence, as that includes, in the summer, a trip up Narragansett Bay by daylight.

It is a pity that we are, as a people, in such a hurry. Were we more leisurely in our pleasures there would be a daylight line through the Sound. Some day there may be a canal across Cape Cod, and then we shall have one of the most beautiful short voyages in the world—by day boat from New York direct to Boston. There is now an outside line of fast freight boats between Boston and New York, but only the happy friends of the owners can take this charming trip. If the line were wise it would open its staterooms to the public in the summer months.

Before leaving the Eastern coast it may be noted that there are several short sea voyages in good steamers sailing from Boston. Steamers leave once or twice a week for Philadelphia and Baltimore, and include a fine sail across Massachusetts Bay, a run down the coast to the capes, and pleasant trips up the Delaware or the Chesapeake. A longer voyage is by fine, large steamers from Boston by the way of Cape Cod, through the Vineyard, and past the gaudy banks of Gay Head across seas to Savannah. To those worn out with city life and business cares such short voyages would be worth a dozen doctors.

From the earliest times New York has been the port of departure for packets steering for our Southern ports, and to-day we find

sailing every week the finest steamships in the world. Not so large as European steamers, they are quite as sumptuous, quite as elegant in point of decoration, and far more comfortable, because better ventilated, cleaner, and lighter. These boats offer fine voyages along our coast to Norfolk, Wilmington, Charleston, Savannah, Jacksonville, New Orleans and Galveston. For a touch of foreign shores and voyages over tropic seas there are fine boats for Cuba, Mexico, and Central America. All these tours, both long and short, are worth the taking for a summer trip, and the longer voyages make splendid winter trips that in twenty-four hours out of New York exchange winter weather for spring or summer. The Florida boats connect with small boats on the waters of our great winter pleasure State, and suggest charming inland voyages past orange groves and along the dreamy Indian River.

From New York there are many shorter water trips well worth the taking for those who cannot travel far from home. Through the excursion season there are probably a hundred thousand people afloat every day on the waters about New York. For two millions of our people these are the only voyages they can take, the only chance for a taste of the sweet breath of the sea. It is said that since Coney Island was discovered the infant mortality of New York has materially decreased. It is not the wretched island that has saved the lives of our babies, but the voyage down the bay. Among these shorter trips the steamers to Sound ports offer very charming afternoon excursions; and by taking the boats for Stamford, Bridgeport, or New Haven, and returning by rail, a breath of salt air and a restful afternoon can be gained that is well worth the cost. Of course the ride home by rail is a serious objection, and a better plan is to stay over night at New Haven or return by the night boat. Among other trips is the excursion to Sandy Hook and back, as it includes an afternoon on the bay in one of the finest passenger steamers in the world. It was this water route that made Long Branch, for were we obliged to go by rail there never would have been any Long Branch.

There are people who wonder why it was that New York became our chief city. The answer is plain enough—the Hudson. From Albany to Sandy Hook the river, or arm of the sea, made the first grand highway of the country. It opened the back door to New England, and by easy portages carried our infant trade to Vermont and Canada. It joined the sea to our first great wheatfield in the valley of the Mohawk. To-day the money value of the Hudson is probably twenty times

greater than that of the two railroads on its banks.

Before we leave the coast it may be noticed that the Delaware and the Chesapeake both offer short voyages from Philadelphia and Baltimore. The sounds of the Carolinas will some day be fine pleasure seas. To-day they are practically unknown waters to the tourist. The inland waters farther south will also some day be pleasure routes and share the business that is beginning to flow through Florida waters. It may be noted in passing that a very pleasant sea voyage from New York may be taken by boat to Portland, Maine, and then by boat to Boston, or by steamer and rail direct to Boston, and then by steamer to Baltimore or Philadelphia, and home by rail.

The shortest portage, or run, across the Appalachian backbone to the rivers is from Philadelphia to Pittsburg. There is no intimation of what is to come till you have left the depot at Pittsburg and crossed the town to the bridge opposite the Monongahela House. If you arrive in the evening, go to the bridge as soon as you are settled in your hotel; or, should you choose the Monongahela House, ask for a room on the river side of the house. Draw the curtain and look out. For the Eastern traveler going west for the first time it is perhaps the most remarkable sight in this country. Immediately beneath is the broad, sloping levee, or landing. The wide space of blackness beyond is the river, running swiftly in the darkness and reflecting the glare of miles of furnaces on the opposite shore. Their flames and streaming fires light up the steep wall of rock that seems to blot out half the sky. Those long constellations are the street lights of the town on the top of the mountain. The arched constellation to the left is the great bridge. The blackness of the left is the entrance to this the eastern port of our great river system. Suddenly a white gleam of light sweeps across the immense scene. It is the search-light of some steamer picking out a landing. The deep, discordant boom of her whistle echoes from the rocky hills, and the strange craft starts out vividly in the glare of the electric lights as she pushes her flat nose against the bank.

It is here that the Ohio is born. Here the Monongahela and the Allegheny, both navigable rivers, meet and send their waters westward for a thousand miles till they mingle with the yellow flood that comes down from the Big Muddy. It was here that the founders of States took boat; it was here that the West began; and it is here to-day that an immense trade starts for the great West and the greater South. Fourteen States can be reached by boat from this port. You can sail from this landing in regular passenger steamboats over thirteen thou-

sand miles of river water. We have only to turn to the reports of the Lighthouse Board to see that this is not a mere guess at figures. Here we find that from Pittsburg to the mouth of the Ohio, a measured distance of 968 miles, there are 448 lights serving as aids to navigation. On the Big Kanawha—not by any means a well-lighted river—there are 27 lights on the first 73 miles from its mouth. The Tennessee has 37 lights on the lower 223 miles. The Mississippi, from St. Paul to Cairo, 933 miles, has 364 lights, and from Cairo to the jetties, about 1000 miles, shows 390 lights. The Missouri, from Kansas City to its mouth, has 38 lights for 386 miles. Here is a total of 3582 miles already lighted by 1299 lights. Yet the work of lighting is very recent, as none of the rivers were lighted a few years ago, and the work is still very far from being complete. If we count the unlighted rivers, we find that the Ohio and its branches are estimated by good authorities to give navigable waters for 3275 miles for a part of each year. The Mississippi valley can be reached by steamboats for over 10,000 miles, and, if we include the valley of the Red River of the North, for 500 miles more, making a grand total of nearly 13,800 miles of steam navigation. Even Pittsburg is not by any means the head of navigation, for in good stages of the water steamers ascend the Monongahela for 140 miles and the Allegheny for 110 miles.

The view of Pittsburg by daylight, if not so impressive as by night, is full of curious interest. To eyes accustomed to blue water the ranks of boats with bows turned upstream against the bank seem just a trifle disheartening. Are these the famous river boats of the West? Where are the sharp bows, the beautiful lines, the graceful stern of a real boat? The tall funnels and the naked stern wheels certainly suggest business, but very queer business. The boats seem like great dirty white houses set on flat scows only a few inches above the water. Appearances are deceitful. They lack indeed the brilliant white paint of our anthracite-burning boats, yet they are seaworthy, safe, fast, and comfortable. This Western boat is the evolution of science, Yankee ingenuity, and the most peculiar navigation in the world, and it is undoubtedly the most perfect marine racing and carrying machine ever designed. It is certainly the model for the river world, and floats to-day on the great rivers of Europe, Asia, and South America. It is the shoal water triumph of marine architecture, for it will carry enormous burdens with speed and safety over the slightest suggestion of water—or, as Lincoln is reported to have said, “will sail wherever there is an extra heavy dew.” Before examining the river boat

in detail let us see for what ports we may sail from this harbor in the mountains.

Before steering down the Ohio it will be well, if time can be spared, to take a short trip up the Monongahela. By inquiring of the clerks on the afternoon boats you can find how far the boat will go before dark, and as they stop at ports along the way it is easy to find a train back to Pittsburg in the evening. In summer this will give a trip of thirty or forty miles through the hill country above Pittsburg, and will enable you to see a slack-water navigation system. To salt-water navigators the handling of the boats and the tows through the locks and the long pools of slack water are full of interest and are well worth studying, because it is by this system of slack water that our shallow Western rivers are made available. Ultimately it must be extended to the Ohio and other large rivers in order to make them useful through all seasons and stages of water. Unless something of the kind is done we shall some day see a great traffic greatly injured or left defenseless against the greed and selfishness of railroad corporations. At one time the port of Pittsburg was practically valueless during every season of low water; but since the Davis Island dam was built there is a good harbor at all times. Such a slack water system does not mean that boats must always stop at the locks, as on the Monongahela, for at Davis Island boats pass directly over the dam during high water.

From Pittsburg steamers sail three times a week for Cincinnati, a voyage of 467 miles, through a picturesque and curious country bordering four great States,—Pennsylvania, Ohio, West Virginia, and Kentucky,—and passing 23 large towns and cities and many more villages and smaller places. The boats start late in the afternoon and reach Cincinnati about 11 o'clock of the third night. During the first evening the boat passes through the manufacturing district below Pittsburg, with its wonderful pictures of flaming furnaces and the strange fires of natural gas. The gas and soft coal belt, the great tile and pottery country, the Ohio iron districts, the farming lands of southern Ohio and Kentucky, and the coke country, with its long rows of fiery eyes, each in turn presents strange sights to Eastern observers. The West Virginia hills, forest-clad, rocky, and abrupt, give a curious and romantic aspect to the river scenery, and both by day and night cities, towns, and lonely farms seem to drift by in picturesque procession. If no more time can be spared from your vacation, for once leave speed and the greed of time to those who travel because they must, and make the portage to Pittsburg. One day or one night will bring you to the river, and three days after you are landed at Cincinnati, only twenty-four hours

from New York, with the memory of a quiet, restful voyage over almost unknown waters through four great States. The best season for a trip on the upper Ohio is in spring or early summer, when the water is high and the country is at its vernal best.

At Cincinnati the river still invites to the West. Steamers sail every night from this port for Louisville, giving a night voyage on the river resembling that on the night boats between New York and Albany. This is, however, only a short trip, and there are longer voyages stretching westward before the Ohio meets the Mississippi. One of the best voyages from Cincinnati is by the boats of the Memphis and Cincinnati Packet Company to Memphis, a journey on the Ohio and Mississippi of 738 miles, including calls at a dozen large cities along the way. By adding this trip to the voyage down from Pittsburg, a journey of 1200 miles can be made in less than ten days, and still leave 800 miles more of unexplored waters towards the far South. By changing boats at Memphis this voyage may be continued to New Orleans, or the trip may be reversed by taking a boat going north to St. Louis. Another and shorter voyage can be made by leaving the boat at Cairo, five hundred miles below Cincinnati, and taking an up-river boat to St. Louis.

From St. Louis a long and notable voyage can be made by taking one of the Anchor Line boats direct to New Orleans, a trip of twelve hundred miles, which gives six days in one boat on our grandest river. It is a popular trip in the West, and a round trip of from twelve to fourteen days is often made by travelers in search of a restful water journey through the South. Far to the South other trips invite the hunter and the fisherman to wonderful voyages up semi-tropic rivers hundreds of miles beyond the well-beaten tracks of timid tourists.

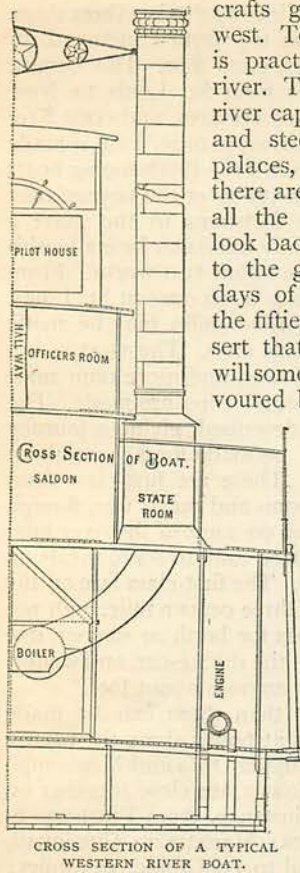
St. Louis is also the port of departure for one of the finest river voyages on the continent. By taking the boats of the St. Louis and St. Paul Packet Company a voyage of 729 miles can be made on the upper Mississippi. This is the "Hudson of the West," a river offering days and nights of varied and attractive scenery that is often beautiful and is in many places full of curious interest to those who have never seen the West except from a car window. If no other trip is convenient, a trip either up or down should certainly be taken. The voyage takes about four days, and can be made as much shorter as may be wished by leaving the boat at any of the cities along the way. The entire trip includes stops at twenty-two cities of note in five of the north central States.

This gives in outline four of our most popular water routes in the West. The shortest trip

from Pittsburg to Cincinnati takes three days, and costs \$7. The trip from Cincinnati to Memphis, four days, costs \$10. The longest trip in one boat is from St. Louis to New Orleans, a voyage of six days, and costs \$20. The trip up the Mississippi to St. Paul is made in four days, and costs \$16. By changing boats once or twice down the river the voyage may be extended from Pittsburg to the gulf; a journey of nearly 2000 miles can be made with close connections in about two weeks. From St. Paul, by changing boats once at St. Louis, a voyage of about 2000 miles may be made in from ten to twelve days. The voyage upstream is always slower, and more time must be allowed when round trips are made. The four trips already described, giving a journey of 2134 miles, can be made for \$53, or about 2½ cents a mile. These are first-class fares and include staterooms and meals free, though there is a disposition on some of the river lines to charge less for fare and to serve meals on the European plan. The first-class fare on the railroads is usually three cents a mile, with not less than two dollars for berth or sleeper, one dollar for a meal in the dining-car, and waiters and porters always anxious about fees.

Shorter voyages than these can be made by taking the boats at points along the routes, particularly on the upper Ohio and Mississippi, where the larger towns are close together on each shore. For instance, from Pittsburg to Wheeling, 90 miles; Marietta to Cincinnati, 296 miles; St. Paul to La Crosse, 173 miles; St. Paul to Rock Island, 397 miles; Burlington to St. Louis, 249 miles; and St. Louis to Grafton, 39 miles. Beyond these well-worn water paths there are at least one thousand miles more of "unknown rivers" dear to the fisherman, the hunter, and the explorer who dares escape the palace boats and voyage in "tramp steamers" on the less familiar streams towards the south or the north-west.

Thirty years ago these water routes were the only lines of traffic in the West and South. Then the rivers were crowded with fast boats, and all the world went by water. The boats won a world-wide fame for speed, capacity, and elegance, and were uniformly regarded as extremely valuable property. Any man who could build a boat was at liberty to sail these thousands of miles of fresh water, and was certain to find his decks crowded with freight and every stateroom full. To-day the railroads follow each bank for nearly the whole length of the Ohio and the Mississippi, and have absorbed the larger part of the once great river traffic. At one time St. Louis was the port of departure for the far West by way of the Big Muddy. Kansas City could only be reached by boat, and was itself a great port for river



CROSS SECTION OF A TYPICAL WESTERN RIVER BOAT.

crafts going still farther west. To-day the Missouri is practically a deserted river. The race of fine old river captains, who owned and steered their racing-palaces, is dying out, and there are people to-day in all the river towns who look backward with regret to the great and notable days of river boating in the fifties and solemnly assert that the entire traffic will some day disappear, devoured by greedy railroad corporations.

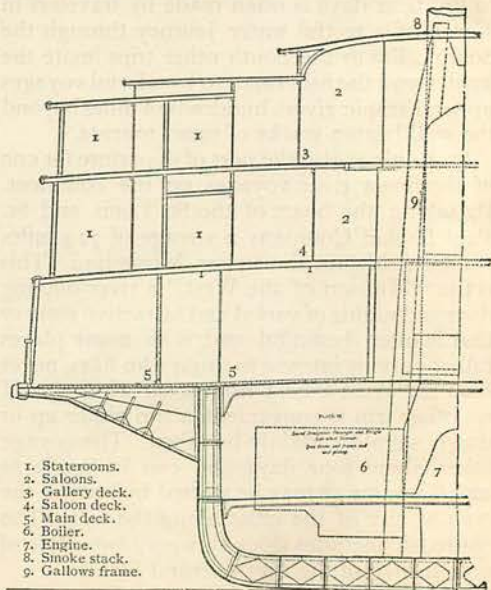
It is perfectly true that the Western steamboat interest has been seriously impaired by competition with the railroads and that the number of fast boats has greatly decreased. For the position of steamboat property in the past was peculiar. Large numbers of the boats were

owned by the captains or their families, and in case of hard times or a cut rate war with the railroads the boats could be seized for debt and the traffic stopped. The competing railroad, on the other hand, might be equally in debt, but in the hands of a receiver it went on doing business while the poor boat owner was tied up with his boat.

This is the common and the darker view taken of the steamboat interest on our great rivers. To offset this is the fact that the larger rivers are now well lighted, and more lights are added every year. The millions spent on the rivers have wonderfully improved navigation, and there are fewer wrecks than ever before. The slack water navigation, as on the Kanawha and the Monongahela, has greatly extended the season in which boats can run, and has thus extended the earning time of every boat on these waters. The ownership of the boats has also changed, and in place of single "tramp" steamers there are now regular incorporated companies owning large fleets of boats and having abundant capital. These companies are enabled to furnish better, cheaper, and more regular service, with less danger of ruinous competition with the railroads. Formerly the

steamboat service was extravagant and costly in management, while rates were high and profits large. The companies now conduct their business with more economy and seek to attract business by regular departures and arrivals, more comfortable boats, and better table and stateroom service. The lines now more nearly approach the Eastern lines both in equipment and management, and while the old racing captains, who threw their freight into the furnaces rather than be beaten by a rival boat, are passing away, the new men are real captains of safe and comfortable boats. The romantic days have gone from the rivers forever, but the travel is safer, and, in a way, more civilized. The last of the famous racing machines, the *Natchez*, was wrecked only a few months ago. The competition with the railroads has demanded a wholly different class of boats, and the tourists will compel a better passenger service on all the lines in the future.

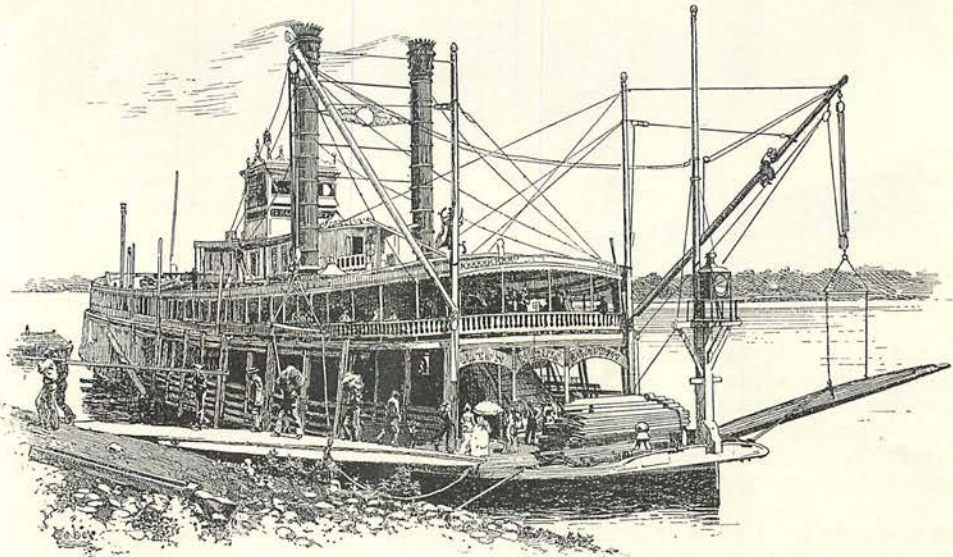
In the opinion of those competent to speak on the matter, the prospects for the passenger traffic on the rivers is far from discouraging. Once all the world had to go by boat or stay at home. Now the larger number take the cars, and in order to retain any traffic at all the boat lines must offer superior inducements in the way of price, comfort, and attendance. This they seem prepared to do; and it is safe to say that the time will come when many of the river routes of the West will be as popular as the Hudson River or Long Island Sound, and a trip on these great waterways will be regarded as quite as important to a right understanding of the country as a day on the North River.



CROSS SECTION OF THE SOUND STEAMER "PURITAN."

From the east a single portage from the Hudson brings us to another grand water route—the lakes. These splendid inland seas are just opening new and magnificent voyages over strange northern waters. The freight traffic of the lakes is already very great, and is carried on by large steamers equal in every respect to the best salt-water freighters. The passenger traffic is as yet comparatively small and has been largely confined in the past to freight-boats having a few staterooms for passengers.

The boat touches at eleven large cities, and at all the landings along the way are excellent hotels and attractive pleasure resorts and fishing and hunting grounds. Besides this long trip there are many shorter voyages, each full of curious interest to the Eastern and the Southern tourist. From Cleveland very fine large boats that are almost literal copies of the Sound boats run every night to Detroit, making a voyage quite as interesting in its way as the trip by Fall River. The boats of the Detroit and



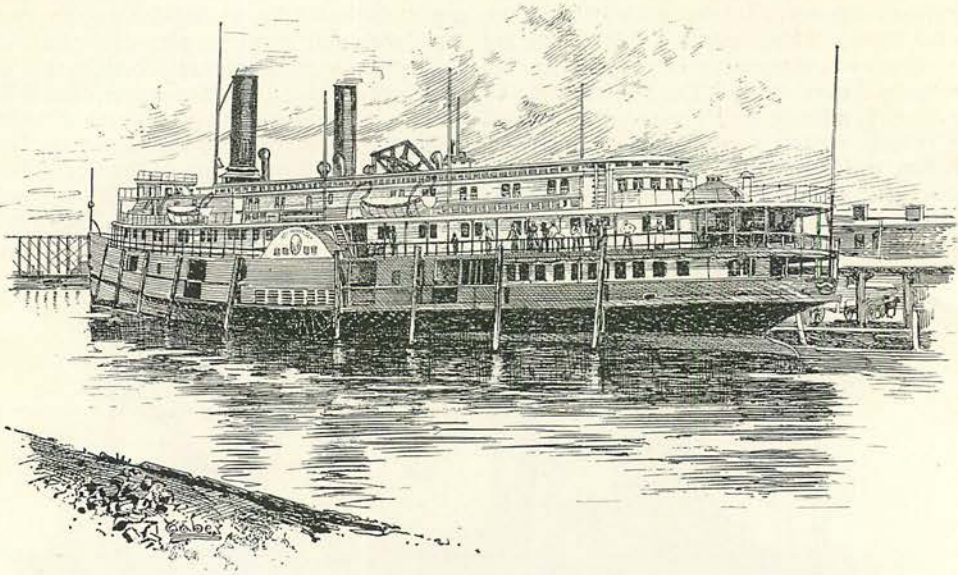
WESTERN RIVER BOAT.

Within a few years regular passenger boats, both side-wheel and propellers, have been placed on the lakes, and now every port on our inland seas can be easily reached by passenger steamers from Buffalo, Cleveland, and Chicago.

On the St. Lawrence we share with our Canadian friends one of the most charming water-parks in the world, and countless little voyages of pleasure may be taken in both great and small boats along placid waters among a thousand islands of summer idleness. Nowhere can be found better short water trips than along this wonderful river and on the waters of Lake Ontario. The shortest portage from salt water is across New York to Buffalo. From this port the steamers of the Lake Superior Transit Company sail west through Lake Erie, past Detroit and through St. Clair lake and river, across Lake Huron, and northward through the "Soo" to Lake Superior, or by the Straits of Mackinac west and south through Lake Michigan. The longest voyage without change of boat is from Buffalo to Duluth, and takes about five days. It is perhaps the most notable and picturesque fresh water voyage in the world, and includes the passage of two rivers and three of the

Cleveland Navigation Company connect with steamers for ports on Lake Huron, with boats for Milwaukee and Chicago and other Lake Michigan ports, and also for ports on Lake Superior.

The steamships of the Lake Superior Transit Company have their eastern point of departure at Buffalo and go direct to Lake Superior and as far west as Duluth, giving a number of voyages over these unsalted seas, where the sea gull seems at home and the tingling breath of the plains sweeps over icy waters. So far this pleasure travel seems to have been confined to the people of Ohio, Pennsylvania, western New York, and Indiana. Lake Superior is only a geographical term to millions of our people, and the idea that there are splendid voyages in the Northwest will be new to thousands who travel west by rail. The shipyards at Cleveland and Buffalo turn out every year larger and larger steamers, which are in every respect sea-going crafts and as well adapted to their waters as any that steer along our coasts. The traffic through the ship canal at Sault Ste. Marie during the last season of seven months amounted to 6,419,273 tons, valued at



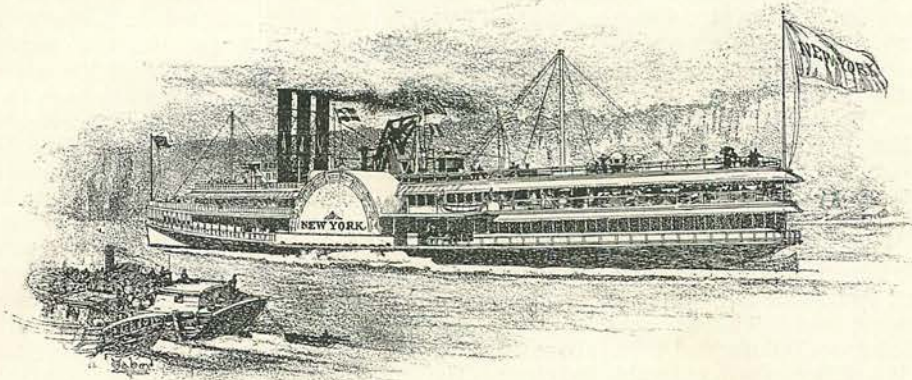
A LAKE BOAT.

\$92,293,000, a tonnage exceeding that of the Suez Canal for a whole year. There is now a disposition to put on larger and finer boats for passenger service, and as facilities for business create business, there is reason to believe that there will be every year a larger number who voyage upon our great inland waters. If any man wishes to see a peculiar and interesting part of the country, and can for once forego this miserable desire to "get on," let him steer west from Buffalo or Cleveland for any of the lake ports beyond Detroit. The voyage can be made long or short, for one day or for five, for there are railroad connections at every large port, and one may return to the cars and discomfort at almost every hour of the longest voyage. If wise he will stay by the ship and

learn more of the country than ever can be learned from a car window.

Westward, on the Pacific coast, notable voyages can be made both south and north that will give a great variety of climate and coast scenery. Steamers now make excursions from Tacoma, Washington Territory, to Alaska, giving a round trip of eleven days past a coast rivaling in scenery anything in Norway and making it possible to see the glaciers meet the sea in Alaska fiords.

The writer in visiting London for the first time, many years ago, took an early opportunity to try a voyage by the penny boats on the Thames. The experience was discouraging. The boats were simply long decked canoes of iron, with a little engine in the middle, and with



ALBANY DAY BOAT "NEW YORK."

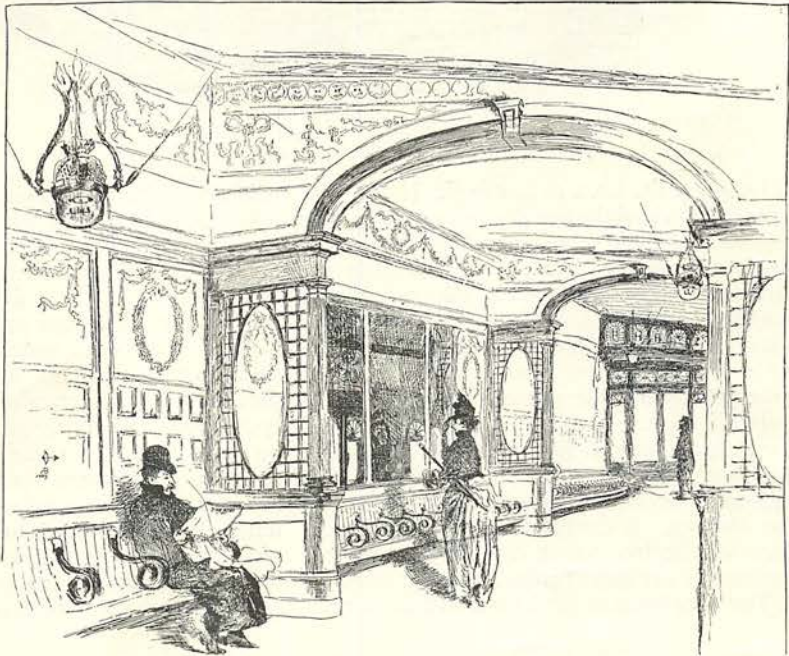
no shelter whatever for the passengers packed like sheep on the bare deck. Several years after, a visit was again made to these boats to see if there had been any improvement. There was none. The same burly captains stood on the paddle-boxes waving their hands to the helmsmen, who stood where they could see nothing ahead; the same boys screamed to the engineers to "stop 'er, back 'er"; the same uncomfortable seats for but a fifth of the passengers; the same wretched crowds on the cheerless deck suffocated by the smoke and pelted by the rain. On asking one of the captains why his company did not put on better boats when they built new ones, a singular answer was given: "What 's the good o' improvin' the boats when we 've got the old patterns?"

Here is just the difference between the American and the European boat-builder. The patterns make the smallest item in the cost of an iron vessel, yet to save a fraction of a penny in the pound the English builders sometimes forego all attempts at improvements. It is

safe to say that in this country the cost of patterns is seldom considered, for sister ships are not by any means common. The aim is always to make something better—to make every new boat faster, safer, more comfortable, or in some way better adapted to the waters it is to traverse or the traffic it is to serve. This independence of tradition, this continual seeking after improvement, is particularly noticeable just now, for within the past year or two a number of boats have been launched that for speed, capacity, and comfort, and for novelty and beauty of design, are worthy of careful attention. The older routes on the Sound are employing larger and finer boats, and the famous boats of the Hudson have increased in speed and comfort. A number of new and very large ferry-boats and transfer steamers have been built on the Atlantic and Pacific coasts and on the lakes, and many new and very fine steam-

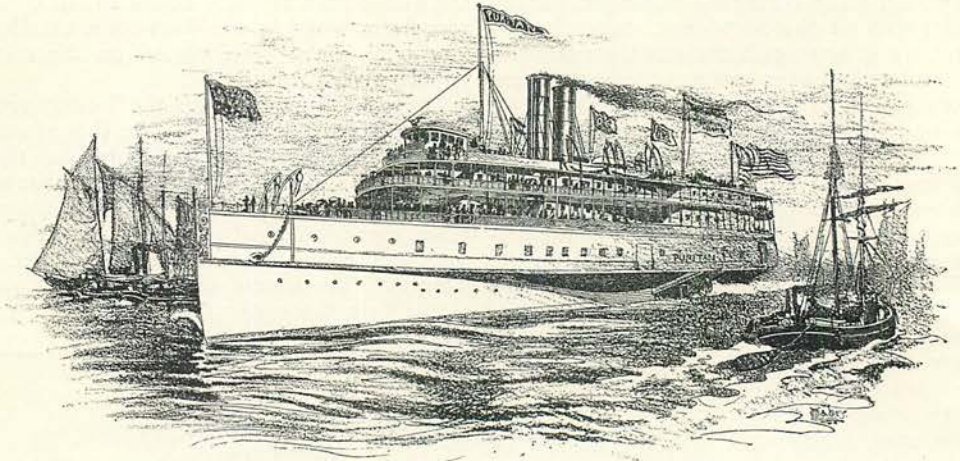
ships have been recently added to our coast-wise fleets, while in the West some excellent new boats have been placed on the more popular river routes.

In considering these boats, the Western river boats deserve attention because they are the most distinctively American and because they surmount more difficulties of navigation than are ever encountered by deep water crafts. On another page is an ideal section of a river boat showing the proportions of the hull to the "top-hammer." The waters are always shoal, particularly on the upper Ohio and Mississippi,



CABIN OF FERRY-BOAT "BERGEN."

and the problem is to carry a great burden at good speed over these quiet yet treacherous waters. The boat must be broad, shallow, and flat. It sprung originally from a flatboat, and, like such a boat, its weights must be evenly distributed so that all parts may have an equal duty. The depth of hold, six to ten feet, seems very small for such a lofty structure; but the waters are smooth and the hull may be submerged with safety close up to the deck. In the stern-wheel boats the amount of overhang given to the deck is small because the aim seems to be to make a long and narrow boat in preference to a wide one. The section shows the position of the two engines, which are placed one on each side, at the extreme edge of the boat. If the boat has side-wheels, each wheel is independent, and is moved by a separate engine, so that the wheels can be used in steering. This is essential in our very crooked rivers and



SOUND STEAMER "PURITAN."

in handling the boat at landings. If the boat has a stern-wheel the two engines work together and are controlled from the center of the engine-room. The boilers are always placed in the center of the boat, and the two tall smokestacks are set on each side to distribute the weight. This section is, however, misleading in one respect. The engines and boilers are really wide apart, the boilers being placed quite forward of the center while the engines are at the stern. This also is to distribute the weights over the long and shallow hull. With this section is another, giving a cross-section of the *Puritan*. A comparison of the two sections will be interesting, as showing the proportions of the hulls to the houses or decks.

The usual dimensions of a first-class side-

wheel boat for the Mississippi are as follows: The hull, which may be of wood or steel, is 300 feet long, 50 feet wide, with 9 feet depth of hold. The boat draws 10 feet of water loaded and 4 feet light. The main deck overhangs the hull for the greater part of the length and is usually ninety feet wide, or twenty feet wider on each side than the hull. It will be seen that the boat is practically a long, shallow flat-boat, and to give it strength and stiffness it must be tied together by some overhead system of framing. In Eastern boats the same thing is accomplished by massive timbers, or "hog frames." In river boats heavy rods and chains are used in connection with upright struts of wood. This simple device of tying the two ends together seems to accomplish its purpose



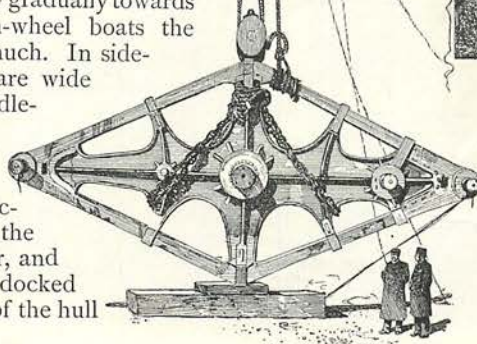
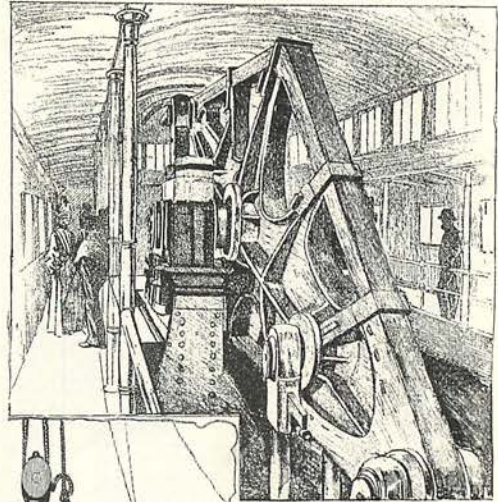
FURNACE-ROOM, "PURITAN."

perfectly, and the hull is sufficiently strong and stiff for the smooth waters on which it moves. In a sea-way the boat would be unseaworthy and would soon break in two. This has happened on the river, when boats have been caught on a bar and the receding water has left the center resting firmly and the bow and stern unsupported. In such wrecks the hog chains break and the boat falls apart. Many curious stories have been told of the ingenious devices resorted to by Western captains to prevent such wrecks. Finding their boats aground, with the water falling, they have attempted to sustain the unsupported parts with piles driven in the river bottom and with heaps of logs and freight thrown under the hull. So elastic are these long, shallow hulls that it is not uncommon to lift them bodily over a shoal or bar by pushing stout poles or spars into the river bottom and then "jumping" them over by means of tackle, very much as a boy might vault over a ditch by means of a stout pole.

In point of design the hulls of these more recent river boats are quite equal, within the limits of their duty, to the fine boats of the East. An effort has been made to secure as high speed as may be consistent with capacity and a perfectly flat bottom. The lines are long and easy and the bows sharp. The sides are straight and are drawn in very gradually towards the square stern. In stern-wheel boats the guards do not overhang much. In side-wheel boats the guards are wide enough to inclose the paddle-boxes. There is a very slight sheer, or rise, at the bows and a smaller rise at the stern, so that the deck is practically level. When loaded, the guards are close to the water, and it is only when the boat is docked that any idea of the shape of the hull can be gained.

On this long, flat hull is erected a saloon deck extending nearly the whole length of the boat, and on it are placed two rows of staterooms, one on each side, with doors opening into the saloon and also upon the narrow gallery, or deck, outside. The saloon is always of the entire length of the house, giving a fine, large, well-lighted room that is used in part for a dining-room and in part for a general meeting-room for the passengers. Above this deck is an upper deck, or "roof," and on this is placed a smaller house for the accommodation of the officers of the boat; above this, in the center of the boat, is the lofty wheel-house, which is always entirely inclosed in glass, that the pilot may have an unobstructed view in every direction. Swinging gang-planks,

or landing stages, handled by steam-power, steam capstans, and electric search-lights that may be controlled from the pilot-house, are among the more recent improvements added to the boats. The freight capacity of such a boat is estimated at 1500 tons, and there are about 70 staterooms, with accommodations for 140 passengers. The two engines have 26-inch cylinders, with 10-foot strokes, and are of 3000 horse-power. The cost of such a boat, furnished and ready for service, will vary, according to the finish, from \$100,000 to \$120,-



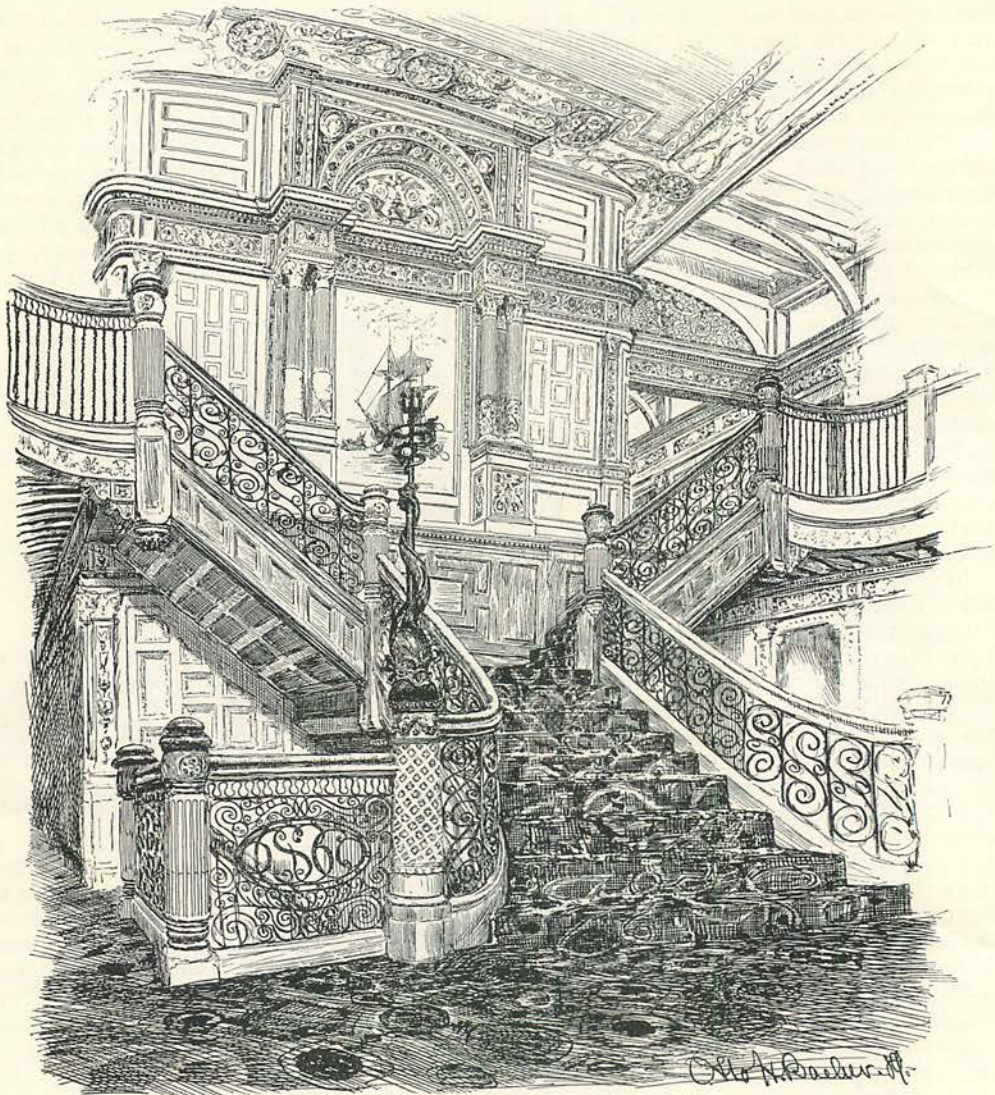
WORKING-BEAM, "PURITAN."

000, and such a boat is good for from 12 to 18 years' service. The picture of a typical stern-wheel boat on page 361 is from a photograph of a boat now in use.

In facility in handling, and in speed and capacity, these boats are un-

doubtedly the best and cheapest river boats ever designed. They do not look very ship-shape to Eastern eyes; yet the fact remains that they do the business cheaply and with reasonable speed. While it is quite possible that they might be a little more substantial, still they are the best boats ever built for their service and climate. If any criticism might be made it would be in the color. White is not the best color for a soft-coal boat. It might also be wished that the profusion of scroll-saw work might give place to something more simple and not quite so dangerous in case of fire.

Upon the lakes both side-wheel boats and propellers are used for passenger service. The



STAIRCASE AND BULKHEAD OF THE "PURITAN."

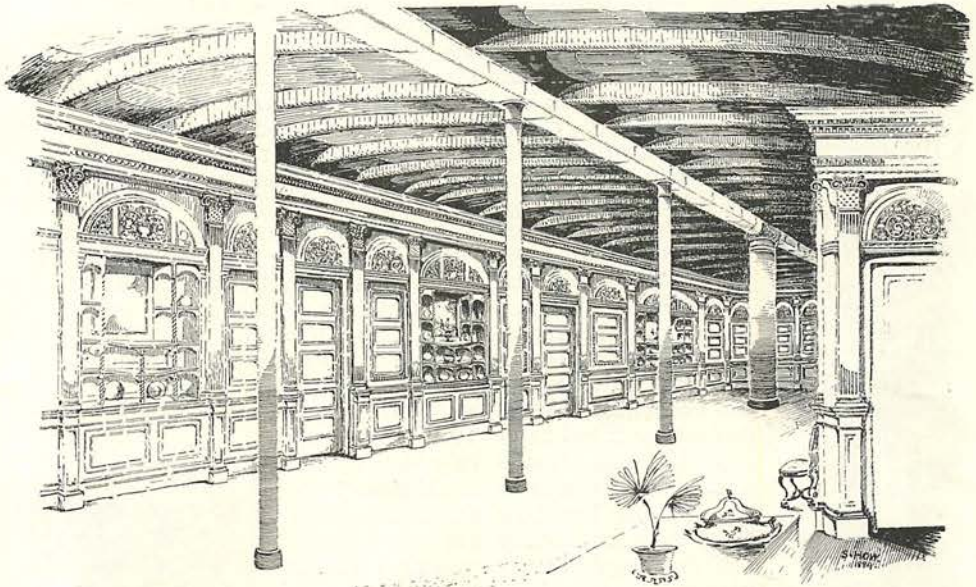
propellers do not differ materially from the coastwise steamships, except that the state-rooms are all on the upper deck and the pilot-house is placed almost at the very bows of the boat. The side-wheel boats recently placed on the line between Cleveland and Detroit are essentially copies of the Fall River boats, and are sumptuously furnished night boats. Among the new boats on the lakes may be mentioned a very large transfer boat for use at Detroit. It is an iron boat, having both paddles and screws, and is of massive construction to enable it to break through the ice. The deck is fitted with two tracks, and will carry two locomotives and four passenger cars on each track.

In the East the most interesting new boats

are the Sound steamers *Puritan*, *Connecticut*, and *City of Worcester*, the Hudson River boat *New York*, the passenger transfer boat *Monmouth*, and the ferry-boat *Bergen*. The ferry-boat *Bergen*, built of steel at Newburg, is 200 feet long, with 37 feet beam, and with a hold of 17 feet depth. The deck overhangs the hull and is sixty-two feet wide in the center. The boat is interesting on account of its peculiar motive power. There are two screws, one at each end of the boat, designed to be used both at once. The motive power is a triple-expansion engine, and is placed fore and aft. The three cylinders are respectively 18 inches, 27 inches, and 42 inches in diameter, with a stroke of two feet. The shaft extends the whole length of the boat and con-

nects both screws, one pulling, the other pushing the boat at the same time. This peculiar form of motive power has made it possible to construct a boat with clear cabins on each side and with a wider roadway for teams in the middle. The cabins are each 137 feet long, 16 feet wide amidships, and 14½ feet high. In the center, to break the long room into two smaller rooms, open screens and archways are introduced. The windows are in groups of three, and are of large plate-glass — the most noticeable feature of the decoration.

usual massive overhead framing, at a very great gain in the appearance of the boat. The boat is 311 feet long on the main deck, the hull being 40 feet wide and the deck 74 feet wide in the center. It draws only six feet, and is of 1552 tons burden. Being designed only for passengers it has no staterooms, and the three decks are left as clear as possible. The house, or saloon, on the main deck is very light and open, the sides being wholly of glass. The dining room is on this deck aft, and is one of the most beautiful rooms afloat, as there is an unob-



DINING-ROOM OF THE "PURITAN."

"Steamboat decoration" has become a by-word, by reason of the complete lack of artistic feeling in its treatment. In many of the new boats there is a noticeable departure from the carpenter work of the past, and in the *Bergen* the decorations have been intrusted to one of the leading art firms of New York, and the result of their work is most interesting. The color in the ladies' cabin is cream and gold, with a deep frieze in a wreath pattern, while the ceiling is of a mosaic design. The seats are in the form of antique settles, and are made of mahogany. At the transom-lights is fine stained-glass. The work is harmonious and artistic and in keeping with its place.

The Hudson River boat *New York* is the finest American example of a passenger day boat afloat, and is probably the most beautiful river boat, designed for passengers only, in the world. The hull is of iron, and was built at Wilmington, Delaware, in 1887. The use of iron enabled the builders to dispense with the

constructed view on every side. The house on the second deck gives a circular saloon formed with low windows, and in the rear of this saloon are small drawing-rooms with long windows intended for the use of passengers who wish private rooms during the trip. Aft is a covered deck, while above is the hurricane deck, open for the entire length of the house, and giving a promenade 200 feet long and 70 feet wide.

In the decoration there is a complete departure from the conventional steamboat style that still rages on the Western river boats. The interior finish is in ash and mahogany, and is quiet and artistic. The dome lights and transoms are of rich mosaic glass in admirable keeping with the woodwork. Each of the drawing-rooms is decorated in a different scheme of colors, and all are furnished in good taste.

The motive power is a beam engine of the usual type with a feathering paddle-wheel.

The wheels are placed aft of the center, and are thirty feet in diameter with a bearing only on the hull. By means of radial rods operated by an eccentric at the outer end of the shaft the twelve steel buckets are arranged to enter and leave the water "feathered," or on the edge. This prevents the disagreeable jarring motion sometimes to be noticed on boats using large wheels with fixed floats.

The new Sound steamer *Connecticut* was built at Noank, Connecticut, in 1888, and is of wood, with the usual massive overhead framing. The hull departs somewhat from the usual type, as it has long bow lines extending nearly half the length of the boat, with rather sharp stern lines, and a short, parallel body in the center. The forward part of the hull is designed to carry nearly all the freight burden, as the freight deck is forward of the wheels. Within the hull are five watertight bulkheads. The general arrangement of the saloons and cabins is the same as on the older boats of the Providence and Stonington Steamship Company, except that the café and lunch-

room are placed on the quarter deck near the main entrance, while the ladies' cabin is still farther aft at the stern. A stairway in the café leads to the dining-saloon below. The saloon deck and the gallery decks have staterooms the entire length on each side, the main saloon being 280 feet long and 25 feet high. The staterooms, 190 in number, are of the usual type, and, with the berths in the cabin, give accommodations to 600 passengers. In external appearance the boat is very attractive, while the interior decorations are simple and in quiet good taste. The boat is 358 feet 6 inches long over all, and 87 feet wide at the guards.

This boat is specially interesting on account of its motive power, which consists of a compound direct-acting oscillating engine. The two cylinders are inclined and placed opposite each other, the pistons being connected directly with the crank shaft. The high-pressure cylinder is 56 inches and the low-pressure cylinder 104 inches in diameter. It is the largest oscillating engine ever built, and is estimated to develop six thousand horse-power. The advantages of this type of engine are less weight and a great gain in room, as the engine is quite low in the hull, and thus gives more room in the saloon above.

Among the recent boats added to the fleet on New York Bay is the *Monmouth*, built in Philadelphia for the Central Railroad Company of New Jersey, and her sister boat the *Sandy Hook*. The *Monmouth* plies between New York and the Sandy Hook terminus of the Central Railroad of New Jersey. The trip lasts only an hour, and the *Monmouth* and the *Sandy Hook* are practically passenger transfer boats. The *Monmouth* is of iron, 250 feet long, 35 feet wide, and draws only 10 feet. There are two decks inclosed forward and provided with many large windows, so that practically the main and saloon decks are inclosed in glass, giving a fine view on every side, with ample protection from the weather. The interior fittings are in hard woods, and the decorations are quiet and in good taste. One peculiar feature is the con-



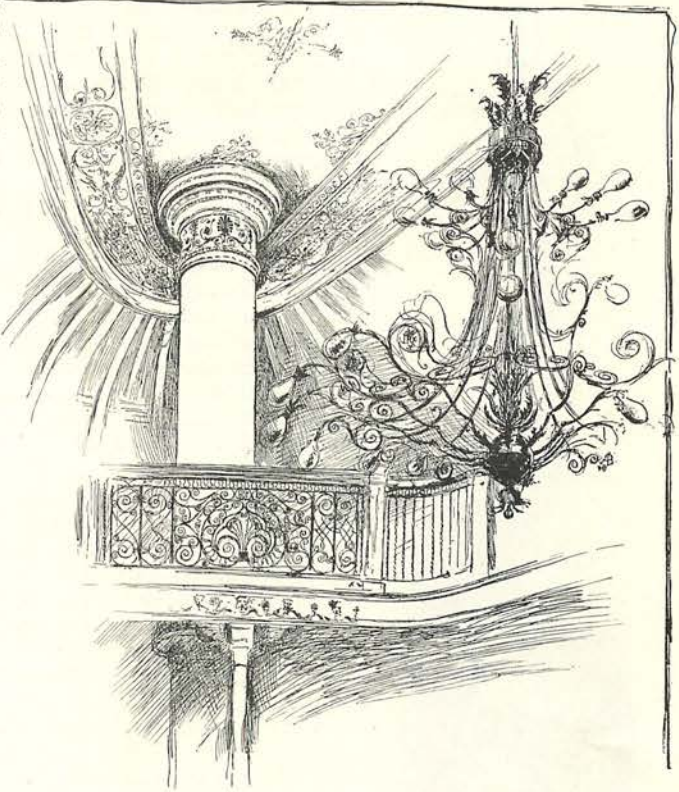
PILASTER IN CABIN OF
"PURITAN."



DETAIL OF PILASTER.

struction of fine drawing-rooms or day staterooms furnished as parlors. These rooms are leased by the year, each tenant having his own key, so that on his daily trips he has a room on the boat for the exclusive use of himself and family. Each room is handsomely decorated and furnished in good taste. The boat is interesting not only as an example of a fine sea-going day boat fitted with every possible luxury and comfort for the use of her passengers, but also as a departure from the conventional paddle-boat. The motive power consists of twin screws, each driven by a vertical triple expansion engine. The united power is about 3000 horse-power, and the boat has a regular speed of $18\frac{1}{2}$ knots. The twin screws and separate engines are also found useful as an aid to the rudder in docking or otherwise handling the boat.

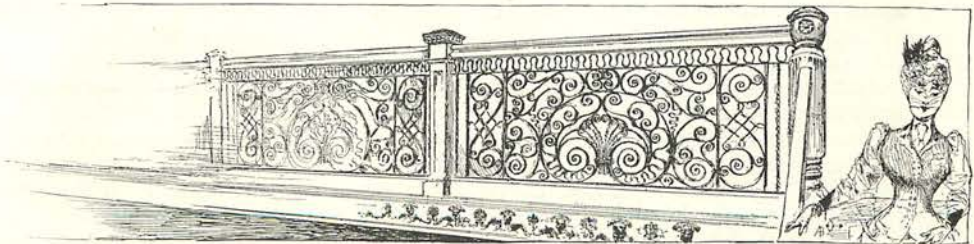
The new steamer *Puritan*, of the Fall River line, is the largest and in every respect the finest boat of its class ever built. It marks a great advance in the art of boat-building, and its interior fittings and decoration indicate a wholly new departure in this line of work. While our boat-builders have had scant respect for the traditions of their trade, and while our boats have shown great originality in construction, there has been too much conservatism in the matter of interior decoration. The first builders were more carpenters than decorators, and later builders have clung to the scroll-saw and bracket style too long. In the *Puritan*, as in the *Bergen*, an effort has been made to produce a boat that shall be artistic as well as seaworthy, and the result is very satisfactory. The boat itself is of grand proportions, and while it follows the general plan of the four-



FORWARD CABIN OF THE "PURITAN."

deck boats, it varies sufficiently to give it a character of its own. The most noticeable feature is the absence of the conventional paddle-boxes, the wheels being inclosed in the house. Another feature is the covering of the working beam by a dome above the hurricane deck. All the decks, except the first, give a free promenade by means of galleries outside or over the wheels the entire length of the boat, excepting the space occupied by the boats on the hurricane deck.

The hull was built at Chester, Pennsylvania, in 1888, and the boat was fitted with engines and the decks and houses built and decorated in New York in the winter of 1888-89. The hull has a double bottom extending on the side



THE RAIL, "PURITAN."



DOLPHIN NEWEL ON BOARD THE
"PURITAN."

sight unlike anything in European waters. By night its rows of windows, tier on tier, will shine upon the waters like a white phantom with myriad electric eyes drifting in silence along our coasts.

The general arrangement of the saloons does not differ greatly from that of the older Sound boats, except that everything is upon a grander scale. The entrance on the main deck, with its lofty ceiling, wide stairways, and liberal doors, gives an impression of spaciousness that is wholly new afloat. This generosity of space is in key with American demands. There is

up to the water-line. In this space are fifty-two compartments, while the inner hull is divided into seven compartments by water-tight bulk-heads. To give an idea of the grand proportions of this great boat it may be noted that the hull is 404 feet long on the water-line and 420 feet long over all, 52 feet wide, 21 feet 6 inches deep, and draws 13 feet of water when loaded. The decks are much wider, being at the center 91 feet wide and inclosing the wheels. The four decks are unusually high, and, measuring from the bottom of the keel to the top of the dome over the working beam, the boat is 70 feet high. With all these immense proportions the boat is graceful, and to the nautical eye accustomed to our built-up boats looks safe, handy, and seaworthy. Passing through the Sound, where its proportions can be seen to advantage, its enormous bulk will present a

something in the spaciousness of the land that makes our people demand largeness and generosity in the way of public accommodations. The genius of our people runs more and more to *Puritans* and drawing-room cars, where there is room enough and to spare. This sense of bigness on the *Puritan* is not mere bigness and emptiness. A cathedral may be grand as well as lofty if its proportions are right, and it seems on this monster boat, with its lofty ceilings and ample saloons, that the builders knew whereof they wrought. There is size and space, yet by reason of the proportions and the treatment of the decoration there is also that sense of repose and general personal comfort so dear to the American heart.

The boat is distinctively a night boat. Its voyage begins before sunset and often ends before sunrise, and its sleeping accommodations must be ample and comfortable. It is safe to say that on the *Puritan* more attention has been paid to the lighting, heating, and ventilation of the rooms and the general comfort of the traveler who sleeps upon the Sound than on any other boat ever launched. There are 355 staterooms, many of them being regular chambers, with large windows, mirrors, and complete chamber furniture precisely as in a first-class dwelling-house. The entire boat, including berths in the cabin, gives sleeping accommodations for 1200 passengers. To place so many staterooms on the boat it was necessary to arrange them in rows. This has been done before on the Sound boats, but it has one very serious objection, and that is the want of light and air. Some of the older boats even had staterooms in the middle of the saloon, where absolutely no light or air could be obtained. On the *Puritan* this matter appears to have been carefully considered, and every stateroom has free ventilation by means of large transoms opening to the outer air. This is accomplished by covering the outside rooms with roofs, thereby leaving a space between the under side of the deck above and the roofs of these outer rooms. The rain cannot beat into this space, nor can any room be entered by the transoms, and yet there is a free circulation of air and plenty of light for the interior rooms next to the saloon. There will be no staterooms in the middle of the boat, thus doing away with all the dark rooms.

The decoration of the boat is in the style of the Italian Renaissance, the ornamentation being brought out by judicious gilding on an ivory-white ground. The railings of the galleries in the saloon are of wrought iron in the same general style, and all the interior woodwork is of the best quality and of the finest finish. The masts, which in the older boats were often overdecorated where they

passed through the saloon, are in the *Puritan* of steel, and serve as ventilators, as well as supports for the electric-light fixtures. In point of fire protection, safety, and sanitary arrangements the boat is superior to anything yet built in this country, so that the boat is a perfect and complete hotel afloat, and as comfortable, safe, and luxurious as any conveyance on land or sea.

The motive power is of the usual beam engine type, except that it is a compound engine, the two cylinders being placed fore and aft, and connected with the working beam overhead. The high-pressure cylinder is 75 inches in diameter with 9 feet stroke, and the low-pressure cylinder is 110 inches with 14 feet stroke, and the engine is designed to develop 7500 horse-power, at a steam pressure of 110 pounds per square inch. The wheels are 35 feet in diameter with steel "feathering" buckets 14 feet long and 5 feet deep. The accompanying pictures give an excellent idea of this grand boat, with some suggestions as to her interior fittings. One picture may also serve to show the massive proportions of the engine and the working beam.

Among the Sound boats the *City of Worcester*, of the Norwich line, was one of the first to

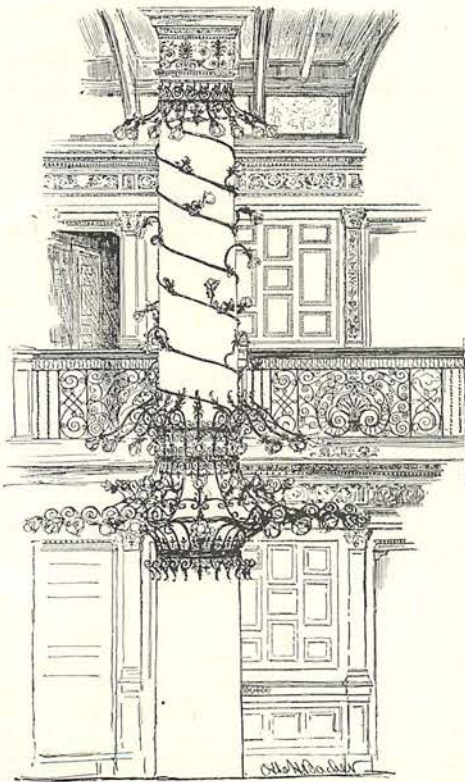
depart from the older type of night boats. This steamer was built in Wilmington, Delaware, in 1881, and has an iron hull 328 feet long, 46 feet wide, and 14½ feet deep. The gross tonnage is 1921 tons, and the boat draws when loaded 10 feet 3 inches. The *City of Worcester* is interesting because it was, when launched, regarded as the finest

boat built for our Eastern waters. There are two decks above the main deck, and the saloons and cabins are arranged on a plan that undoubtedly suggested the arrangement of some of our later boats. The entrance, at the usual place just abaft the wheels, leads to the main deck saloon, and from this saloon a grand staircase, that occupies a place usually assigned to the ladies' cabin, leads to the saloon deck. The grand saloon extends the entire length of the house, with a single row of staterooms on each side as far as the engine-well. This saloon has no gallery and makes a low, dome-lighted room that is far more cozy and homelike than the saloons on longer boats. Forward of the engine is a saloon having a gallery for upper staterooms and arranged for a dining-saloon. This plan of placing the dining-room upstairs is certainly more agreeable, as the saloon is large, lofty, well lighted, and well ventilated. The *City of Worcester* was one of the first boats to use electric lights and one of the first boats to substitute hard wood for the old style of painted pine. The decorative woodwork is all in hard woods, and inlaid in excellent designs and decorated in good taste. In point of speed, comfort, and decoration this boat was really the pioneer of the splendid new fleet headed by the *Puritan*.

It is not easy to predict what is to be the future of this great boating interest. We have over twenty thousand miles of steam navigation, we have original and enterprising boat-builders, and an enormous traveling public. We have had in the past a phenomenal fleet of steamboats, particularly on our Western rivers, and yet the business has been greatly depressed, and there are fewer boats afloat today than twenty years ago. Moreover,— and this is the most serious matter of all,— our canals



PANEL FIGURE, "PURITAN."



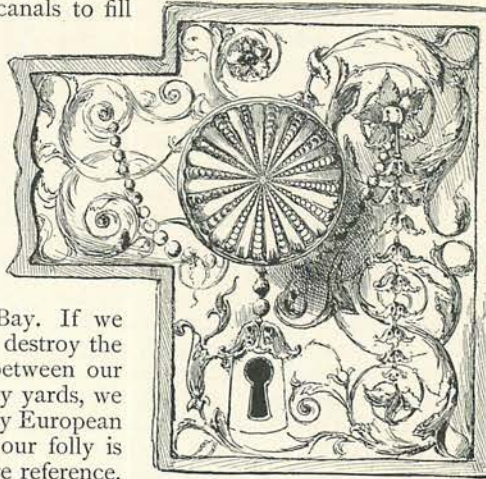
COLUMN IN CABIN OF "PURITAN."

are being abandoned year by year. While Europe spends millions on canals and waterways, while France is trying to make every little stream navigable, and England is trying to turn her interior cities into sea-ports, we permit our canals to fill up or foolishly give them away to impetuous railroads for road-beds. Is it wise? Are we safe in trusting all our freight business to railroad corporations? To-day we can, if the need come, send gun-boats inland from the Delaware to New York Bay. If we permit the railroads to destroy the business of the canal between our ship-yards and our navy yards, we may be sure that in every European War office the fact of our folly is carefully noted for future reference. Once Great Britain fought a great battle to destroy the water route that connects the port of New York with the back door of New England. Saratoga was

fought to destroy a vital water route. Fortunately, the English generals who planned in London thus to cut the country in two failed, and yet to-day we are abandoning our canals

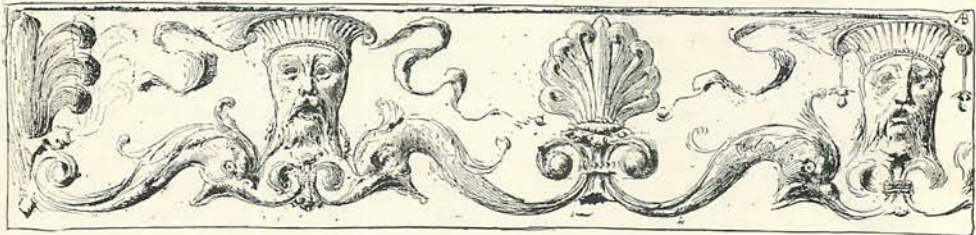
and see our great internal steam navigation system decay without a thought of the consequences.

On the other hand—for there is a brighter side to every picture—there is a disposition among the traveling public to demand larger, finer, and safer boats everywhere. We are being taught by English tourists who visit us how to see our own country. We may complacently talk of our limited trains and all that. Every foreigner who visits us asks first of all for our steamboat routes, because our lake, river, and Sound boats are known of all the world.



STATEROOM DOOR LOCK, "PURITAN."

Charles Barnard.



RAIL-FACING, "PURITAN."

THE ADVANCE IN STEAMBOAT DECORATION.

ONLY a few years ago it seemed as though sordid ugliness was nowhere so firmly entrenched as in our ferry-boats, while the "floating palaces" on which we betook ourselves to Albany or Newport were synonyms for the most pretentious bad taste. There could not be a clearer sound of our progress in art than the fact that both these classes of boats are now being built to satisfy a cultivated eye as well as to transport a comfort-loving body with safety and speed.

The most conspicuous example of a desire to put really good decorative work into a steamboat interior is the *Puritan* of the Fall

River line. The first step—and the most novel that could have been taken—was to select an artist of experience and skill and give him complete control of the task. Every item in the decoration and furnishing of the *Puritan* has been conceived by Mr. Frank Hill Smith, and designed and carried out under his careful superintendence. The success which he has achieved in a field where no precedents guided him certainly deserves great praise. I do not mean judged simply by the standard set by the boat-interiors of other days—this would be no test at all; I mean judged by the same standard we should use if a luxurious home or great public building were in question. It may be thought by some that soberer