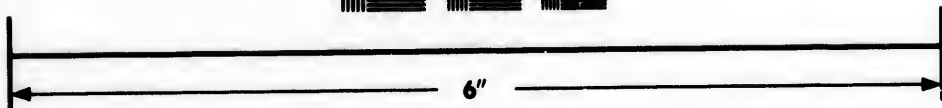
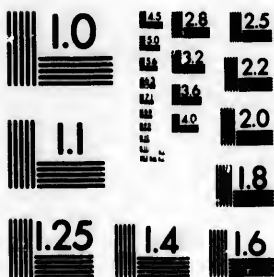


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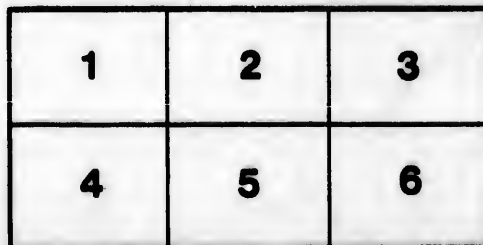
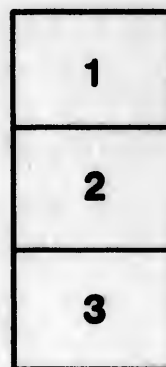
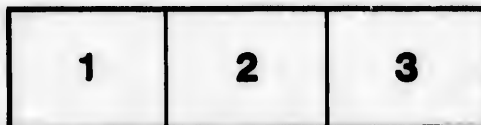
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*A. M. ...
Portland*

*To the Honorable, the Senate and House of Representatives of the
State of Maine, in session at Augusta, A. D. 1850 :*

THE undersigned, citizens of Maine, respectfully request your honorable body to cause to be surveyed and ascertained, the most practicable route for a Railway, from the city of Bangor to the Eastern Boundary of the State, in the general direction of the city of St. John, New Brunswick; and to take such further action in the premises as will tend to favor the construction of a Railroad from the city of Bangor to some good harbor on the Eastern shore of Nova Scotia, or Cape Breton, best fitted to become the entrepot and terminus for the most direct line of trans-Atlantic navigation.

From the easternmost point of Nova Scotia, Cape Canso, in Latitude 45 deg. 17 min. N. and in Longitude 61 deg. 3 min. W. to Galway Bay, in Ireland, in Latitude 53 deg. 13 min. N. and in Longitude 9 deg. 13 min. W. the distance is about 2000 miles. Assuming a speed of 17 miles an hour in steam vessels, the Atlantic Ocean can be crossed between these points in *five days* time.*

The nearest accessible harbor to Cape Canso, Whitehaven, in Lat. 45 d. 10 min. N. Long. 61 d. 10 min. W. according to the authority of Admiral Owen, in a report on the subject made to Sir John Harvey, Sept. 5, 1846—"is a most splendid and commodious port, at the nearest available point of North America to Ireland; its natural facilities greatly exceeding those of Halifax, or any other point upon the coast." Galway harbor is one of the finest in the world, having great advantages over Bristol or Liverpool, as a steam-ship terminus.

The Gut of Canso could possibly be passed by a bridge; but upon this point there is at present no satisfactory information. By means of a ferry across the Gut of Canso, the line could be extended to Louisburgh harbor in Cape Breton, still

*See note A.

further east, to a point less than 2000 miles distant from Galway Bay—as will appear by the accompanying map or plan.

From Galway to Dublin, a line of Railway is nearly completed across Ireland, and is in actual operation from Dublin to Mullingar, a distance of 50 miles. From Dublin, the distance of 63 miles across the Irish Channel to Holyhead, is passed with steam packets, at the rate of 18 miles an hour, to which place the Chester and Holyhead Railway is already finished, connecting with Liverpool and London—crossing the Menai Strait by the Britannia Tubular Bridge, which was opened for traffic on the 18th of March, 1850.

The route of the steamship from Liverpool to New York passes near to Cape Race in Newfoundland, Cape Breton, and Cape Canso, and thence along the coast of Nova Scotia to Cape Sable, and paralel with the general line of the coast of New Brunswick and Maine. From Cape Canso to New York the distance can be passed in about the length of line by land as by water, and in one third the time. From New York to Waterville the Railway is already finished, a distance of 410 miles. From Waterville to the city of St John, the distance would probably be about 200 miles; and from St. John to Whitehaven less than 250 miles further; making the entire distance from New York to Whitehaven from 800 to 900 miles in all.

From Whitehaven to the head of the Bay of Fundy, at Sackville, a feasible route for a Railway has been ascertained, passing near to Pictou, through the valuable coal districts along the shore of the Gulf of St. Lawrence; and it is believed that the Legislature of Nova Scotia would cheerfully engage to construct that part of the line whenever the other portions are secured.

A line of Railway from Halifax, passing in the vicinity of Truro, could be easily connected at some feasible point with the main trunk; and it cannot be doubted that the enterprising citizens of Halifax would engage in its construction at once. At the present time they are urging the completion of a line from Halifax to Windsor, and a survey of the route has been accomplished.

From the city of St. John to Shediac Bay, on the Gulf of St. Lawrence, a line has been surveyed for a Railway on the general line of the route to Sackville, and Provincial aid to a large amount proposed. The Province of New Brunswick has recently

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appropriated £60,000 currency—\$240,000, to construct that portion of the distance between Shediac Bay and the Bend of the Petecodiac River—the head of navigation on the Bay of Fundy. No doubt can be entertained that the Province would extend this line from a point of connection with the Nova Scotia line to the city of St. John; and it is believed that the local business of the country between the city of St. John and the head of the Bay of Fundy, would at the present time pay a tolerable remuneration to the stockholders.

From the city of St. John to Bangor it is supposed that a route tolerably direct can be found, without encountering serious obstacles. The necessary information upon this point has never been ascertained; and it is for the purpose of asking that this service may be speedily accomplished, that we approach your honorable body. From Bangor to Waterville, private enterprise has already demonstrated the fact, that either one of several cheap and practicable routes can be adopted.

The only grant asked of the Legislature, or that will be necessary to obtain, is an appropriation sufficient to secure the completion of the remaining link in the line of surveys, and at a suitable time, the necessary grant of a charter to carry this work forward, which, from the progress of events, must soon claim the public attention.

The citizens of Maine are generally aware of the importance of the question to the best interests of the State; but the work is too great for individuals to undertake with our present means. The proper surveys once being completed, would place before the country the great advantage of the position of our State for a leading part in the commercial movements of the age. Private enterprise ought not to be so largely taxed as it must necessarily be, without the grant of aid to the proposed survey in whole or in part by the State, for the purpose of procuring valuable information, equally desired by, or at any rate of equal importance to, all. Maine ought not, either, to remain indifferent to the great advantages which may now be brought within her reach by a proper attention to the great movements in Ocean Steam navigation and commercial affairs.

The most strenuous efforts are now made to revive the plan of the Quebec and Halifax line; and various projects are now engaging the attention of the British Provinces, with a view to se-

cure in some form or other the aid of the Home Government. The movement is gaining favor in Great Britain.

From Halifax to Quebec the distance, according to the survey for a railroad, by Major Robinson, is 635 miles; and this road is urged upon public attention with a view to draw over it a portion of the western trade, and place the Lower Provinces in the great line of communication between the grain growing regions of this Continent and Europe. Without going into an extended examination of the merits of this project, it seems to us that it must strike every intelligent mind, that the most natural — the cheapest and best, mode of obtaining a communication by Railway between the Lower Provinces, and Montreal and the west, will be found, by extending a line of Railway in the direction of Bangor and Waterville, Maine. From Waterville to Montreal, a distance of 300 miles, the entire line is finished or under contract for completion in 1852, and a branch to Quebec may be regarded as secured within three years from the present time.

The highest importance therefore attaches to every movement having reference to the extension of Railways east of Bangor, or from the Lower Provinces in the direction of the St. Lawrence River. One great central line for the whole State, and for European communication, once laid down, into which the various branch lines could enter, on either side as required,—connected with a line extending to Montreal and Quebec,—a system of Railways would be secured surpassing in value and importance any that has yet been proposed.

It is not proposed to urge any one to embark hastily in the construction of the proposed line; but to so far present the advantages of this route for the great ends in view, over any other possible line, as to secure for it such aid as in the progress of events, its advantages may call forth. If the practicability of the line were properly demonstrated, it is believed that it would command support from the great commercial interests of Great Britain and the United States. If already built, no one can doubt the value of the undertaking as a mode of profitable investment. Those who may incline to hesitate, in yielding assent to the truth of this assertion, are invited to very carefully review the present condition of affairs.

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The United States now embrace a territory of 2,187,490 square miles not organized into States, including Texas. If this whole territory was as densely populated as the State of Massachusetts, it would contain a population of over *Two Hundred Millions* of people. The same extent of territory in Europe, under similar climate, and with fewer natural advantages, contains a still greater population, while the United Kingdom of Great Britain and Ireland has a ratio of population to the square mile more than twice as great as Massachusetts. The twenty-nine remaining States, exclusive of Texas, comprise an extent of 1,065,158 square miles more. The increase of population in the United States from 1790 to 1800, was at the rate of 35.01 per cent.; from 1800 to 1810, 36.45 per cent.; from 1810 to 1820, 33.35 per cent.; from 1820 to 1830, 33.26 per cent.; from 1830 to 1840, 32.67 per cent. It is believed that the census of 1850 will show that from 1840 to 1850, the increase has been as great as at any other period of ten years. Causes now at work tend rather to increase than diminish the ratio of increase; and many now alive will see this nation numbering *one hundred and fifty millions* of people.

Commercial intercourse between the United States and Europe has gone on increasing more rapidly than the population of the country. In the year 1820, the attempt was first made to establish a line of packet ships to Liverpool, to sail on certain stated days. Almost every one prophesied their failure, though embracing only *two* in number, and of 450 tons burthen. At this time there are lines of regular sailing packets from all our large cities, embracing vessels of over 2000 tons burthen, and reaching hundreds of ships in number.

About fifteen years ago, the scientific world listened with attention to the assertion of the learned Dr. Lardner, that it was impossible to navigate the Atlantic Ocean by steam. This theory was disproved by the arrival of two steamers, the *SIRIUS* and the *GREAT WESTERN*, in New York harbor, one from Bristol, the other from Liverpool, on the 23d day of April, 1838, both on the same day. More than *twenty* steamships during the present year will run as regular packets between this country and Europe, while the number of sailing vessels is greater than at any former period.*

*See note B.

The number of Emigrants which arrived in New York in 1838, was 25,581. In 1849, the number reached 221,799. The number which left the United Kingdom of Great Britain and Ireland for the United States in 1848, was 188,223; and the whole emigration into this country in that year exceeded 250,000. In the year 1849, the number of emigrant arrivals reached 325,000; and it is estimated that the number will exceed 400,000 the present year.

Every year gives fresh impulses to the cause of Emigration to the United States, and the disturbed condition of all commercial affairs on the Continent of Europe is operating to invite a better class of Emigrants than heretofore, embracing much of the skill and mechanical industry of Switzerland, France and Germany.

The most indifferent observer will admit that the increase of facilities for travel with Europe, must increase far more rapidly for the next ten years, than at any former period. The trade between the United States and Great Britain is constantly increasing and at the present moment beyond any former example.* The exports to England in 1830, were \$24,599,666, in 1848 \$71,852,315. The Imports from England in 1830, were \$22,755,040, in 1848 \$59,763,522. Both exports and imports in 1847 exceeded those of 1848, but the extraordinary demand for food occasioned by the famine in Ireland, gave an unusual impulse to trade in that year.

A route which would enable the traveller to see an attractive portion of this Continent, the best portion of Ireland, and the most extraordinary work of human skill, the Britannia Tubular Bridge, would of itself invite the pleasure tourist to take this route, if no saving of time or expense were secured. But it is confidently asserted that while to the man of business the same attractions would be offered by the plan proposed, the expense of a trip to Europe can be largely reduced, while it shall save him much if not all uncertainty as to the time of his arrival, and some days time for purposes of business.

From New York to Liverpool, in the shortest line, is 3100 miles; the route usually traversed is over 3300 miles. By taking the Railway from New York to Halifax or Canso, employing the swiftest steam packet from thence to Galway, crossing the great Midland Railway from Galway to Dublin, a distance of

* See note F.

about 120 miles, and from thence to Holyhead harbor, a distance of 63 miles, and from thence to London, by the Chester and Holyhead and London and Northwestern Railways, a distance of 263 miles—employing about 1,200 miles of railway, and 2,000 miles of steam navigation—the passage from New York to London may be reduced to seven days time, at all events, and possibly to six days, within a few years at farthest.*

This can only be achieved by shortening the sea voyage, and dispensing with the vast weight of coal and other superfluous load now carried. Vessels designed for crossing the ocean with speed, should be relieved of all load not requisite for steadiness and good carriage. Ordinary merchandize will always go more cheaply in sailing vessels. Valuable goods could be transferred to boats of still greater speed, from the ocean terminus, running if necessary to the various Atlantic cities, if too bulky to go by the Railway. In this way, the safest and swiftest passage would be secured. In a few years, instead of a semi-weekly, a daily arrival of steamships may be expected.

One hundred *through* passengers a day each way by the Railway, would give a most profitable business to the road, in addition to its local business; and the highest price would readily be paid for the carrying of the mails. The British and the American Governments would willingly enter into a perpetual or permanent contract for this service, at rates of compensation representing a capital equal to one third of the entire cost of the line. If the proper surveys were now completed, and the necessary charters granted, for a continuous line from Bangor to Whitehaven or Halifax, the scheme would offer inducements for the employment of capital, unsurpassed by any enterprise of the age.

Looking forward but 25 years only, we shall see this government containing *fifty millions* of people. Its great rivers and inland seas—its mineral wealth and inexhaustible soil—within a latitude favorable to health of body and vigor of mind—all conspire to give the fullest development to the spirit of progress, requisite to supply means for the fullest gratification of every want known to the highest civilization.

Under any form of Government known to civilized man, the progress of the race would be, under such influences, rapid and vigorous. When, therefore, an enterprising race, in the posses-

*See note C.

sion of such physical advantages as this country possesses, are stimulated to exertion by the action of a free government upon the energies of the whole people, we may confidently expect a higher development in the ideas and institutions of society, and a more practical application of knowledge to the wants and necessities of life.*

Maine, from her frontier position and severe climate, has been heretofore regarded as the least favored of all the States in the Union; while it has the power to become the great manufacturing and great ship-owning State of the Confederacy, if not the first in point of commercial importance. Our climate and our geographical position, generally spoken of as our misfortunes, are in fact the great elements of our strength. The increased necessities which our climate imposes upon us, beyond those of a warmer latitude, are far more than compensated by our superior capacity for labor, our greater power of endurance, and our extraordinary fondness for exertion. With a more extended line of sea coast than any other State in the Union, and more good harbors than all the other States together, Maine will present at some future day, along her bays and rivers, a line of cities surpassing those which are now found upon the shores of the English Channel, or the Baltic Sea.

This result will be hastened by attracting into our own State the great stream of European business and travel, where it shall divide into two great channels—one flowing northward into the St. Lawrence valley and the West, the other flowing southward to the great commercial cities of the Continent.

Without the fertile soil of the West, or the rich deposits of coal and iron of Pennsylvania, Maine for twenty years past has not kept pace with the ratio of increase of the whole country. From 1820 to 1830, the ratio of her increase was 33.9 per cent. or about the same as that of the whole Union. From 1830 to 1840, the rate of increase was only 26.2 per cent. Notwithstanding the healthiness of our climate, the extent of our public lands, with all the facilities inviting emigration from the more densely populated districts of New England, emigration into the State had become nearly stationary, and the tendency of our people to emigrate West remained unchecked, till the movement was made to construct a railroad from Portland to Montreal. The

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effect of that movement is already apparent upon the character, the enterprise, and the business of the State. A small portion only of the energy which has been applied to that undertaking, will speedily accomplish the end now purposed;—favorably affecting that great enterprise, and all the leading interests of Maine.

The time is not regarded by most persons as particularly favorable for entering upon new enterprises. The great interests of Maine, ship building and lumber, for some three years past have been severely depressed, furnishing less returns even than investments in Railways. These, in common with all other business interests, are destined at times to suffer. Railway property will, however, advance in value with the growth and increase of business in the State; while it will also tend to foster industry and stimulate production in every department of labor, beyond any other mode of investment.

It is in vain to expect to retain the natural increase of our population without holding out inducements for labor beyond what are offered by the pursuits of agriculture and lumbering; and we have failed so far to attract to this State the most valuable class of emigrants, that seek for a climate and soil similar to that of Germany and Switzerland, which resembles our own.— If proper encouragement was held out to them, we might expect the emigrants from the north of Europe to prefer the soil and climate of Maine to that of the Mississippi valley. Instead of this, for a series of years we have been compelled to witness the gradual withdrawal of much of our capital into enterprises of other States, and a departure from among us of many of the most enterprising of the young men of Maine. Real estate has advanced but moderately in value for the last fifteen years, while the new States have grown up within that brief period into wealth and importance. Our frontier position, and the want of a proper State pride and a State policy, have been pointed out as the principal hindrances to the growth of Maine. The opening of the great avenues already in progress and proposed, placing Maine in the direct line of the great commercial intercourse of the globe, will create new relations in every department of business, and call into exercise such agencies as will soon give to Maine a strength and a position equal to that, of any portion of the Union.

The present period seems to us favorable for the proposed movement. An experiment is now making to run steamships from Galway to Halifax, aided by the great Midland Railway Company of Ireland. The capital of this company is £2,596,-666, or more than 12,000,000 of dollars.

This Company has a direct interest to subserve in inviting the travel between this country and Europe upon its road. The same is true also of the Chester and Holyhead and the London and Northwestern Railway Companies. These companies, with their various branch lines—under one management—embrace nearly one eighth of the entire traffic of the United Kingdom. The London and Northwestern Railway Company, Aug. 1, 1849, owned 478 1-2 miles of road already finished—built at a cost of £30,617,620, or \$150,000,000—60 3-4 miles more in progress, and held the leases of over 200 miles more—including the Chester and Holyhead Railway, representing a capital of at least 200,000,000 of dollars.* Amid all the depressions of Railway stocks and business, for the last few years in England, the stock of this Company has never been sold except above par; and by the recent advices from Europe, was selling at an advance. The influence of this capital will be brought at once, in aid of any line that shall bring across Ireland to Dublin the travel of this Continent. The same motive which induced the British Government to aid the construction of the Britannia Bridge,—to obtain the most direct route from London to Ireland,—will lead them to favor the plan herein proposed.

Believing, therefore, that the State has only to display to the business community the practicability and advantages of this great route through Maine, to ensure at the proper time its completion, we respectfully ask your honorable body to cause the line from Bangor to St. John to be surveyed at the expense of the State, and such further measures adopted as will give proper encouragement to the undertaking.

JUNE 12th 1850.

JOHN A. POOR.
 JOSIAH S. LITTLE.
 JAMES B. CAHOON.
 JOHN M. WOOD.
 CHARLES Q. CLAPP.
 FRANCIS O. J. SMITH.
 LUTHER JEWETT.

*See note B.

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NOTE A.

Within the last ten years considerable changes have been made in the proportion and dimensions of the vessels navigating the Hudson river; all these changes having a tendency to augment their magnitude and power, to diminish their draft of water, and to increase the play of the expansive principle. Increased length and beam have been resorted to with great success. Vessels of the largest class now draw only as much water as the smallest drew a few years ago; 4 ft. 6 in. is now regarded as the maximum. In the following table is exhibited the dimensions and other particulars of nine of the most efficient and most recently built steamers plying on the Hudson and its adjoining waters.

| Name of Vessel. | Dimensions of Vessel. | | | | Engine. | | | Paddle-wheel. | | |
|-----------------|-----------------------|-------|--------|----------|-----------------------|--------------------|--------------------|---------------|-------------------|------------------|
| | Length. | Beam. | Depth. | Tonnage. | Diameter of Cylinder. | Length of Strokes. | Number of Strokes. | Diameter. | Length of Bucket. | Depth of Bucket. |
| Isaac Newton, | 333 | 40 4 | 10 0 | | 81 | 12 | 181 | 39 0 | 12 4 | 33 |
| Bay State | 300 | 39 0 | 13 2 | | 76 | 12 | 213 | 33 0 | 10 3 | 32 |
| Empire State | 304 | 39 0 | 13 6 | | 76 | 12 | 214 | 33 0 | 10 3 | 32 |
| Oregon | 305 | 35 0 | | | 72 | 11 | 18 | 34 0 | 11 0 | 28 |
| Hendrik Hudson | 320 | 35 0 | 9 6 | 1050 | 72 | 11 | 22 | 33 0 | 11 0 | 33 |
| C. Vanderbilt | 300 | 35 0 | 11 0 | 1075 | 72 | 12 | 21 | 35 0 | 9 0 | 33 |
| Connecticut | 300 | 37 0 | 11 0 | | 72 | 13 | 21 | 35 0 | 11 6 | 36 |
| Commodore | 280 | 33 0 | 10 6 | | 65 | 11 | 22 | 31 6 | 9 0 | 33 |
| New World | 376 | 35 0 | 10 0 | | 76 | 15 | 18 | 44 6 | 12 0 | 36 |
| Alida | 286 | 28 0 | 9 6 | | 56 | 12 | 24 | 32 0 | 10 0 | 32 |

It is not only in dimensions that steam vessels have undergone improvements. The exhibition of the beautifully finished machinery of the English Atlantic steamers did not fail to excite the emulation of the American engineers and steam boat proprietors, who ceased to be content with the comparatively rude though efficient structure of the mechanism of their steam-boats.

All the new and largest class of steamers, such as the Isaac Newton, the Hendrik Hudson, the Oregon, and the Alida, are capable of running from twenty to twenty-two miles an hour, and make, on an average, eighteen miles an hour without the least effort. These extraordinary speeds are obtained usually by rendering the boilers capable of carrying steam from forty to fifty pounds pressure above the atmosphere, and by urging the fires with fanners, worked by an independent engine, by which the furnaces can be forced to any desired extent.

The great power developed by these river engines according to Dr. Lardner, is due, not so much to the magnitude of their cylinders, as the pressure of steam used in them. The New World, one of the most recently constructed boats, has a cylinder seventy-six inches in diame-

ter, and fifteen feet stroke. The steam has forty pounds pressure in the boiler, and is cut off at half-stroke. The wheels, which are forty-five in diameter, make sixteen revolutions per minute. The speed of the circumference of the wheel will therefore be twenty-five miles an hour; so that, if the speed of the boat be twenty miles an hour, we have the difference, five miles, giving the relative movement of the edge of the paddle-boards through the water. PROF. EWBANK, Commissioner of Patents, and other able writers contend, that a greatly increased speed will be attained by adopting an improved system of paddle wheels.

NOTE B.

Ocean Steamers, to run between United States and Europe in 1850.

| NAMES OF STEAMERS. | Tonnage. | Length. | Breadth. | Cost. | Diameter of Cylinder. | Length of Stroke. | Diameter of Paddles. | Capacity of Engine in horse power. |
|-----------------------|----------|---------|----------|---------|-----------------------|-------------------|----------------------|------------------------------------|
| <i>Collins' Line.</i> | | | | | | | | |
| Atlantic, | 3000 | 290 | 46 | 650,000 | 95 in. | 9 ft. | 35 | 769 |
| Pacific, | 3000 | 290 | 46 | 650,000 | 95 in. | 9 ft. | 35 | 760 |
| Baltic, | 3000 | | | 650,000 | | | | |
| Arctic, | 3000 | | | | | | | |
| Adriatic, | 3000 | | | | | | | |
| <i>Cunard's Line.</i> | | | | | | | | |
| Caledonia, | 1250 | | | | | | | 500 |
| Hibernia, | 1400 | | | | | | | 550 |
| Cambria, | 1400 | | | | | | | 550 |
| America, | 1800 | 275 | 40 | | 90 in. | 8 ft. | 32 | 700 |
| Canada, | 1800 | 275 | 40 | | 90 in. | 8 ft. | 32 | 700 |
| Niagara, | 1800 | 275 | 40 | | 90 in. | 8 ft. | 32 | 700 |
| Europa, | 1800 | 275 | 40 | | 90 in. | 8 ft. | 32 | 700 |
| Asia, | 2250 | 300 | 42 | | 96 in. | 9 ft. | 36 | 800 |
| Africa, | 2250 | 300 | 42 | | 96 in. | 9 ft. | 36 | 800 |
| <i>Havre Line.</i> | | | | | | | | |
| Franklin, | 2500 | 260 | 42 | 350,000 | 94 in. | 8 ft. | 34 | |
| Havre, | 2500 | | | 450,000 | | | | |
| <i>Bremen Line.</i> | | | | | | | | |
| Washington, | 1750 | 230 | 39 | | 72 in. | 10ft. | 35 | |
| Herrmann, | 1850 | 235 | 40 | | 72 in. | 10ft. | 35 | |
| <i>Glasgow Line.</i> | | | | | | | | |
| Glasgow City, | 1610 | | | | | | | 350 |
| Galway Line. | | | | | | | | |
| Viceroy, | | | | | | | | |

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Three years ago Ocean Steam Navigation was entirely in British hands. Two years since the only line of American Steam Ships afloat suited to Ocean Navigation in the merchant service, consisted of the two small boats running between New York and Charleston and the Washington, the first in the Bremen line. There are now *six* large Steamers running regularly between New York and Chagres.— There are an equal or greater number on the Pacific side, and existing projects contemplate *twenty* in all within a year for the Pacific seas. There are lines also to New Orleans, Havana, Savannah, Charleston, in addition to those named in the above list, and every ship yard and machine shop in New York city, is tasked to its utmost capacity in this branch of service. There are no less than 17 Ocean Steamers on the stocks at the present time in New York city.

The competition between the American and English lines will soon call into use the best skill of both countries. The recent voyages of the Atlantic—the first of Collins' line—and of the Asia, the last of Cunard's boats, show that an increase of speed may still be expected in Ocean Steamers. That route, or that line, which shall reduce the voyage to Europe to the shortest period of time, will be the most successful.

NOTE C.

The most extraordinary result of the railway system, is the fact that great speed can be maintained on railways with entire safety to the public.

The annual returns of the New York railroad companies for 1849, show the following as the average speed of passenger trains on the leading railroads of New York, for that year.

| | Miles per hour. |
|------------------------|-----------------|
| Hudson River, | 30 |
| Attica and Buffalo, | 26 |
| Utica and Schenectady, | 28 |
| Auburn and Syracuse, | 26 |
| Syracuse and Utica, | 25 |
| New York and Erie, | 22 |

The annual returns of the Massachusetts railroads for 1849 and 1848, give the following statements as to the speed of passenger trains during the last two years as follows, viz :

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1850.

Capacity of
Engine in
horse power.

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760

500
550
550
700
700
700
700
800
800

350

| | 1848. | | 1849. | |
|------------------------|-----------------|-----------------------|-----------------|-----------------------|
| | Miles per hour. | | Miles per hour. | |
| | Express Trains. | Accommodation Trains. | Express Trains. | Accommodation Trains. |
| Hart. and N. Haven, | 25 | — | 39 | 23 |
| Western, | 28 | 22 | 37 | 22 |
| Boston and Maine. | — | 22 | 35 | 23 |
| Boston and Providence, | 30 | — | 34 1-2 | 25 |
| Boston and Lowell, | 23 | 24 | 33 1-2 | 25 |
| Boston and Worcester, | — | 22 | 29 | 24 |
| Fitchburg, | 25 | 20 | 30 | 22 |
| Eastern, | — | 21 | — | 22 |

The foregoing comparative statement shows a most extraordinary increase of speed : the same comparative increase substantially appears upon many, if not all the Massachusetts roads.

The rate of speed now employed on the leading English Rail Roads is shown in the following table.

| RAILWAYS. | TRAIN. | Distance Travelled | TIME | | Average Speed Including Stoppages. | Actual Speed in Motion, excluding Stoppages. |
|--------------------------------|-----------------|--------------------|----------------------|-----|------------------------------------|--|
| | | | Number of Stoppages. | | | |
| | | Mile | H. M. | | Miles per Hour. | Miles per Hour. |
| LONDON TO LIVERPOOL, | Express | 201 | 5 45 | 5 | 35.00 | 37.75 |
| | Express Mail | 201 | 6 45 | 15 | 29.75 | 36.60 |
| | Mail | 201 | 7 57 | 15 | 25.25 | 31.00 |
| | 1st & 2nd Class | 201 | 8 | 20 | 25.10 | 31.70 |
| LONDON TO EXETER, Broad Gauge. | 3rd Class | 301 | 14 45 | 45 | 13.65 | 18.25 |
| | Express | 1934 | 4 30 | 7 | 43.01 | 51.60 |
| | Mail | 1934 | 7 10 | 21 | 27.00 | 36.80 |
| | 1st & 2nd Class | 1934 | 7 15 | 25 | 26.65 | 35.60 |
| LONDON TO SOUTHAMPTON | 3rd Class | 1934 | 13 5 | 37 | 14.75 | 19.32 |
| | Express | 80 | 2 15 | 6 | 35.60 | 45.80 |
| | Mail | 80 | 3 | 11 | 26.65 | 38.25 |
| | 1st & 2nd Class | 80 | 3 20 | 13 | 24.10 | 35.50 |
| LONDON TO DOVER, | 3rd Class | 80 | 4 45 | 18 | 16.45 | 24.65 |
| | Express | 88 | 2 30 | 8 | 35.20 | 48.50 |
| | Mail | 88 | 2 30 | 5 | 35.20 | 42.10 |
| | 1st & 2nd Class | 88 | 3 45 | 15 | 23.45 | 29.35 |
| LONDON TO BRIGHTON, | 3rd Class | 88 | 4 | 17 | 22.00 | 30.40 |
| | Express | 504 | 1 30 | 1 | 33.80 | 35.45 |
| | Mail | 504 | 1 30 | 3 | 33.80 | 40.50 |
| | 1st & 2nd Class | 504 | 2 | 3 | 25.25 | 28.90 |
| | 3rd Class | 504 | 2 25 | 11 | 20.65 | 33.80 |
| Totals and Averages . . . | | 2652 | 108 42 | 301 | 24.45 | 32.00 |

Experimental trips have been run at the rate of 70, 80 and 84 miles an hour.

NOTE D.

The English race have made greater progress during the last 20 years, than any other people. Far the largest portion of the railways, —the steam ships—and the sailing vessels of the world, belong to the

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*See note

United States and Great Britain.* The population of the United States is nearly 24 millions, that of the United Kingdom about 30 millions. The following table gives the

Progress of Railways in the United States.

| | Miles in operation 1833. | Miles in operation Jan. 1850. |
|-----------------|--------------------------|-------------------------------|
| Maine | - | 214 |
| New Hampshire | - | 394 |
| Vermont, | - | 286 |
| Massachusetts, | - | 930 |
| Rhode Island, | - | 68 3-4 |
| Connecticut, | - | 481 |
| New York, | 75 | 1233 1-2 |
| New Jersey, | 50 1-2 | 261 |
| Pennsylvania, | 111 | 720 1-2 |
| Delaware, | 16 | 40 |
| Maryland, | 95 | 252 |
| Virginia, | 33 | 406 |
| North Carolina, | - | 255 |
| South Carolina, | 135 | 242 |
| Georgia, | - | 659 |
| Florida, | - | 26 |
| Alabama, | - | 92 |
| Mississippi, | - | 95 |
| Louisiana, | - | 50 |
| Kentucky, | 15 | 29 |
| Illinois, | - | 26 |
| Indiana, | - | 86 |
| Ohio, | - | 310 |
| Michigan, | - | 330 |
| | 430 1-2 | 7465 |

The number of miles in actual process of construction in the United States on the first day of Jan. 1850, was equal to the miles in operation.

The money expended for railways in the United States in 20 years past, has been over 900,000,000 of dollars.

The following summary gives in a brief compass, a view of

The Progress of English Railways to June 30, 1849.

| PERIOD. | LENGTH OF MILES OPEN ON | | Number of | RECEIPTS FROM | | TOTAL RECEIPTS. |
|---------------|-------------------------|---------------------|------------|---------------|-------------|-----------------|
| | 31 Dec. | 30 June. | | Passengers. | Passengers. | |
| | to each year. | | | | | |
| Year ending— | Miles. | Miles. | | £ | £ | £ |
| 30 JUNE, 1845 | Dec. 1844. 2,210. | June 1845. 2,343 | 33,791,252 | 3,976,841 | 2,233,373 | 6,209,714 |
| 30 JUNE, 1846 | Dec. 1845. 2,536. | June 1846 2,765 | 43,790,983 | 4,725,216 | 2,840,351 | 7,565,569 |
| 30 JUNE, 1847 | Dec. 1846 3,142 | June 1847. 3,603 | 51,352,163 | 5,148,002 | 3,362,684 | 8,510,686 |
| 30 JUNE, 1848 | Dec. 1847 3,945 | June 1848. 4,478 | 67,965,070 | 5,720,382 | 4,212,170 | 9,933,552 |
| 30 JUNE, 1849 | Dec. 1848 5,127 | June 1849. 6,447 | 60,398,159 | 6,105,975 | 5,094,926 | 11,200,901 |

*See note G.

The amount expended on railways in the United Kingdom to Dec. 31, 1848, was £200,173,058, and it was estimated that the roads then in progress would require £90,000,000 sterling in addition, which would give an aggregate of 9500 miles of railway, costing 290 millions sterling, or 1,400 millions of dollars, about \$145,000 per mile.

The railways built to Dec 1848, were distributed as follows :

| | | |
|----------------------|-------|------|
| England | 3918 | |
| Scotland | 728 | |
| Ireland | 361 | |
| | <hr/> | |
| | 5007 | |
| Mines and Collieries | 120 | |
| | <hr/> | 5127 |

NOTE E.

LONDON AND NORTH WESTERN RAILWAY Co. was incorporated July 16, 1846, by which act several distinct lines were incorporated into one, and included the following lines, viz.:

| | |
|-------------------------------|---------------|
| Liverpool and Manchester, | 31 miles. |
| Manchester and Birmingham, | 31 miles. |
| Birmingham to Newton, | 83 miles. |
| Macclesfield Branch, | 10 miles. |
| Northampton and Peterborough, | 47 1-4 miles. |
| Bedford and Bletchley, | 16 1-2 miles. |
| Leamington and Coventry, | 9 1-4 miles. |
| Aylesbury, | 7 miles. |
| Bolton and Leigh, | 10 miles. |
| Chester and Crewe, | 21 miles. |
| London to Boxmoor, | 24 1-2 miles. |
| Boxmoor to Tring, | 7 miles. |
| Tring to Denbigh Hall, | 16 1-2 miles. |
| Birmingham to Rugby, | 29 miles. |
| Denbigh Hall to Rugby, | 35 1-2 miles. |

Total, 378 1-2 miles.

SINCE OPENED,
Trent Valley, 49 1-2 miles. Sep. 18, '47.
Dunstable, 7 miles. May 29, 1848.

Huddersfield and Manchester, and

Leeds and Dewsbury Line, 43 1-2 miles. Aug. 1. '49.

| | |
|--------------------------|----------------|
| Total, | 478 1-2 miles. |
| LEASED LINES. | |
| Chester and Holyhead, | 80 1-2 miles. |
| Kendal and Windemere, | 9 3-4 miles. |
| Shrewsbury and Stafford, | 29 1-4 miles. |
| Preston and Carlisle, | 90 miles. |
| Preston and Parkside, | 22 miles. |
| Grand Total, | 710 miles. |

THE LONDON AND NORTHWESTERN RAILWAY is *par excellence* the Great Railway of the world. In addition to the lines owned and leased, it controls indirectly the traffic of some 400 miles in addition.

The returns of this Company for the year ending June 30, 1849, show the following facts :

| | |
|---|-----------|
| Number of Engines in use | 457 |
| Number of miles run by passenger Engines, | 4,649,556 |
| “ “ freight “ | 2,882,674 |
| “ “ Engines of both classes, | 7,532,230 |
| Average daily run of Engine, | 45 miles |
| Actual running of each Engine per trip, | 90 “ |
| Average speed of trains per hour, | 28 “ |
| Passenger coaches owned—1st class, | 451 |
| 2d “ | 416 |
| 3d “ | 229 |
| The company owned June 30, 1849—Box Freight Cars, | 6395 |
| Platform Cars, | 223 |
| Horse Boxes | 246 |

For the 12 months ending June 30, 1847, on 428 miles of road—the tons of goods carried were,

| | |
|--|--------------|
| Average distance of each ton carried, | 69 3-4 miles |
| Average number of tons carried daily, | 631 |
| Number of Passengers carried daily—1st Class | 360 |
| 2d “ | 478 |
| 3d “ | 345 |
| Average daily, | 1183 |

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29, 1848.

| | |
|--|-------------|
| Average number of Passengers to each engine—1st Class, | 14. 5. |
| 2d “ | 19. 3. |
| 3d “ | 14. 6. |
| Total, | 48. 4. |
| Average distance travelled by Passengers—1st Class, | 57. 6 miles |
| 2d “ | 31. 3. |
| 3d “ | 23. 0. |
| Average distance, | 32. 2. |

An average of 1183 passengers carried 32. 2 miles daily, is equal to 33,092 carried one mile. Assuming a business equal to 100 through passengers from Bangor to Canso each way daily, 400 miles, it is equal to 80,000 passengers daily, or more than twice the average travel on the London and Northwestern Railway.

Add 100 daily passengers to the present business of the 333 miles of Railway from Galway to London (allowing one half to stop short of London) and you add to the business of those roads an amount nearly equal to the average daily business of their lines.

Assuming the cost of a road from Bangor to Canso at \$30,000 per mile, and it requires a capital of \$12,000,000 to complete it. This would require a net income of \$720,000 to give a 6 per cent. dividend

The *through* business alone, estimated 100 passengers a day each way, and the mail pay at \$300 per mile—the same now paid on 1st class roads in the United States,—would be as follows :

| | |
|---|-----------|
| 200 passengers, 400 miles, at 3 cents per mile is \$2,400 per day, annually producing | \$876,000 |
| 400 miles mail pay, \$300 per mile, | \$120,000 |
| Equal to | \$996,000 |

The cost of running long through trains would be less than the average cost of ordinary roads in this country.

The cost of running Trains on the Portland, Saco and Portsmouth Rail Road Company, has been accomplished at 42 cents per mile.

The average number of passengers per train in the United States is estimated at 54.

The average number of miles each passenger travels is estimated at 18 miles.

| | |
|---|-----------|
| Assuming the cost of running trains at 50 cents a mile, on 300 miles daily, it would cost annually, | \$146,000 |
|---|-----------|

| | |
|--|-----------|
| Leaving a net income for carrying 200 through passengers, with the mails, per day, | \$850,000 |
|--|-----------|

The freight and way business to be added to this estimate.

NOTE F.

COMMERCE OF NEW YORK CITY.

The following tables show the imports and exports at the port of New York for the past year.

IMPORTS—YEAR ENDING JUNE 30, 1850.

| | Dutiable. | Free. | Specie. | Total. |
|---------------|---------------------|------------------|-------------------|--------------------|
| July | \$8,469,423 | \$537,803 | \$327,007 | \$9,334,233 |
| Aug. | 13,061,344 | 707,633 | 60,739 | 13,829,716 |
| Sept. | 7,887,190 | 226,188 | 489,435 | 8,602,813 |
| Oct. | 5,888,881 | 165,303 | 572,614 | 6,626,798 |
| Nov. | 4,548,056 | 429,251 | 533,715 | 5,511,022 |
| Dec. | 4,407,715 | 362,858 | 1,381,824 | 6,152,397 |
| Jan. | 11,446,496 | 437,270 | 433,882 | 12,317,648 |
| Feb. | 7,723,961 | 662,993 | 581,362 | 8,968,316 |
| Mar. | 8,149,821 | 1,364,182 | 907,634 | 10,421,637 |
| April | 9,311,661 | 1,674,330 | 1,095,598 | 12,081,589 |
| May | 8,235,872 | 808,216 | 2,883,623 | 11,927,711 |
| June | 6,229,205 | 514,851 | 1,234,682 | 7,978,738 |
| Total, | \$95,359,625 | 7,890,878 | 10,502,115 | 113,752,618 |

EXPORTS—YEAR ENDING JUNE 30, 1850.

| | Domestic. | Foreign. | Specie. | Total. |
|--------------|---------------------|------------------|------------------|-------------------|
| July | \$2,953,630 | 419,979 | 138,352 | 3,511,961 |
| August | 1,965,113 | 343,704 | 359,368 | 2,668,185 |
| September | 1,808,500 | 416,895 | 326,384 | 2,551,779 |
| October | 1,746,739 | 393,189 | 1,850,518 | 3,970,446 |
| November | 3,684,037 | 309,063 | 634,598 | 4,628,048 |
| December | 2,062,734 | 638,342 | 141,973 | 2,843,049 |
| January | 2,223,910 | 946,981 | 90,161 | 3,261,052 |
| February | 3,188,994 | 324,395 | 278,766 | 3,792,175 |
| March | 2,865,634 | 270,310 | 172,087 | 3,308,031 |
| April | 3,146,151 | 499,971 | 290,407 | 3,936,529 |
| May | 3,610,977 | 346,632 | 741,735 | 4,699,344 |
| June | 3,971,207 | 494,380 | 850,434 | 5,346,021 |
| Total | \$33,227,676 | 5,433,841 | 5,885,103 | 44,546,620 |

The following is a similar statement for the previous year :

IMPORTS—YEAR ENDING JUNE 30, 1849.

| | Dutiable. | Free. | Specie. | Total. |
|----------|--------------|-----------|-----------|------------|
| July | 7,046,389 | 650,055 | 64,631 | 7,761,075 |
| August | 9,796,778 | 1,128,555 | 138,855 | 11,064,188 |
| Sept. | 8,168,294 | 513,749 | 197,098 | 8,879,141 |
| October, | 5,136,332 | 439,587 | 127,998 | 5,703,917 |
| Nov. | 4,518,565 | 185,970 | 104,971 | 4,809,506 |
| Dec. | 3,251,940 | 283,755 | 70,488 | 3,606,183 |
| January | 7,833,710 | 525,534 | 57,700 | 8,416,944 |
| February | 8,257,786 | 285,117 | 21,323 | 8,564,226 |
| March | 7,928,470 | 591,849 | 130,895 | 8,651,214 |
| April | 5,808,158 | 2,192,798 | 638,746 | 8,639,702 |
| May | 5,779,628 | 887,180 | 1,137,932 | 7,804,740 |
| June | 5,057,273 | 344,430 | 122,743 | 5,524,446 |
| Total | \$78,583,323 | 8,028,579 | 2,813,380 | 89,425,282 |

EXPORTS—YEAR ENDING JUNE 30, 1849.

| | | | | |
|---------|--------------|-----------|-----------|------------|
| July | \$2,139,125 | 112,479 | 744,983 | 2,996,587 |
| August | 2,230,909 | 189,206 | 331,031 | 2,751,146 |
| Sept. | 2,926,213 | 217,267 | 561,445 | 3,704,925 |
| October | 3,576,051 | 246,713 | 882,423 | 4,705,187 |
| Novem. | 3,695,287 | 201,378 | 482,186 | 4,378,851 |
| Decem. | 2,616,787 | 407,265 | 365,878 | 2,389,930 |
| January | 2,109,059 | 152,590 | 222,582 | 2,384,267 |
| Feb. | 2,190,649 | 351,378 | 106,651 | 2,648,678 |
| March | 2,687,803 | 330,591 | 86,506 | 3,104,900 |
| April | 2,655,819 | 347,135 | 85,691 | 3,088,645 |
| May | 3,020,861 | 551,991 | 373,916 | 3,946,768 |
| June | 3,317,740 | 445,892 | 596,411 | 4,360,043 |
| Total | \$33,166,339 | 3,553,865 | 4,739,903 | 41,460,127 |

RECAPITULATION.

Below is a recapitulation of the totals, with the addition of the two years next preceding the above.

IMPORTS OF FOUR YEARS.

| Year ending June 30. | Dutiable. | Free. | Specie. | Total. |
|----------------------|--------------|-----------|------------|-------------|
| 1847 | \$65,203,532 | 9,082,713 | 8,307,380 | 82,593,625 |
| 1848 | 82,312,451 | 8,183,026 | 1,173,406 | 91,668,883 |
| 1849 | 78,583,323 | 8,028,579 | 2,813,380 | 89,425,282 |
| 1850 | 95,359,625 | 7,890,878 | 10,502,115 | 113,752,618 |

EXPORTS OF FOUR YEARS.

| | Domestic. | Foreign. | Specie. | Total. |
|------|--------------|-----------|------------|------------|
| 1847 | \$13,021,382 | 2,616,572 | 905,841 | 46,543,795 |
| 1848 | 33,637,844 | 2,693,597 | 12,028,794 | 48,360,235 |
| 1849 | 33,166,339 | 3,553,885 | 4,739,903 | 41,460,127 |
| 1850 | 33,227,676 | 5,433,841 | 5,885,103 | 44,546,620 |

AMOUNT OF DUTIES.

The amount paid for duties at the port of New York for each of the last four fiscal years, is as follows, viz. :

| | | | | | | | |
|-------|---|---|---|---|---|--------------|----|
| 1847, | - | - | - | - | - | \$17,342,461 | 86 |
| 1848, | - | - | - | - | - | 20,839,680 | 60 |
| 1849, | - | - | - | - | - | 19,811,334 | 56 |
| 1850, | - | - | - | - | - | 21,487,609 | 73 |

NOTE G.

Progress of Steam Navigation.

The first American steamboat that ever completely succeeded, was launched at New York, Oct. 3, 1807, and run upon the Hudson River. The steamer *Comet*, built at Glasgow in 1811, to navigate the Clyde, was the *first practical European steam vessel*.

In 1815, the steamer *Enterprise* made the first steamboat trip up the Mississippi, from New Orleans to Pittsburgh, in 23 days running time. In 1849, the same voyage was performed in 7 1-2 days.

Jan. 1, 1849, the number of steam vessels in the United Kingdom of Great Britain and Ireland, had reached 1147.

From 1823 to June 30, 1849, 2505 steam vessels were built in the United States.

In 1830, the time required to pass from Dublin to Holyhead by steam vessels was 8 hours, and in sailing vessels 70 hours was the average time. In 1850, the same space is passed by steamers in 3 1-2 hours.

In 1839, the British Government abandoned the work of building sailing ships for warlike purposes, and commenced the construction of war steamers, since kept in employ as mail packets.

The main reliance of England seems to be upon the fleets of steamships which she has afloat, carrying the mails in different parts of the world, which ships have been built under the supervision of the Admiralty, and are capable in all respects of being converted into ships of war, and of carrying ordnance of the heaviest description. They are completely under the control of the government, and can be taken at any time for the public service.

It is calculated, no doubt correctly, that the crews will, for the most part, stick by the ships, happen what may. Thus, efficient war steamers, in great numbers, are always ready, which cost the government comparatively little, do not excite the jealousy of other maritime powers, and which, moreover, serve to stimulate and open up new sources of commerce.

This system was commenced in 1839, when a contract was entered into with Mr. Cunard and his associates, for the conveyance of the mails, via Halifax to Boston, in five steamers of the first class, for £85,000, or about \$425,000 per annum.

In 1846, the government enlarged the contract with Mr. Cunard and his associates, by adding four ships, to run from Liverpool to New York, and increased the compensation to £145,000, or about \$725,000 per annum.

In the year 1840, a contract was made by the Admiralty with the Royal Mail Steam Packet Company, at £240,000 sterling, or \$1,200,000 per annum, for fourteen steamers, to carry the mails from Southampton to the West Indies, the ports of Mexico on the Gulf, and to New Orleans, Mobile, Savannah and Charleston. These ships are of the largest class, and are to conform, in all respects concerning adaptation to the purposes of war, to the conditions prescribed in the Cunard contract.

Another contract has recently been entered into for two steamships, to run between Bermuda and New York.

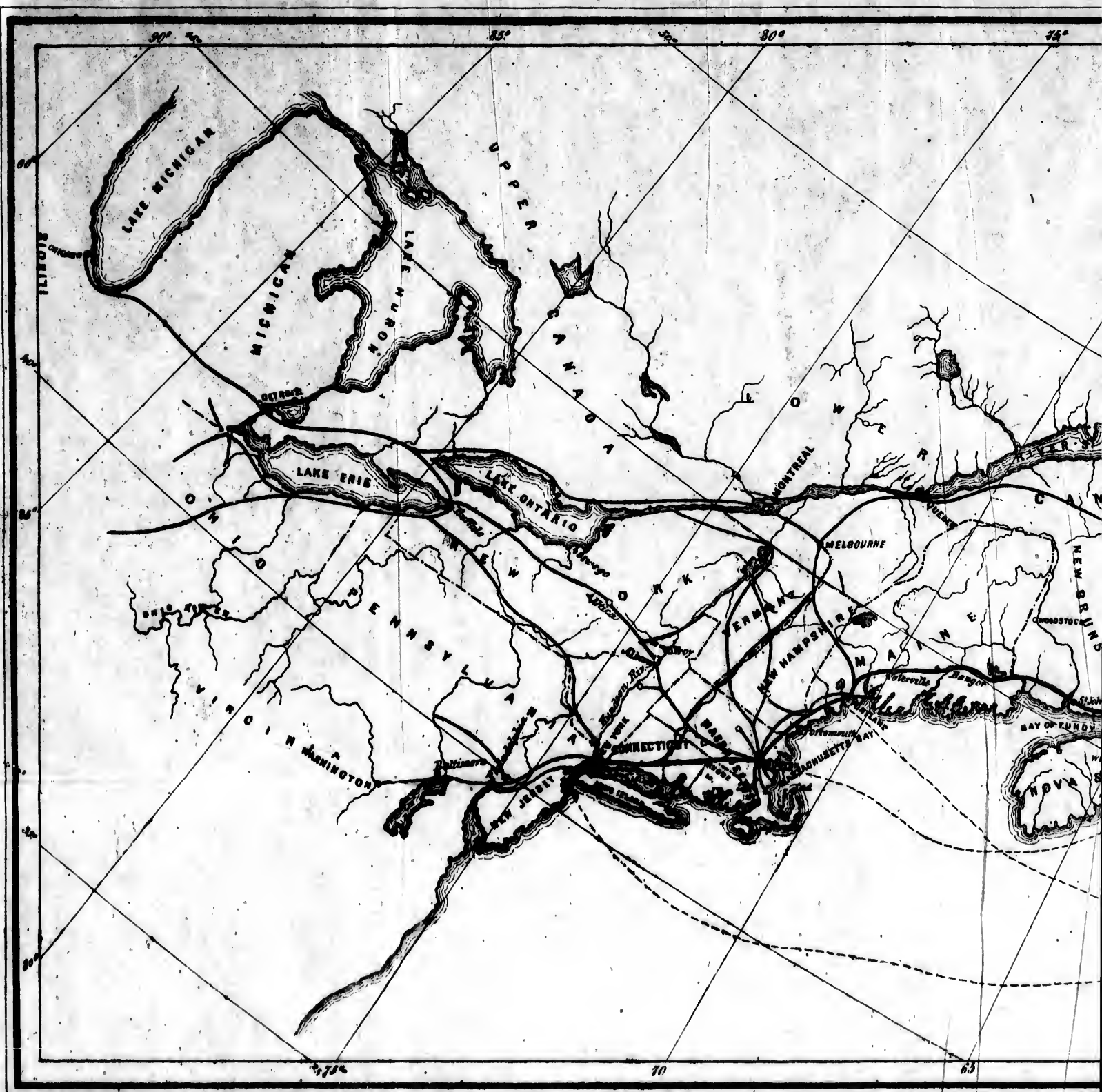
These three lines employ twenty-five steamers, of the largest and most efficient description.

In addition to the above, a contract was made, first of January 1845, with the Peninsula and Oriental Steam Navigation Company, for a line of similar steamers, seven in number, from England to the East Indies and China, at £160,000 sterling, or \$800,000 per annum. This line passes from Southampton, via Gibraltar and Malta, to Alexandria, in Egypt; thence the route continues overland to Suez, at the head of the Red Sea, whence the steamers again start, touching at Aden, Bombay, and at Point de Galle, in the Island of Ceylon; from whence they proceed to Singapore and Hong Kong. There is a branch line, connecting with this, from Point de Galle to Calcutta, touching at Madras.

A contract was made first of July, 1846, for a Pacific line of British steamers, four in number, running from Valparaiso to Panama, touching at intermediate ports. This line connects overland, from Panama to Chagres, with the West India line.

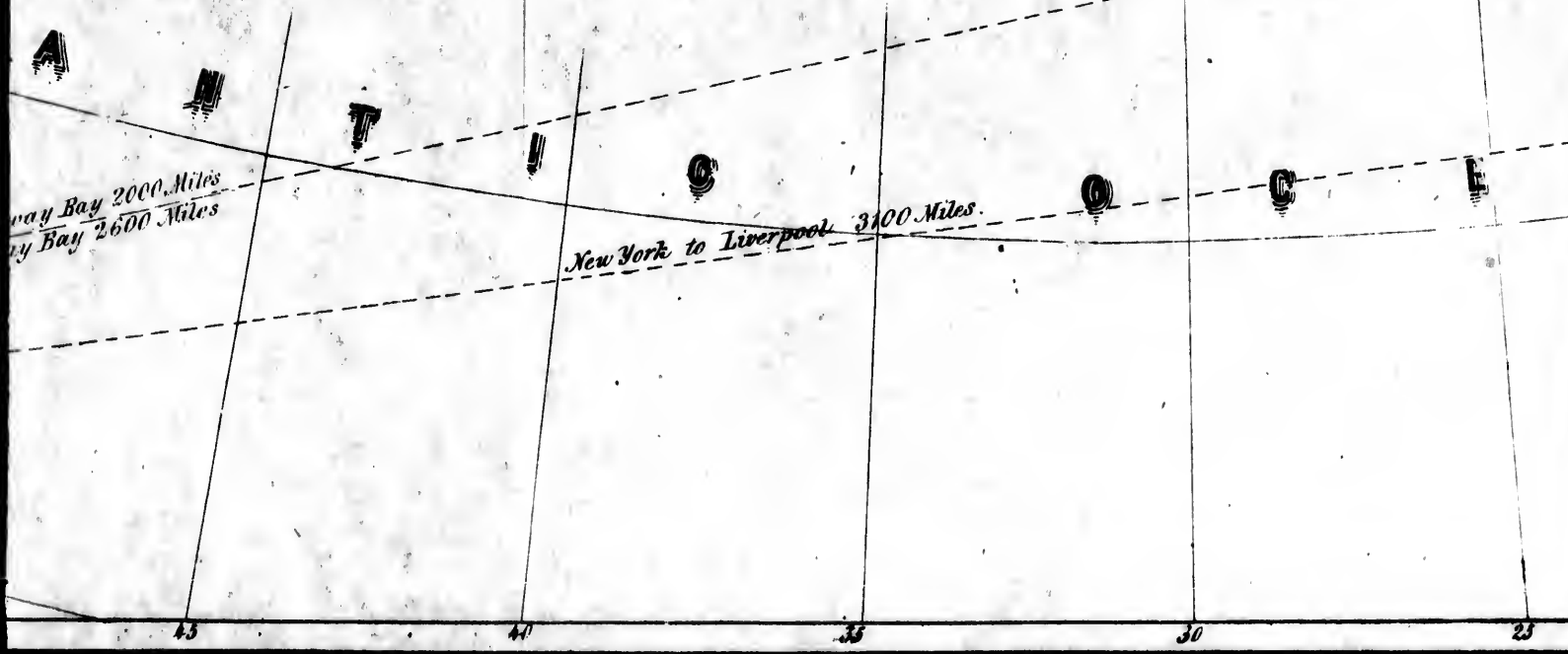
Beside these, there were in 1848, twelve more lines of government steamers running between Great Britain and the continent of Europe, making a grand aggregate at that time, of 115 ocean steam ships, fitted for war purposes and controlled by the government.

This number has been since augmented. Parliament has extended the mail steamship system to Australia, as well as other parts of the British dominions.



MAP

SHOWING THE PLAN FOR SHORTENING THE TIME OF PASSAGE.
BETWEEN
NEW YORK & LONDON.

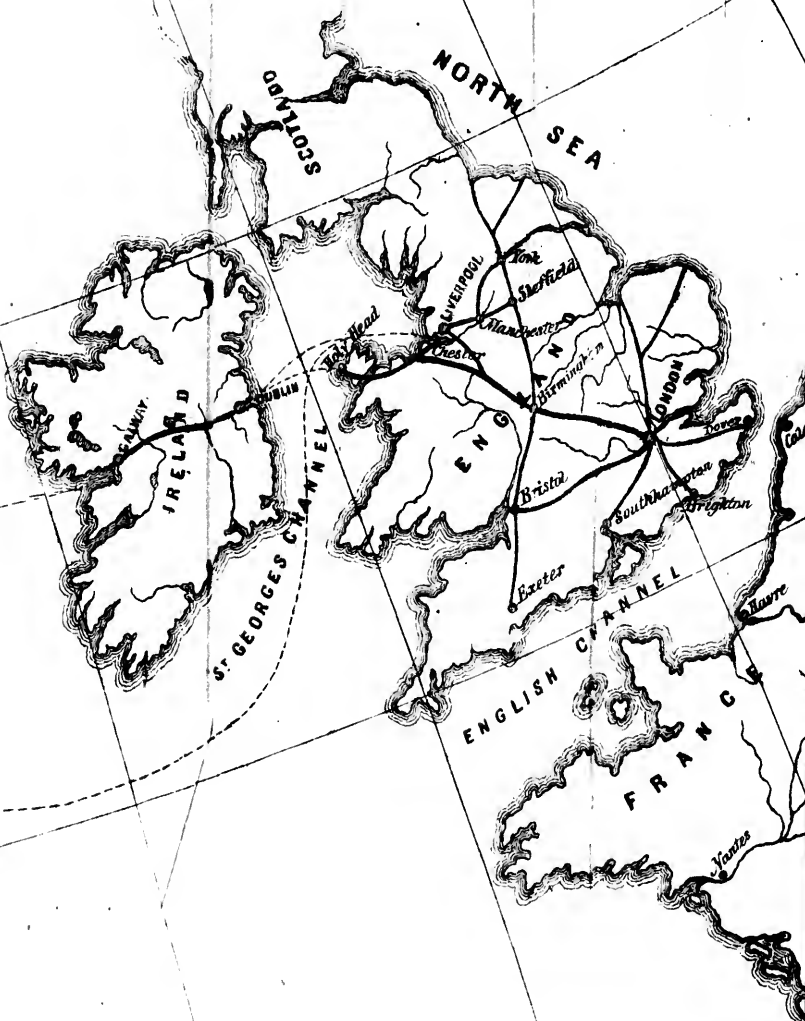




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SCOTLAND

NORTH SEA

IRELAND

ST. GEORGES CHANNEL

ENGLISH CHANNEL

FRANCE

LIVERPOOL

York

Sheffield

Manchester

Birmingham

LONDON

Dover

Bristol

Exeter

Southampton

Brighton

Harve

Yantes

15

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