

1937

Subsidizing aviation and the merchant marine

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THESIS

Subsidizing Aviation and the Merchant Marine


by

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(A.B. Howard University 1929)

submitted in partial fulfillment of
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SUBSIDIZING AVIATION AND THE MERCHANT MARINE

CHAPTER I

INTRODUCTION

What the world owes to the early merchant marine

The spread of christianity and civilization.--"The history of civilization is the history of transportation and communication."¹ The following study of these two influences on civilization dates back to about 6000 B.C., when the first sailing vessel made its appearance on the Nile River. Built by the ancient Egyptians for operation on the Nile, the vessel introduced into Egypt an industry for using her home materials--linen cloth, copper needles etc.--in the manufacture of sails, and resulted in shipbuilding becoming a most important occupation in Egypt.²

About 5000 B.C. this good fortune was shared with people dwelling around the Red Sea, who decided to invade the Nile valley. The two tribes, cooperating together, added art to the utility of the ship. The early square-sail type of vessel was gradually changed to "a really beautiful and scientific creature," and the ships of the Eighteenth Dynasty (1587-1328 B.C.) were called "the most showy and best-known age of civilization."³ Such physical beauty was compelled to produce ultimately a favorable reaction upon the finer emotions of man.

¹Jesse E. Saugstad, Shipping and Shipbuilding Subsidies, p. 317.

²Charles E. Cartwright, The Tale of Our Merchant Ships, p. 4.

³E. Keble Chatterton, The Ship Under Sail, p. 17.

During this period sailing vessels changed from river-boats to sea-going craft, and trade began to flourish, developing with it stronger ties of friendship and of love. The vessels navigated the Red Sea and fleets were sent south and east to the "Land of Punt"¹ From here they brought incense for the religious services in order to enrich the spirit of man. Emerging from the Nile to the coast of Syria and thru the Grecian archipelago, they brought gold and incense, elephant-tusks, ebony, skins, etc., which added to the wealth of the country in general.² The finances gained thru this trade gave enough freedom from physical toil to permit thought on improved construction of vessels and provided that financial assistance necessary to give expression to this thought.

In their sailings in the Mediterranean operators of the vessels came to know and to influence the Phoenicians. Due to this influence the Phoenicians added to civilization a vessel possessing great maneuverability and equipped for the protection of cargo. Such a vessel, which was convenient to handle in shallow waters or at sea, could go anywhere, carry the dye cargo, fight pirates or run away.³ It was destined, therefore, to further communication with more remote peoples, to bring about the intermingling of new ideas, to furnish experience in seamanship, and to develop wider trade markets. With such a vessel the Phoenicians were enabled to navigate the Mediterranean, the Red Sea, the Indian Ocean, and the Atlantic Ocean.⁴ These

¹Charles E. Cartwright, op. cit., p. 4.

²E. Keble Chatterton, The Ship Under Sail, p. 18.

³Ibid., p. 26.

⁴Ibid., p. 26.

vessels were improved upon by the Greeks.

The Greeks, coming under the influence of the Phoenicians, added to the seaworthiness of the Phoenician vessels and produced the "merchantman" or "round ship," and a second vessel for the protection of this ship known as the "galley" or battle ship.¹

The Grecian "round ship" formed the basis for the high-sterned, seaworthy, slow-moving merchant ship of the Romans, who, by introducing a square sail in the "round ship" gave the world "reliability" in shipping. With the establishment of reliability came manifestations of faith in the possibilities of the ship. "Capital was expended to build more ships," and a better class of people were attracted to the sea. The obligation of governments to promote transportation and communication by sea was recognized for the first time, and thus during the period A.D. 245-313 the Romans introduced Government subsidies and privileges to shipping.² In the meantime Christianity was beginning to supplant "the old mythological religion," and by the year 330 the Christian faith was made the religion of the Roman Empire.³

Special privileges were granted the owners of vessels on condition that the vessels "possessed a capacity of 10,000 modii and that they carried corn to Rome for six years."⁴ The ships were under state control as government transports, carrying also cargoes of oil, wood, and bullion from the provinces to Rome or Constantinople, and

¹E. Keble Chatterton, The Ship Under Sail, p. 26.

²Ibid., pp. 33-34.

³Winston's Cumulative Loose-Leaf Encyclopedia - Rome

⁴E. Keble Chatterton, op. cit., p. 32.

also the imperial post. The shipowners were responsible to the State for the goods carried, and in return the State paid them a fixed percentage. In addition the owners were allowed to engage in private trade and to land their goods free of customs duty. These privileges made frequent voyages possible by the sixth century, and by the eighth century Venice was becoming a great trading post, and "its merchants realized the important fact that the sea was not a thing to be dreaded but a ready and sure means of amassing wealth."¹

The eastern lateen sail introduced into the Mediterranean by the Arabs during the eighth century proved to be one of the most useful gifts of Oriental seafarers. A century earlier (650) the Polynesians, who are thought originally to have inhabited Saba, on the southeast coast of Arabia, introduced the art of navigation into the Pacific Ocean. Migrating first to Indonesia, where navigable waters served as highways, they became expert seamen, with a very complete knowledge of the heavens and the movements of the stars. In their Maori whare-kura or "house of learning" they have special attention to the teaching of astronomy. Charts or maps were made showing the positions of the various islands. These were formed "of strings stretched on a frame, with little pieces of wood on them to indicate islands." The maps also showed "the direction of

¹E. Keble Chatterton, The Ship Under Sail, pp. 33-34.

currents and the regular roll of the waves before the Trade-winds."

In addition to their love of adventure, the Polynesians often traveled for the express purpose of establishing new colonies in which to settle, taking with them their domestic animals, seeds, plants, families, etc. Some of their settlements in the Pacific were made in the New Hebrides, in the Fiji Islands, in Samoa, in Hawaii, and in New Zealand. Their vessels consisted of both single and double canoes. The materials were sewn together neatly with "sinnet." The double canoes had a large platform between them, on which was often constructed a house. Some of the canoes for distant voyages "carried two masts," the sails being triangular in shape and made of matting. The most famous ones enabled the Polynesians to visit the icebergs of the Antarctic and to traverse the Pacific "from end to end."¹

The Viking rig, introduced by the Norsemen in the ninth century, into the Mediterranean, made navigation possible for the first time in the winter.² The Viking ships were of four classes--the dragons and the long serpent or snake class used as war ships, the ocean-going merchant marines, the fishing boats, and the local fjord craft. In addition to the seaworthiness of the vessels which made navigation possible in the winter the Norsemen advanced morals, worthy use of leisure, colonization and law. They were the first to select their crews in regard to morals as well as physical fitness.³ They seem

¹S. Percy Smith, Hawaiki, The Original Home of the Maori; with a sketch of Polynesian History, pp. 125-137.

²E. Keble Chatterton, The Ship Under Sail, pp. 4, 10.

³Ibid., p. 43.

also the first to sail merely for pleasure.

The crusades, which began in 1095, made Mediterranean travelers of men who had never before been outside their village and served to awaken England for the first time to the possibilities of the sea. English sailors were amazed at what they saw in the Holy Land. From observations which they made the English adopted both fore- and stern-castles, the use of the compass (which had been introduced by the Chinese), and a roll of laws regulating maritime matters; and, for the first time recognized the need for national defense by retaining seamen for the navy with permanent pay. "The Crusades and the resultant intermingling of the nations laid the foundation of international trade and seamen thus came to learn and to borrow improvements from countries other than their own."¹

From 1415-1460 Prince Henry the Navigator directed a nautical university at Sagres, near Cape St. Vincent. To this university "he attracted all the maritime information which could be obtained. Geography, mathematics, cartography, navigation, facts obtained first-hand from travellers and merchants, knowledge which only Arabs and Jews then possessed in regard to astronomy, other facts which veteran pilots brought with them--everything that could be of slightest use came to Sagres."² It was due to the activities of Prince Henry the Navigator "that the voyages of Columbus, Da Gama, Magellan, and all the long list of immortal seamen who made known the remote places of the world, were possible."³

¹Charles E. Cartwright, op. cit., p. 28.

²E. Keble Chatterton, The Ship Under Sail, p. 59.

³Charles E. Cartwright, op. cit., p. 37.

In 1688 England established the Falmouth post office packet service, which maintained during the eighteenth century "an essential connection with Spain, the West Indies, and even the Southern States of North America." In 1793, when war broke out with France, Great Britain owned over 16,000 merchant vessels.¹

The French luggers or vessels which visited American ports during the Revolutionary War inspired the Americans to produce the "Baltimore Clipper," which gained a wide reputation for speed during the war of 1812 and served to introduce speed as a requirement in shipping. This requirement gave the shipbuilding industry in America a wide development. England entered the trade in 1839 but was unable to offer very keen competition due to her unfavorable position with regard to materials. Some of the American clippers famous for their tonnage and speed were the Rainbow, the Sea Witch, the American Oriental, the Flying Cloud, and the Great Republic.

Speed became vital because the potential competition of the steamer loomed up high as a threatening danger, especially in the North Atlantic traffic. Then, also, speed was vital in the long distance trade with the Far East, where the younger merchant marine of America had to outdo its foreign rival. When gold was discovered in California a new incentive to speed was given. Later on, the Crimean War and the discovery of gold in Australia, gave new employment to the builders and owners of clipper ships.²

¹E. Keble Chatterton, The Ship Under Sail, pp. 122-123.

²Erich W. Zimmerman, Ocean Shipping, p. 138.

The development of trade and good will.--Foreign trade, or "water-borne commerce," was inaugurated by the Phoenicians thru traffic in the purple, or Tyrian, dye obtained from the small shellfish of Tyre. The Tyrian trade proved so lucrative that when the fish around Tyre became exhausted the Phoenicians began to seek other sources from countries and people across the sea in exchange for tin, copper, and amber, thus establishing the first commercial fleet of the world. One of their trade policies was "to found colonies and trading posts and agencies in foreign lands," which policy has been adopted by all the leading countries and nations since.

The Phoenicians established factories and settlements for their dye trade along the Syrian coast on the islands of the East Mediterranean, in Sicily, in Sardinia, on the North African coast, and just outside the Mediterranean, at Cadiz.¹ Carthage, the last colony settled, was situated on a site especially favorable for commercial purposes and soon established colonies of her own in Spain and West Africa.² Her ships are said to have "pushed entirely around Africa past the Cape of Good Hope, to have crossed the rough Bay of Biscay to Britain in search of tin, the North Sea to Norway, and some are even credited with having reached the coast of South America more than 2000 years before the time of Columbus." As a result of the shipping industry and trade the

¹Charles E. Cartwright, op. cit., p. 4.

²William S. Benson, The Merchant Marine, p. 2.

Phoenicians became the richest nation in the ancient world and also the finest race of seamen.¹

Fishing for herring between Denmark and Norway produced such wealth that during the twelfth century a trading association known as the Hanseatic League came into existence for the purpose of regulating and controlling the industry. When the herring changed its residence in 1425 from the Baltic to the North Sea² the change proved a "silver mine" for the Dutch³ and resulted in their becoming carriers of the North as centuries before the Phoenicians had been of the South.

Fishing played such an important part in the development of England that the early fleet was subsidized⁴ and "a law was passed forbidding any fisherman to give up his trade."⁵

"The English sought the Greenland whale all thru the sixteenth century, and the Dutch were especially active in whaling at the time of the Plymouth settlement."⁶ The whaling industry provided oil and spermaceti for their lamps and candles. Scarcity led them farther and farther ashore, until finally it was discovered that whale products might be used as a commodity of trade. Later the search led from New England "to cover the Pacific from Cape Horn to the Arctic and clear across to the waters of Japan, and still later to the "Bay of St. Lawrence and even to Greenland." The

¹Charles E. Cartwright, op. cit., p. 4.

²E. Keble Chatterton, The Mercantile Marine, pp. 34-35.

³E. Keble Chatterton, The Ship Under Sail, p. 102.

⁴William S. Benson, The Merchant Marine, p. 10.

⁵E. Keble Chatterton, The Mercantile Marine, p. 34.

⁶Charles E. Cartwright, op. cit., p. 183.

vessels coasted along the Gulf Stream to the Bahamas and worked well out into the North Atlantic.¹ The "Columbia," a whaler, "was the first vessel under the American flag to sail around the world." On the voyage up the Pacific Coast, her master, Captain Gray, discovered the Columbia River, which determined the controversy between England and the United States over the true line of the northwestern boundary of the United States.² Seal fisheries also brought American seamen in touch with undiscovered shores and brought their ships in contact with Russian vessels.³

The "cod fisheries on the banks of Newfoundland" caused the Virginia, a 30-ton vessel, to be constructed in Maine. The construction of this vessel was the initial step in shipbuilding in the American colonies. The Virginia "engaged, not only in the fishing industry but in overseas trade, having made at least one voyage to England."⁴ At the beginning of the settlement of Salem the pioneers set themselves to building small craft for fishing, as did the colony at Plymouth, and within ten years were reaching out for trade as far as the West Indies. The Desire brought back a cargo of salt, cotton, and tobacco in 1640 and from then on men gave their main energies to sea trading. Their main commodity of export was fish--dried cod, whale oil and bone, fish oil, etc.⁵

"Colbert, under Louis XIV, established a system of French shipping bounties . . . and France still gives bounties to the fishing industry."⁶

¹Charles E. Cartwright, The Tale of Our Merchant Ships, p. 183.

²William S. Benson, op. cit., pp. 49, 27.

³Ibid., p. 49.

⁴Ibid., pp. 13-14.

⁵Charles E. Cartwright, op. cit.

⁶Jesse E. Saugstad, op. cit., p. 11.

After water transportation became opened up with the East the Honorable East India Company "steadily obtained control of the eastern routes, and it was by ships of that company, running between India and Suez, that the connection between England, Egypt, and the East was maintained in the seventeenth and eighteenth centuries.¹ The English East India Company placed the mercantile marine on a very sure foundation by encouraging shipbuilding. The vessels of the company were armed because of French men-of-war and privateers. The "East Indiamen" were standardized and built for safety.² During the seventeenth century (1681) the English East India Company so prospered that it owned a fleet of thirty-five ships ranging from 100 to 775 tons, and the company was paying in customs alone over 60,000 pounds annually.³

During the eighteenth century triangular headsails were introduced into the biggest ships, the mizzen which had been introduced into the ocean-going ship from the small lateen craft of the Mediterranean was changed from a triangular to a rectangular sail, and the steering arrangement was changed to "the wheel."⁴ The 818-ton Seringapatam, launched by Richard Green of England in 1837, "became famous for her quick and regular passages to the East" and was "the first of a new order of things," following the decline of the East India Company.⁵ The "double stern and galleries were abandoned" and she became the model for many vessels that followed.⁶ In 1877 the Orient Line was founded for regular trade with the East.

After liquidation the East India Company gave consideration to its officers and crews for unexpired voyages due to sale of vessels

¹Jesse E. Saugstad, op. cit., p. 218.

²E. Keble Chatterton, The Ship Under Sail, p. 125.

³Ibid., p. 101.

⁴Ibid., p. 119.

⁵E. Keble Chatterton, The Mercantile Marine, p. 135.

⁶

and "those commanders who had served ten years were given a pension for life of £250 a year, the chief mates getting £160 a year, and so the scale ranged down to the carpenters and gunners."¹

¹E. Keble Chatterton, The Mercantile Marine, P. 135.

What the world may expect from aviation

A further development of good will.--A further development of good will thru aviation is manifest in the interest being taken in aviation clubs by both men and women all over the world, in the free interchange of ideas between these clubs with government approval, in aviation exhibitions and shows, and in the encouragement given to private, civil, and miscellaneous flying by all the leading nations.

The request of most of the States to have their air lines placed under the supervision of the Federal Government¹ for intra-state traffic, resulting in the breaking down of State barriers, is similar to the cooperation between certain nations permitting the use of their respective airways and the trend toward the breaking down of national barriers. The public interest demands that such cooperation be given.

Instruction received thru the many accredited aviation schools and the cheap planes being made available for private flying thru the encouragement of the governments will tend to so increase air-mindedness and make transportation between nations of such frequent occurrence as to abolish national jealousies and consolidate all nations into "a United States" of the world.

As early as 1935 France made it possible for light planes to be purchased as low as \$1,200.² Recently six experimental planes

¹State Aeronautical Legislation Digest and Uniform State Laws, Aeronautics Bulletin of the U.S. Bureau of Air Commerce, No. 18 (January 1, 1936).

²"The French Potez Lighthouse for Private Owners," Popular Aviation (December, 1935), p. 360.

were ordered manufactured for the U.S. Bureau of Air Commerce as part of its developmental program for private-owner aircraft. One of these, the "Roadable" autogiro, was delivered on October 2, being flown in the air from Philadelphia to a park in the District of Columbia and then driven down the street to a door of the U.S. Commerce building. The top speed for the autogiro is ninety miles per hour and the minimum is twenty miles. The plane is designed to take off in less than 150 feet with no winds, and when not in use it may be kept in the family garage.¹ This plane gives "promise of future usefulness."²

Another trend toward air-mindedness is seen in the number of aviation exhibitions. At the last National Aviation Show, which was held in New York January 28 to February 6, each day was devoted to "certain specialized phases of aeronautics." January 30 was "Women in Aviation Day."³

Another trend toward the development of good will is seen in the ten per cent discount made available on "circuitous routes," for tourists, last summer by members of the Air Transport Association.⁴

Still another trend is cited in testimony before the Subcommittee of the Committee on Appropriations for 1938, U.S. House of Representatives, with regard to the development of "international relationships and business relationships" brought about thru the trans-Pacific service. The Pan-American line in South America was described as being "not only an angel of mercy and of business, but also an ambassador of good will. Testimony as to the international postal conference held every five years, comprising representatives of "some 80 countries," is also significant.⁵

¹"Roadable" Autogiro, U.S. Air Commerce Bulletin, Vol. 8, No. 4 (October, 1936), pp. 95-96.

²"National Aviation Show," Aero Digest (February, 1937), p. 26.

³Ibid., p. 88.

⁴"Members of Air Transport Association make 10% Discount Available on Circuitous Routes," Pan American Air Ways, Vol. 7, No. 3 (May and June, 1936), p. 1.

⁵Post Office Department Appropriation Bill for 1938, pp. 26-27, 442.

A wider spread of Christianity and civilization.---Aviation will promote the spread of Christianity and civilization by making possible the colonization of territory inaccessible by the Merchant Marine and other older forms of transportation, and by eliminating "distance" between remote districts and the large centers of activity. A very good example of this is the use of aviation in Canada.

Before the establishment of air transportation in Canada over one-half of the Dominion was without any method of speedy travel. "In 1926 the frontier of northern development was but a few miles from the transcontinental railroads--the territory northward was marked on the maps as 'mostly unexplored.'" Today "active prosperous communities" have arisen in the wilderness." Many of these communities have a daily air mail and passenger service. The economic development of the country, reflecting the spread of civilization, may be seen in the amount of freight carried by the Canadian Airways in 1936, which was ten times the amount carried in 1931. Also, during this same five-year period both mail and passenger service were doubled.¹

Aviation has promoted new industries in Alaska and provides communication and transportation between otherwise inaccessible mines.²

The rapid rate at which the international air ways of England, France, Germany, and the United States have been extended to meet demands within the last few years show the trend toward a wider use of

¹Canadian Airways Limited, Vol. 7, No. 1 (December, 1936), p. 2.

²Recent Developments in Alaskan Aviation, U.S. Air Commerce Bulletin, Vol. 8, No. 7 (January, 1937), pp. 153-157.

the economic forces of the entire world and thus a wider spread of civilization. Penetration of the airways into remote and heretofore inaccessible districts will enable Christian missionaries to contact these localities and effect the spread of Christianity.

Due to the progressive development of the sailing ship countries have been able to extend their control and influence into foreign territory. This extension made possible that economic power necessary to stimulate and promote civilization. The reliability of the Roman ship and the Roman subsidies to shipping led to the founding of many Roman colonies. The adoption of the Christian faith in 330 A.D. as the religion of the Empire promoted the spread of Christianity in these colonies, which religion received great international interest as a result of the Crusades. Contact with vessels in the Holy Land led Prince Henry the Navigator to found the first nautical university, in 1415-1460, which did more than anything else to hasten the development of the ship. Due to the many aviation schools now being operated in all the leading countries of the world aviation is being developed at a very rapid rate and is demanding world-wide cooperation. The Christian faith being the dominant religion of most all the nations operating extensive airways Christianity will be carried to the new communities established thru the aid of aviation.

CHAPTER II

RESULTS OF THE INDUSTRIAL REVOLUTION

Large scale production

The large expansion of airways is similar to the great development in the shipbuilding industry which grew out of the Industrial Revolution in England. The factory system introduced in England by Richard Arkwright in 1768, which developed out of a demand created by James Hargreaves' spinning jenny (invented in 1767), and a series of other inventions and improvements--the fly-shuttle, rotary machine for carding cotton, the power loom, the discovery of bleaching properties of chlorine (oxymuriatic acid), etc.¹--acting and reacting upon each other soon produced materials in such large numbers that the facilities for distributing the goods had to be speeded up. Thus steam vessels were introduced, beginning with the Sirius and the Great Western in 1838. This, together with the trans-oceanic cables, introduced to the world in 1866,² destroyed the natural barriers between the different countries of the commercial world by facilitating communication.³ Next came the screw, the twin screw, triple screw, quadruple screw, the turbine engine, the use of iron and steel in the building of ships, and finally the use of oil as fuel.

¹Benjamin Rand, Economic History Since 1763, pp.5-15.

²Ibid., p. 326.

³Ibid., p. 358.

Every time transportation was speeded up the wealth resulting from this increase brought an added stimulus for a further production of goods and created new wants among the people. This creation of new wants stimulated the great impulse of migration.¹

The further production of goods was, in turn, followed by a greater demand for a cheaper, safer, and faster means of distributing the goods. The use of iron and steel gave the ships strength, durability and safety; the invention of steam added to these regularity. The electric cable laid by Cyrus W. Field in 1866 connected the Old World with the New, thereby widening the field of commerce which the ships might serve. Inventions were so numerous and rapid that obsolescence of vessels, as well as competition in shipping, made it necessary for governments to subsidize the shipping industry.

¹Benjamin Rand, op. cit., p. 237.

Facilities for communication and transportation

Domestic service.--Domestic transportation included coastal, inland waters, and land transportation, and was subsidized by the government. Usually the coastal service was restricted to ships operated by citizens of a nationality, but sometimes under special conditions other nationalities were allowed to participate.

The greatest interest in domestic service in the United States centered in steam locomotion. The Civil War emphasized the necessity for a railroad from the Mississippi Valley to the Pacific coast by "revealing how slender was the actual political and economic connection of the remote states of California and Oregon with the Union."¹ Thus in 1862 a bill was signed by President Lincoln incorporating the Union Pacific Railroad Company with permission to build a line from the western boundary of Iowa to a point where it should meet the Central Pacific Railroad, building eastward from Sacramento, California. Half the public lands in a strip ten miles wide on both sides of the road were given to these Pacific railroad companies and a subsidy of \$16,000 in 6 per cent bonds for every mile of track completed. In the year 1864 the government doubled the land grant. In 1850 Congress granted to the state of Illinois over 2,500,000 acres of public land for the encouragement of the Illinois Central Railroad, to which were donated alternate sections of six square miles on each side of the track;

¹David Saville Muzzey, History of the American People, p. 324-325.

and when the road was lengthened to connect Chicago with the Gulf of Mexico, the same liberality was extended to the states through which it passed. Altogether the donations of Congress in the decade 1850-1860 for railroad development in a dozen of the Western states amounted to over 20,000,000 acres of public land,"¹ due to economic demands of the expanding West. "Up to 1867 Congress had granted 184,000,000 acres, or about 14 per cent of the public domain, to various railroad companies."²

After "the settlement of the Oregon territory and the discovery of gold in California" the United States Government subsidized the coastal steam fleet "from the Atlantic Coast to Panama and from Panama to California and north," and these subsidized vessels "furnished the only means of regular communication between the Atlantic and the Pacific prior to the completion of a transcontinental railway."³

¹David Saville Muzzey, op. cit., pp. 324-325.

²Ibid., p. 425.

³Jesse E. Saugstad, op. cit., p. 27.

Foreign service.--Prior to America's deep interest in the development of railroads she had become first in the shipbuilding industry, having an unusually favorable position with regard to materials used. Her greatest achievement was known as the "American clipper." The first genuine clipper was the Rainbow, a vessel of 750 tons, built in 1845. In 1846 the Sea Witch, a 890-ton vessel and capable of making 358 miles a day was developed. In 1850 the American Oriental sailed from China to London in 97 days. The first clipper built for the Australian service was a vessel of 1622 tons and sailed from Liverpool in 1851 to Melbourne in 68 days. The Red Jacket built for the White Star Line in 1854 was under contract with His Majesty's Government to do the passage from Liverpool to Melbourne in 68 days, subject to a penalty. The largest extreme American clipper and most wonderful was Donald McKay's Great Republic. In February, 1855, this vessel sailed from Sandy Hook to Land's End in 13 days. It was later chartered by the French Government to carry troops to the Crimea. Registered tonnage of the vessel was 3356 tons.

"Completion in 1869 of the railway across the American continent with its western terminus at San Francisco opened up a new route to Europe, and in that year a monthly service was begun by the Union Steamship Company in conjunction with the Pacific Steamship Company, from Sydney to San Francisco via Auckland. This service was subsidized to the extent of £37,000 (\$180,060) per annum, of which New South Wales paid £25,750 (\$125,310) and New Zealand £11,250

(\$54,750), and continued until November, 1890."¹

The metal ship is essentially a British development. Because of its light weight great speed could be obtained thru the use of steam. Steam propulsion added dependability and reliability to wooden vessels but did little to increase speed due to the weight of wooden hulls. "Early adoption of steam power, increase in efficiency of steam plants, and production of cheap steel are essentially British developments applied to ocean shipping."²

The adoption of steel and iron for shipbuilding enabled builders to produce a larger and lighter hull per given power, thereby increasing carrying capacity at a relatively decreased carrying cost. The metal ship is both a cause and an effect of the industrial age; it made possible the large-scale carrying of raw materials and served to bring together British labor, materials, and markets."³

"The first iron vessel to be classed at Lloyd's Register was the Sirius (1837), built in London"⁴ and, in 1838, this vessel was the first to cross the Atlantic under steam power alone. In 1855 Lloyd's Register "published their first rules for iron shipbuilding" but "Iron steamships did not begin to displace sailing ships rapidly until some 15 years later."⁵ The first steel ship was built in 1858, at which time the price of steel was nearly six times as expensive per ton as iron. In 1877 Lloyd's Register, after exhaustive experiments, adopted rules for the building of steel ships, under which a great reduction in the weight of the hull, and therefore a great increase in the

¹Jesse E. Saugstad, op. cit., p. 406.

²Jesse E. Saugstad, op. cit., p. 214.

³Ibid., pp. 196-197.

⁴Ibid., p. 214.

⁵Ibid., p. 214.

carrying power of the ship became possible, whilst at the same time, owing to the use of steel for the boilers, greatly increased steam pressure could be used, and thereby marked economy effected in fuel consumption."¹

¹Jesse E. Saugstad, op. cit., pp. 214-215.

CHAPTER III

EFFECT OF THE METAL SHIP

Demand for rapid communication and transportation

Steamships.---"During the period 1860-1870 the first effects of the metal ships began to be observed,"¹ due to the efficiency of steam. The service rendered by these ships was one of the primary causes of the decline in American shipping, which decline continued until the World War.²

These steamships of metal were operated at first chiefly for the rapid delivery of the mails. As steaming efficiency became increased it was soon found that the vessels could be used as rapid transports of raw bulky materials. As a result the "steamer fleet of Great Britain grew from 454,327 tons in 1860 to 1,112,934 tons in 1870." Demand for more rapid communication and transportation resulted in further improvements in machinery and in the development of refrigeration.

The first cargo of fruit was brought with refrigeration from Jamaica to England in 1896, and the first large cargo of dairy produce was brought from Australia in 1911. There are now afloat a fleet of vessels capable of carrying, on the longest ocean voyages, fresh meat, fruit, and dairy produce. The introduction of this type of vessel has effected fundamental changes in the food supplies of many countries, and in doing so has brought into the markets of the world as buyers of manufactured goods the producers of those supplies.

Another important development is that of the "tankers," or vessels carrying oil in bulk, the first of which was built in 1886 and had a capacity of 5,000 tons of oil. Previously petroleum was

¹Jesse E. Saugstad, op. cit., p. 200.

²The American Bureau of Shipping, The American Merchant Marine, p. 88.

shipped in barrels or tins, a method which was not only costly but involved loss of carrying space and lengthy periods of loading and discharge. The specially designed tankers carry thousands of tons of oil--the common capacity being about 9,000 tons, though 21,000 tons has been reached--which can be loaded or discharged in a few hours. The influence of this type of vessel upon the growing use of oil throughout the world, with all the effects of that development, has been of the first importance. The principle of carrying cargoes in bulk in specially designed vessels applies also to other commodities than oil; for example, coal, ore, and grain.¹

The metal ship increased carrying capacity at a relative decrease in the carrying cost, thus stimulating the utility of raw materials thru an increase in the production and distribution of goods.

¹Jesse E. Saugstad, op. cit., pp. 215-216.

Railroads.--As an aid in the rapid distribution and carrying of goods the railroad, which was first inaugurated in England in 1820, became the most effective. It has been used to hasten the speed of shipping in all the leading countries and, on competing lines, has superseded the ship as a carrying agency.

The first railway was opened in France in 1828, and roads "that have been in operation over 80 years are still subsidized."¹

. . . . one fourth of the railroad mileage of France is owned by the Government through the taking over of properties that had been commercial failures. This mileage is directly operated by the Government. The other railroad systems are operated under state control by private organizations and are national property which, upon expiration of their franchises, between 1950 and 1960, will revert to the state. The French Government has been directly interested in the railways since 1842.²

The Otira tunnel and the Midland Railway were responsible for the doom of New Zealand's coastal trade "between the east and west coasts of South Island." With respect to the foreign service the Government of New Zealand has paid postal subventions since 1869, when a contract was concluded between New Zealand and New South Wales on one hand and the Union Steamship Co. and the Pacific Steamship Co. on the other. The contract provided for a monthly service between Sydney and San Francisco via Auckland and was made primarily to facilitate the dispatch of the colonial mail to and from England through use of the newly completed transcontinental railroads in the United States, shortening the time considerably.³

In the nineteenth century Austria-Hungary used the railroads (by means of low railroad rates) to divert the "Interior German trade with Asia from the ports of Hamburg and Bremen to the ports of Fiume, Hungary, and Trieste, Austria."⁴

¹Civil Aviation - A Report, p. 39.
²Jesse E. Saugstad, op. cit., p. 86.

³Ibid., pp. 505-506.

⁴Ibid., p. 417.

In 1886 Spain contracted with the Compañia Transatlantica Espanola for postal service to the United States making connection in the Pacific, using the Panama Railway, from Valparaiso to San Francisco.¹ A contract of 1909 establishing coal bounties, as quoted by Saugstad, reads:

In order to give greater efficacy to the navigation bounties and the subsidies to regular lines, the Government shall favor reduced rates of transportation by the railroads for articles of national production destined for exportation. It shall encourage, furthermore, by every means in its power, concerted action between the railroad companies and the national navigation companies * * * with the object of establishing regular and efficacious transportation by land and sea, with special reduced freight rates, and facilitating transportation to the coast and the direct exportation by Spanish ships of the principal articles of national production, more especially of coal.²

With the completion of the Canadian Pacific Railway in 1886 Canada established railroads as an economic necessity. In turning the project, the Canadian Pacific Railway, over to private capitalists the Government, among other concessions, granted the company 25,000,000 acres of public land, a cash subsidy of \$25,000,000, and a traffic monopoly for 20 years through protection against any competitive railway construction in the western territory south of the Canadian Pacific line.¹ The Canadian National Railways began as private and provincial enterprises connecting the North and South which became welded with the Government enterprises into one entity in 1922 and has been continued since under the Dominion Government. This group divides itself into the "Canadian National Railway," the "Canadian Northern Railway Co.", and the "Grand Trunk Pacific

¹Jesse E. Saugstad, op. cit., p. 454.

Railway Co."¹ Under the Canadian Northern Railway is found the Canadian Merchant Marine (Ltd.), incorporated and operating under the name of the Canadian National Steamships as part of the Canadian National Railways system.

Russia lagged far behind her Western neighbors in the use of machinery. She had little money and no adequate means of transportation across the vast stretches of country that separated her chief towns. During the last quarter of the nineteenth century money was borrowed from capitalists in western Europe and great railway lines constructed, some chiefly for political and military purposes, others to connect the great factory centers. Railroad construction in Russia was first seriously undertaken after the disasters of the Crimean War due to the difficulty experienced during the war in getting supplies to the soldiers.

Railroad construction has been rapidly advancing in Africa and Asia. The Trans-Siberian road, connecting Europe overland with the Pacific, was completed in 1900, and Russia pushed lines southward toward Persia and Afghanistan; British India has some thirty-five thousand miles. Even Africa has been penetrated, and now trains run many thousands of miles through forest, plain, and jungle. These railroads are of the greatest importance, for those who own them are in a position to control, to a very large degree, the economic or even the political life of the regions thru which they pass.

¹Jesse E. Saugstad, op. cit., p. 455.

Demand for large investment of capital

Private capital.--The metal ship called for a large investment of capital in the shipbuilding industry, in the purchase of ships, and in operation of the vessels. Individuals were reluctant, or could not afford to invest their earnings in the new enterprise because of the initial loss during the early years of operation and because of the rapid changes in design, speed, and performance of vessels. Also, wage differentials and the availability of materials at low costs had to be considered. In 1933 Representative Bacon, of New York, submitted a statement to Congress showing that the average differential in the construction and operation between American and British vessels ranged from 5.66 per cent to 9.17 per cent, depending upon the type of vessel.¹

Because of the great risk involved shipbuilders often became allied with or owned by the shipowners. Companies often pooled their funds and combined their efforts to meet existing competition. Capital from foreign countries was even solicited. This cooperation of effort on the part of the shipping interests gave to the world the conception of our great stock companies and business monopolies.

Foreign capital solicited by various countries gave England and the United States, the two wealthiest nations, quite an advantage over the other countries in the accumulation of wealth. Many of the shares of the Burmeister and Wain shipyards, the largest of the Danish shipbuilding

¹Direct Aid to American Vessels in Foreign Trade, pp. 34-37.

firms, is held in English and American hands.¹

In 1840 steamer service in Chile was started with capital subscribed in South America and Great Britain.² "In 1922 the United Steamship Co.," operating the Scandinavian-American Line, "acquired American capital thru a 15-year bond issue authorized at \$5,000,000."³ "Considerable foreign capital is invested in Argentine shipping ventures."⁴

In 1924 the Compagnie Messageries Maritimes, of Marseille, the French subsidized company for services to the Far East, Australia, and Mediterranean (services which failed under Government operation), sold in New York "an issue of \$10,000,000 in 7 per cent bonds" and an "issue of \$11,000,000 in 6 per cent 25-year sinking-fund bonds of 1927 was offered in the Netherlands and Canada; \$5,500,000 of the Canadian share (\$9,500,000) and the entire Netherlands share (\$1,500,000) were taken in the United States market, thus providing a United States capital interest of \$17,000,000 in this French enterprise."⁵

Attempts to operate the Merchant Marine by private domestic capital proved unsuccessful, as did also the attempts at government ownership, and resulted in lines being subsidized by the governments.

¹Jesse E. Saugstad, op. cit., p. 489.

²Ibid., p. 474.

³Ibid., p. 488.

⁴Ibid., p. 573.

⁵Ibid., p. 102.

Government subsidies.--Rapid improvement in the metal ship due to the effects of the Industrial Revolution made loss thru obsolescence so great, together with other expenses, that operation of an adequate national Merchant Marine could not be maintained by local private capital. As it was to establish such a service, assistance had to be given by the Government.

Under the law of July 3, 1835, the Government of France undertook to operate a line in the Mediterranean service, manned by officers of the Navy. Fourteen years of operation showed a deficit of about 3,000,000 francs a year. Becoming alarmed, the National Assembly voted on April 18 and 19, 1849, to turn the postal packet lines over to private ownership, with a subsidy equivalent to the Government deficit--3,000,000 francs. Laws of June 17, July 1, and July 10, 1850, transferred postal service between France and Corsica, which had been under State management nine years, to a private corporation. Decree of February 2, 1855, transferred "services between Calais and Dover to the Clebsattel and Churchward Co."¹

In 1877 Belgium agreed to pay to the Société Anonyme de Navigation Belge-Américaine of Antwerp and the International Navigation Co. of Philadelphia \$96,500 per year as a maximum return for the carriage of the mails weekly "from Antwerp to New York and vice versa, and a sailing every six weeks from Antwerp for Philadelphia and vice versa." All pilotage fees, light dues, etc., were reimbursed. In 1886 \$15440 was granted the Northern German Lloyd of Bremen for calls at Antwerp on inward and

¹Jesse E. Saugstad, op. cit., p. 101.

outward journeys to the Far East. Pilotage fees, light dues, etc., paid to both Belgian and Netherland authorities were reimbursed. In 1887 \$73,340 per year was paid the Red Star Line for a weekly mail service between Antwerp and New York; \$96,500 per year as a minimum return for carriage of the mails was guaranteed to the Compagnie-Sud-Americaine for operating a line between Antwerp and the River Plate and Brazil with three round voyages per month. The Government required national registry, sufficient tonnage to guarantee uninterrupted service, minimum tonnage of 2700 gross tons, accommodation for various classes of passengers, scheduled sailings, and prescribed speed.

In 1889 Belgium entered an agreement with the German-Australian Steamship Company providing that the vessels of the company on outbound voyages from Hamburg to Australia should call at Antwerp once every four weeks and on their homeward voyages should call at Antwerp not less than 6 nor more than 13 times a year; \$289.50 was paid for each outbound and each return voyage. The company also agreed to carry at least 1500 tons of cargo on outward voyage.¹

The Canadian Government Merchant Marine has been operated at a loss since 1920. Operation of the Canadian National (West Indies) Steamships (Ltd.) showed a loss of \$1,117,896 for its first year of operation in 1929. The net cost to the Dominion Government was greater than the direct subsidy previously granted to the Royal Mail Steam Packet Co., but was justified on the ground that the loss was made in the interest of Canadian vessels instead of British.²

¹Jesse E. Saugstad, op. cit., pp. 434-435.

²Ibid., pp. 463-464.

CHAPTER IV
NEED FOR MERCHANT MARINE

Political

Communication with colonies.--The Falmouth packet service was begun by England in 1688 to carry mails to Spain and the West Indies. It was run at a loss for years but was kept up because political reasons demanded connection with Spain. In the eighteenth century both Spanish and West Indian trades became important.¹ Services to English colonies in national vessels have been maintained because of political reasons and also because such services are vital to the importation of food and the exportation of British manufactured goods. The same may be said of Japan. The Netherlands and Belgium, however, are located on "the world trade routes that have their origin, and terminals, in the United Kingdom and on the North and the Baltic Seas" and represent countries maintaining subsidized services for political reasons only.²

Since May 13, 1870, the Netherlands has subsidized steamship service between the mother country and her East Indian colonies. In 1888 the two companies which had been receiving subsidies united in forming the Royal Packet Navigation Co.³ To this company the government paid a subsidy of from \$0.60 to \$4.02 per nautical mile sailed in 1891. Thirteen lines were maintained. In 1925 thirty lines were

¹E. Keble Chatterton, The Mercantile Marine, p. 120.

²Jesse E. Saugstad, op. cit., pp. 359, 434.

³Ibid., p. 363.

maintained and the government agreed to a maximum payment of not more than \$199,918 a year. In 1930 the government agreed to a subsidy of \$80,400; and letter mail was to be paid for on the same basis as generally fixed in the Netherland Indies.¹

France has also urged the merchant marine as a national necessity. The northern African colonies of France have a great political importance. "Quite apart from future economic plans and development, political necessity demands adequate and secure transportation across the Mediterranean for troop movement. In February, 1930, the French North African military force consisted of 2,870 officers and 69,565 men."²

¹Jesse E. Saugstad, op. cit., p. 367.

²Ibid., p. 84.

Communication with consular establishments.--Delimitation of the spheres of influence of the United Kingdom and Germany, together with the revival of the slave trade, brought about a political situation on the east coast of Africa which made it necessary to maintain naval and consular establishments there. In 1873 a postal service was established between Aden and Zanzibar for the express purpose of facilitating communication with the British Navy and consular officers. The annual cost of the service was \$48,665 from 1873 to December 1882; and \$38,700 from 1882 to September 25, 1888. On November 2, 1889, a subsidy of \$77,900 was granted the British India Steam Navigation Company "for a direct service from London to Zanzibar once every four weeks in each direction, at 10 knots." The contract stipulated that there was to be free transportation of consular officers. The contract expired on November 2, 1891, and a new contract was entered into providing for a service between Aden and Zanzibar and Mombasa for a subsidy of \$43,000 annually. A speed of $7\frac{1}{2}$ knots was required. The contract remained in force until the World War.¹

¹Jesse E. Saugstad, op. cit., p. 253.

Military

Training school for officers.--The navy of a country is the protector of that country's merchant vessels; but in time of international conflicts these merchant vessels become auxiliaries of the navy, providing trained officers and sailors. It is necessary, therefore, that they be properly equipped and maintained for this service.

The ships of the Phoenicians "were provided with a beak or ram for fighting,"¹ which was later adopted by the Greeks and Romans, together with newer innovations, and passed on to other nationalities. Subsidies were granted with the stipulation that naval officers and personnel were to be carried free and that vessels were to be equipped with guns, etc. These merchant vessels "built up a fine body of seamen who formed a kind of pool from which ocean-going ships could obtain officers and crews for bolder enterprises."² Among these men were the famous discoverer Captain Cook, officers trained by the Old East India Company, and apprentice and midshipmen on the Blackwallers.³ The English East India Company was the only means of transport for the military, and for those going out to serve ashore under the company. At the beginning of the period 1764 the English mercantile marine consisted of over 3,000 craft armed with over 5000 guns.⁴ The East India Company gave to shipping a high grade of officers and men, and its traditions in this regard still held as a standard after the company had lost its monopoly in India and China.⁵

¹Charles E. Cartwright, The Tale of Our Merchant Ships, p. 4.

²E. Keble Chatterton, The Mercantile Marine, p. 180.

³Ibid., pp. 146-147.

⁴E. Keble Chatterton, The Ship Under Sail, p. 218.

⁵E. Keble Chatterton, The Mercantile Marine, p. 134.

⁶E. Keble Chatterton. The Ship Under Sail, pp. 146-147.

The Thames Marine Officers' Training Ship (or H.M.S. Worcester) held its sixtieth anniversary in 1922. It "has turned out 3000 officers for the Mercantile Marine, of whom many distinguished themselves during the World War.¹ The Lusitania, Mauretania, and the Aquitania of the Cunard Line proved excellent training schools for the Navy.

¹E. Keble Chatterton, The Ship Under Sail, pp. 146-147.

Auxiliary for national defense.--During the Crimean War the Messageries Maritimes carried "100,000 troops and 20,000 tons of war materials during the campaign."¹ Also, under act of July 3, 1861 France agreed to advance the company money to build new vessels for a service to the Far East, with the understanding that the company was to be reimbursed in case vessels were requisitioned for military use.²

The war with Formosa in 1875 was Japan's first military campaign to "have direct results upon Japanese shipping." Thirteen steamers were purchased for military transport. During the following year the government turned these and eighteen others (purchased from the Japan Mail Steamship Co.) over to the Mitsubishi Co., and granted in addition a subsidy of 250,000 yen.³ The decision to subsidize commercial shipping was due to the following reasons:

". . . . (1) the avoidance of suspicion of military aggression, which would be invited by a large Government-owned transport system, (2) the economic advantage of having a share of freight earnings from the overseas trade returned to Japanese nationals; (3) the building of a naval reserve through a large national element employed in commercial shipping; and (4) the providing of employment in the shipping and shipbuilding industries.⁴

The Sino-Japanese War "crystallized public opinion in favor of a comprehensive subsidy program."⁵ The result was the appearance of Japanese built ships for the Merchant Marine.

On July 9, 1888, the British Admiralty contracted with the Inman

¹Jesse E. Saugstad, op. cit., p. 103.

²Ibid., pp. 103-104.

³Ibid., p. 320.

⁴Ibid., p. 321.

⁵Ibid., p. 323.

and International Steamship Cos. for the option or purchase or charter of certain vessels if and when desired. A subsidy of \$4.87 per gross register ton was authorized. The company agreed to afford facilities for converting the vessels into use for national defense. The contract was not for mail service, but stipulated that should vessels be operated at any period under British mail contracts, there would be a reduction of 25 per cent in the subsidy authorized. The company agreed to employ at least one-half of the crew from members of the Royal Naval Reserve.¹

In subsidizing the Lloyd Brasileiro for foreign-going commerce in 1890, the Brazilian government stipulated that the line "was to provide a potential navy which could be directed to military use at small cost to the treasury."²

During the World War all of the Merchant Marine of France, including the service to the Far East, and practically all of the Merchant Marine of Great Britain were requisitioned by their respective governments. The English vessel Carmania, of the Cunard line, "became an armed merchant cruiser" during the World War and was "sent into South American waters," where she succeeded in sinking the Cap Trafalgar, a Hamburg-South America liner, after a "terrific duel of eighty minutes."³

¹Jesse E. Saugstad, op. cit., pp. 204-205.

²Ibid., p. 441.

³E. Keble Chatterton, The Mercantile Marine, p. 198.

Commercial

Industrial expansion.--The maintenance of a merchant marine is needed to promote the industrial development of a country. Its vessels challenge the scientific minds of the nation to improve the quality of the ship and in seeking means and methods for doing this new uses may be found for home materials.

In building the first sailing vessel the Egyptians discovered a new use for their linen cloth, copper, and other home materials. The shipbuilding industry in America provided a new use for American lumber; and shipbuilding in England provided a new demand for England's iron and steel.

Promotion of the shipbuilding industry affords an avenue for the employment of labor in making available the raw materials and in aiding in the construction of the ships. Being one of the large employers of labor in England, the English shipbuilding industry was given the privilege of borrowing capital under the "trade facilities acts of Great Britain." These laws were for the purpose of reducing "unemployment following the postwar slump" and were first enacted in 1921.¹

¹Jesse E. Saugstad, op. cit., p. 256.

Foreign trade.--The wealth of a nation is determined by its foreign trade. The Merchant Marine is necessary as a "vehicle" for this trade. Industrial expansion within a country widens the foreign market in which that country might sell and buy goods.

In the law of January, 1928, the Chilean government authorized the payment of bounties to Chilean vessels for carrying coal. On October 6, 1928, bounties were authorized for the purpose of encouraging the use of nitrates in various parts of the world.

CHAPTER V

PRINCIPAL LINES RECEIVING POSTAL SUBSIDIES

English

The British and North American Royal Mail Steam Packet Co.--The British and North American Royal Mail Steam Packet Company was operated by the Cunard Company under a contract with the British Admiralty in 1838 and granted a subsidy of 81,000 pounds.¹ It marked the beginning of subsidized trans-Atlantic service. The contract was a seven-years contract and was "for the conveyance of Her Majesty's mails once a fortnight between Liverpool, Halifax and Boston."² Four wooden vessels were built for the trade in 1840: Britannia, Acadia, Caledonia, and Columbia.¹

The four vessels "were propelled by paddle-wheels, carried 115 cabin passengers and 225 tons of cargo, and they were all approximately 1154 tons, and 207 feet long."³ The arrival of the Britannia in Boston "forged one of those links which have bound the two nations together for so many years ever since.

Prior to the establishing of communication by steam to the United States, the Admiralty had used gun-brigs to carry the mails to the West Indies. The Royal Mail, after the success of the Cunard contract, obtained an agreement, in March 1840, to maintain such service by steam vessels for a period of "ten years from December 1841."⁴

¹E. Keble Chatterton, The Merchant Marine, pp. 178-179.

²Ibid., p. 178.

³Ibid., pp. 178-179.

⁴William S. Benson, The Merchant Marine, p. 81.

At least fourteen good substantial vessels were furnished. The government granted a subsidy of £240,000 a year¹ for services "between the United Kingdom and the West Indies, including Cuba, Mexico and southern parts of the United States."² The vessels "were to be built with special reference to their usefulness in time of war and capable of carrying guns of the largest caliber then extant."³ The undertaking was very successful, and in 1851 services were extended to South America.

¹E. Keble Chatterton, op. cit., p. 179.

²William S. Benson, op. cit., p. 80.

³Ibid., p. 81.

The Peninsular and Oriental Steam Navigation Company.--England's interest in India dates from the commercial settlement of the English East India Company in that country, which began in 1613.¹ The East India Company was under direct patronage of the government, although engaged in commercial pursuits. It was founded in 1600 under the reign of Queen Elizabeth. Voyages were begun with five vessels provided with small arms and an abundance of ammunition.² Madras was granted to the company by the Rajah of Bijnagar in 1639. In 1690 Calcutta was settled.³ At the close of the eighteenth century the company had become possessed of a large portion of the continent of India.⁴ "In 1858 the direct sovereignty of India and the powers of government hitherto vested in the East Indian Company were vested in the British Crown."⁵ Mauritius, an island in the Indian Ocean, was captured by England from France in 1810. Malta, in the Mediterranean, was annexed in 1814 and Ceylon, in the Indian Ocean, in 1815. In 1839 Aden, on the southwest coast of Arabia was acquired; in 1867, the Straits Settlements, which include Singapore, came into English possession. Hong Kong, China, was ceded to Britain in 1858. Parts of Borneo and New Guinea are also in the possession of England.

To maintain regular communication with these colonies it was necessary for England to provide for subsidized services. The first subsidy was granted for a period of three years September 4, 1837, to the Peninsular and Oriental Steam Navigation Company. It provided for regular

¹Winston's Cumulative Loose-Leaf Encyclopedia - India.

²Arthur H. Clark, The Clipper Ship Era, p. 24.

³Winston's Cumulative Loose-Leaf Encyclopedia - India.

⁴Arthur H. Clark, loc. cit.

⁵Winston's Cumulative Loose-Leaf Encyclopedia - India.

services extending to Gibraltar, near the southern extremity of Spain. Gibraltar, which had been secured by the Treaty of Utrecht in 1713 is a coaling station and a military stronghold of Great Britain, as well as an "entrepot for distribution of British manufactures."¹ "The contract provided for weekly mail services from Falmouth to Vigo, Porto, Lisbon, Cadiz, and Gibraltar and return by steam vessels on a time schedule not exceeding 216 hours from Falmouth to Gibraltar." The subsidy was £29,600 or \$144,000 annually. If Spain and Portugal cooperated by remitting all port dues, the subsidy was to be reduced to £26,000 annually. The contract was with the Admiralty and required the contractor "to fit each vessel with armament consisting of 6, 9, or 12-pound guns, 20 muskets, 20 pistols, 20 swords, and 30 rounds of powder and ball, and stipulated that on each ship a naval officer should be carried."²

In 1839 the English Government "effected a convention with the French Government for the transmission of mails for and from India, through France via Marseille. From Marseille a British Admiralty vessel conveyed the mails to Malta," where with the aid of the Peninsular and Oriental steamers they were carried via Gibraltar to Alexandria.³ The plan was discontinued because the service lacked regularity, but on August 26, 1840 the Peninsular and Oriental Company contracted with the Admiralty to operate monthly sailings from England to Alexandria on regular schedule, and from Malta to the Ionian Islands, for which Great Britain was a protectorate (Winston's Cumulative Loose-Leaf Encyclopedia states this.) The size of the vessels, and speed requirements were

¹Winston's Cumulative Loose-Leaf Encyclopedia - India.

²Jesse E. Saugstad, op. cit., p. 219.

³Ibid., p. 220.

stipulated. It was required that the vessels be able to carry and fire at least four guns of the largest calibre then used in the Navy and that the vessels might be purchased or chartered by the Admiralty. The contract was for five years. It could be terminated upon six month's notice, in which case the Government paid a penalty fine. The Government reserved the right to charter or purchase the vessels at mutually agreed rates. Passenger fares both civil and military were agreed upon, but "in case a company of artillery was carried the field pieces were to be transported free."

A third contract was entered into in September, 1842, through which the company "opened its first operation east of Suez and by means of a line of steamers between Suez and Ceylon, Madras and Calcutta, employing therein the largest steam vessels which up to then had been in operation in eastern waters." On December 23, 1844, services were extended to Hong Kong. The annual subsidies were \$559,600 for the line from Suez to Calcutta and \$219,000 for the extension to Hong Kong. Contract was for seven years from January 1, 1845.¹

By 1849 the importance of the eastern service caused the appointment of a parliamentary committee to make a general investigation, which extended over a period of two years. The committee recommended that public bidding be required. As a result a contract was effected with the Peninsular and Oriental Company January 1, 1853, which recognized the advantage which would accrue from the railway which the company had

¹Jesse E. Saugstad, op. cit., p. 220.

arranged to construct between Alexandria and Cairo. The contract was for eight years, but was extended to fourteen years. Semi-monthly sailings were to be made between England and Alexandria; Suez, Calcutta, and Hong Kong; Malta and Marseille. In addition one sailing was to be made each way every alternate month between Singapore and Sydney. The vessel equipment comprised 15 steamers of not less than 1,100 gross tons each, with a speed of 12 knots, 2 small vessels for the line between Malta and Matseille, with a speed of $10\frac{1}{2}$ knots, and 600-ton vessels in the Singapore-Sydney service, with a speed of $8\frac{1}{2}$ knots.¹

In 1860 responsibility for supervision of mail contract services was transferred from the Admiralty to the Postmaster General. In 1866 the Peninsular and Oriental contracted with the Postmaster General for services from Great Britain to Australia, with branch services between Malta and Marseille; Aden and Mauritius. Later service was revised, establishing sailings based on Ceylon. Subsidy was \$655,380 annually. Average cost to the government from 1837 to 1866 was around \$26,000.² The contract for eastern services by 1866 amounted to £396,000 or \$1,927,000. This "was offset by a total postal revenue of £236,000 (\$1,148,000)," leaving a net cost of \$779,000 to the Government. By 1867 the need for services to the East increased from five lines or routes to seven lines, as follows, for a period of twelve years.

¹Jesse E. Saugstad, op. cit., p. 221.

²Ibid., p. 223.

Route No. 1.--Weekly sailings from Southampton to Alexandria and back, touching at Malta and Gibraltar. Distance, 2,951 miles; time, 295 hours; speed, 10 knots.

Route No. 2.--Weekly from Marseille to Alexandria, touching at Messina. Distance, 1,410 miles; time, 141 hours; speed, 10 knots.

Route No. 3.--Weekly from Suez to Bombay, touching at Aden. Distance, 2,972 miles; time, 313 hours, exclusive of time at Aden, which was to be fixed by Postmaster General; speed, $9\frac{1}{2}$ knots.

Route No. 4.--Every two weeks from Suez to Calcutta, touching at Aden, Point de Galle and Singapore. Distance, 4,757 miles; time, 501 hours; speed, $9\frac{1}{2}$ knots.

Route No. 5.--Every two weeks from Bombay to Hong Kong, touching at Point de Galle and Singapore. Distance, 3,852 miles; time, 406 hours; speed, $9\frac{1}{2}$ knots.

Route No. 6.--Every two weeks from Hong Kong to Shanghai and return. Distance, 870 miles; time, 92 hours; speed, $9\frac{1}{2}$ knots.

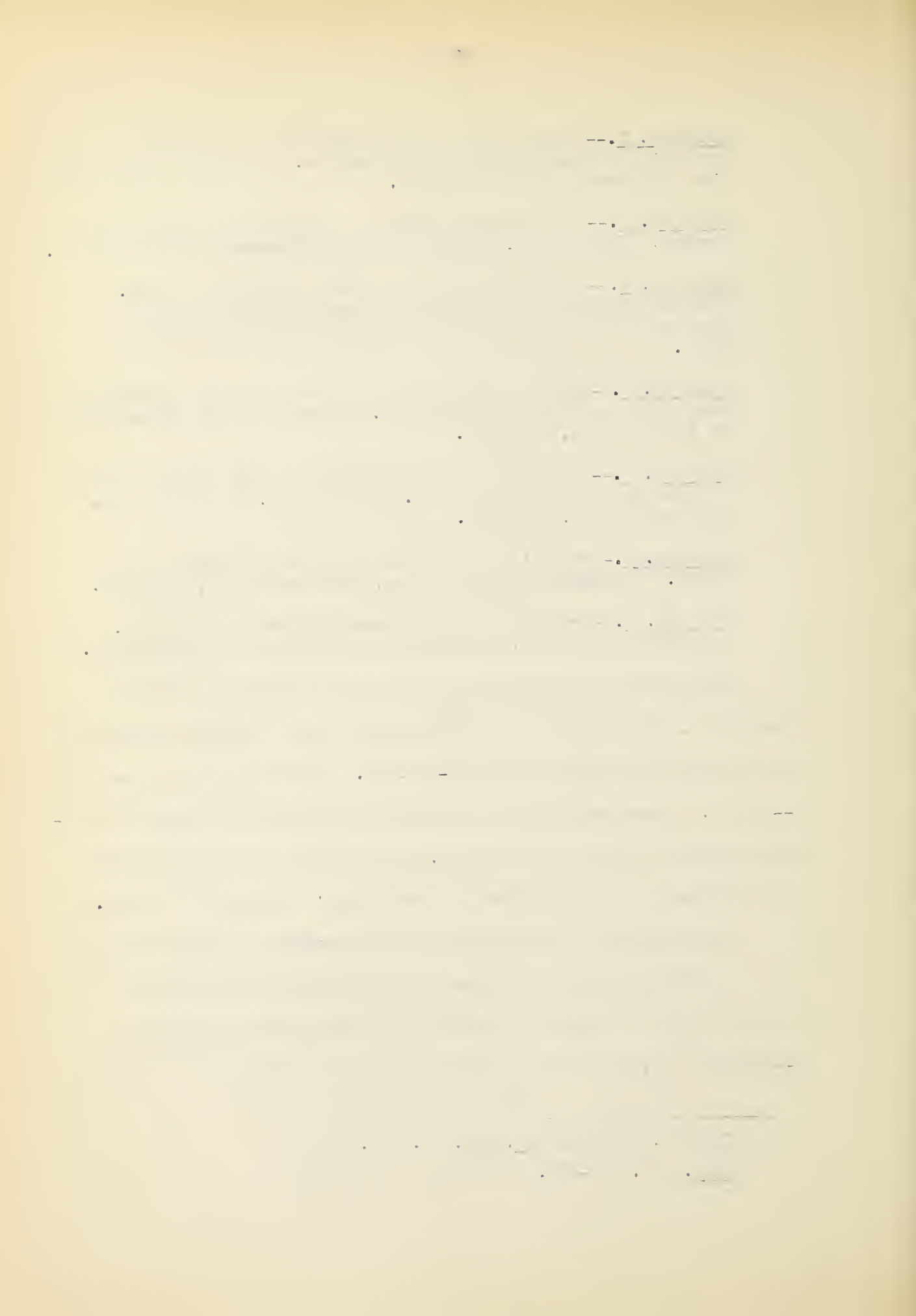
Route No. 7.--Every two weeks between Shanghai and Yokohama, touching at Hong Kong. Distance, 1,120 miles; time, 118 hours.¹

This contract represents one of the first examples of capital guarantees. The operators were guaranteed 6% upon invested capital in addition to an annual subsidy of £400,000. This was later changed to £600,000. Space preferment for official passengers and freight at regular commercial rates was required. The contract read for "12 years from February 1, 1868, subject to a 24-months' cancellation notice.

The opening of the Suez Canal created such great competition for the line from British and foreign vessels that the government was forced in 1870 to change the subsidy to a fixed annual payment of £450,000 or \$2,190,000 retroactive from April 1, 1869. The contract

¹Jesse E. Saugstad, op. cit., p. 229.

²Ibid., pp. 223-224.



was to extend to February 1, 1880. Under this contract the Marseille-Alexandria sailings were transferred to Brindisi-Alexandria, "reducing the time to 75 hours and increasing the speed from 10 to 11 knots."¹ The sailings between Brindisi and Alexandria caused Brindisi to suddenly rise into importance.² On August 1, 1874 the contract was modified to permit transit of lines from Southampton, Plymouth, and Liverpool to Bombay thru the Suez Canal, thus shortening the distance and reducing the necessary subsidy from \$2,190,000 to \$2,093,000.¹ The contract was to extend from August 15, 1874 to February 1, 1880.

Because of protests from India against the operation of the line, public bids were again solicited in 1879. The bid of the Peninsular and Oriental called for £33,500 more annually than the bids offered by three other companies but was accepted on the ground "that its service was direct and would reduce the time of the mails between Brindisi and Ceylon by 45 hours, between Brindisi and Singapore by 52 hours, and between Brindisi and Shanghai by 63 hours. The time saved for the mails was considered as being worth the extra cost of £33,500 annually in the public interest." Under this contract all mails from the United Kingdom were carried across the channel and forwarded overland to Brindisi, then carried by the subsidized service to the various ports.³

¹Jesse E. Saugstad, op. cit., pp. 223-224.

²Winston's Cumulative Loose-Leaf Encyclopedia - Brindisi.

³Jesse E. Saugstad, op. cit., pp. 224-225.

On March 18, 1887 the Peninsular and Oriental contracted for the East India and China mail service for a period of ten years (annual subsidy, \$1,290,000) and on January 19, 1888 for the Australian service for a period of seven years. Both became effective on February 1, 1888. The total annual subsidy was £370,000, which amounted to \$1,801,000. This was subsequently reduced to £360,000 (\$1,752,000).

The East India service under contract of 1888 advanced the speed between Brindisi and Alexandria from 11 knots to $13\frac{1}{2}$ knots; between Suez and Bombay from 11 knots to 12 and $12\frac{1}{2}$ knots.

The Australian contract brought the Peninsular company into cooperation with the Orient Steam Navigation Co. by providing for alternate weekly direct sailings between London and Sydney, "calling at Brindisi for, and with, mails on both the outbound and the inbound passage. Each company was granted a subsidy of £85,000 (\$413,650). Of the total £170,000 (\$827,300), £95,000 was paid by the United Kingdom and £75,000 by Australia. An agreement effective February 1, 1898, for a period of seven years required considerable speed requirements of both companies, due to the speed war then raging in the North Atlantic, and before the expiration of these contracts a committee investigating the eastern mail services made recommendations which resulted in a contract July 25, 1904 calling for an acceleration of 24 hours between Brindisi and Bombay, which increased the vessel speed to India to nearly 16 knots, and for an increase in the subsidy from

¹Jesse E. Saugstad, op. cit., pp. 225-227.

from £300,000 to £340,000, subject to reduction if company elected to abandon its Australian branch. The Admiralty, under agreement of April 3, 1894, "reserved the right to purchase or charter the contractors' vessels." The Navy estimates for the year 1894-1895 carried a subvention of £3,875 or \$18,850 for four of the Peninsular and Oriental vessels. The committee also went on record as favoring short-term (7-year) contracts for the following reasons:

1. that long contracts would exclude the mail service from the benefits of the most recent marine inventions and appliances, and
2. that the House of Commons had at various times supported short-term contracts.

Also, control over freight rates was urged in 1902 to overcome discriminatory practices in favor of foreign shippers. A few months before this the Admiralty agreed to subsidize vessels of only 22 knots for cruiser service.

The present contract under which the Peninsular and Oriental Steam Navigation Company maintains services to East India and the Far East was made August 15, 1907, and was to be effective for seven years from February 1, 1908 "and if not terminated to continue thereafter until 24 months' notice has been given by either party to the contract." Under this contract a "weekly service from Brindisi to Bombay in 270 hours is called for and fortnightly services from Brindisi to Shanghai in 678 hours and from Brindisi to Adelaide in 638 hours." The subsidy called for "£305,000(\$1,484,000), more or less, depending on certain conditions."¹

¹Jesse E. Saugstad, op. cit., pp. 226-228.

The first part of the paper discusses the importance of the study of the history of the United States. It is argued that a knowledge of the past is essential for a full understanding of the present. The author then goes on to discuss the various factors which have shaped the development of the United States, including the influence of the British, the Spanish, and the French. He also discusses the role of the American people in the creation of the nation, and the importance of the American Revolution. The paper concludes by discussing the future of the United States, and the role of the American people in shaping that future.

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The Australian line operated by the Peninsular and Oriental Company under contract of January 1, 1853, was discontinued July 7, 1854 to permit the use of these steamers in the Crimean War. Other modifications to meet the war crisis were made June 1, 1861 and November 17, 1865. Altogether the company sent into the Crimea eleven steamers, aggregating 18,000 gross tons, and transported 1800 officers, 60,000 men, and 15,000 horses.¹

Under contract of 1935-36 the Peninsular and Oriental Company was granted £348,000 or \$1,693,542 for services on the Asia and Australasia route.²

¹Jesse E. Saugstad, op. cit., p. 220.

²Merchant Marine Policy and Shipping and Shipbuilding Subsidies, Memorandum on France, Germany, Great Britain, Italy, and Japan, prepared for the Senate Committee on Commerce in the Consideration of S. 2582 (March 13, 1935), Senate Document No. 60, p. 18.

Union Castle Mail Steamship Co., 1899-1900.---In 1806 the English took control of South Africa away from the Dutch or Boers.¹ Communication between the colonies and the United Kingdom was maintained thru various subsidies. In 1876 a regular weekly mail service was provided thru an ocean-mail subsidy. In 1899 a contract was made with two companies whereby the cost of the ocean mail service was to be "borne proportionately by the participating British and South African Governments on the basis of the use made of it by each." These two companies later were consolidated into the Union-Castle Mail Steamship Company. It became necessary to use the steamers of this company "to carry large bodies of British troops to South Africa" when constant friction between the English living in South Africa and the Boers brought on war, 1898-1901.

After the Boer War the subsidy to the company was increased to \$370,000, with an additional \$102,200 for extending the mail service to Durban.

During the World War it became necessary to use vessels of this same line to transport troops to France "and in the autumn of 1922 they helped to move British troops to the Dardanelles."

Subsidies to the Union Castle Mail following the Boer War stipulated that the company should "carry emigrants from the British Isles for South Africa at 20 per cent less than the customary steerage rates."² From 1912-1922 the company received each year \$832,170, plus

¹De Forest Stull and Roy W. Hatch, Our World Today, p. 94.

²Jesse E. Saugstad, op. cit., pp. 604-605.

an additional \$102,200 for services to and from Durban.

From 1922-1924, the company was paid \$1,094,965 per annum for extending the colonial market. Freight preferences and regulations were provided. Refrigeration service was to be maintained to facilitate transportation of South African fruit and vegetables, as well as beef. Beef was to be transported one-eighth of a penny per pound less than the rate charged Argentina. The maximum rate was not to exceed six-eighths of a penny per pound. Fixed rates were also placed on bacon, eggs, cheese, and other farm products. In addition to aiding the states and colonies of South Africa, the act aimed to make England independent of foreign nations for a large number of her food supplies.¹

¹Jesse E. Saugstad, op. cit., pp. 305-306.

Royal Mail Steamship Packet Company.---"The Royal Mail Steam Packet Company started the first oversea steamer service in 1839, connecting London with the West Indies and Central America"¹ in the belief that a more rapid and regular mail service between the United Kingdom and the West Indies would expand greatly British interest in the West Indian colonies.² Under a ten-year contract which was to become operative December 1, 1841, at least fourteen steamer vessels were to be constructed under naval inspection. These were to be of 400 horsepower or above and "capable of mounting the largest guns then used in the navy. "Vessel equipment was to be kept abreast of developments during the life of the contract." Two sailings were to be maintained from channel ports to Barbadoes by way of Jamaica and Cuba to Mobile, with branch services to Tampico and Vera Cruz and from Habana to New York and Halifax. For this the Admiralty agreed to grant an annual subsidy of \$1,168,000 or \$1.70 per mile, with the understanding that increases not to exceed £50,000 per annum would be made if insurance rates rose above £6 6s. per cent due to causes of a public or national character, if coal freights rose to more than £1 2s.6. (\$5.47), and if insurance on coal rose above £2 2s. per cent. Losses during the first year caused the mileage to be reduced from 684,816 to 392,973, and had the effect of making the subsidy about \$3 per mile instead of \$1.70.³

¹Erich W. Zimmerman, op. cit., p. 412.

²Jesse E. Saugstad, op. cit., p. 246.

³Ibid., pp. 246-247.

In the contract of 1841 the routing of the vessels was "subject to alteration by the Admiralty. In 1849 the House of Commons recommended the Panama route due to the increase in cargo and passengers entering the Isthmus of Panama as a result of the discovery of gold in California. An agreement between the Government and the Pacific Steam Navigation Co. in 1853 making it possible for that company "to connect with the British mails carried by the Royal Mail to Panama"¹ and the projection of the Panama Railroad in the United States further enhanced the development of the company.

In 1852 the Government renewed its contract with the Royal Mail and extended services to Brazil under a subsidy of \$1,314,000.² In 1856 the Royal Mail reestablished, in conjunction with the Peninsular and Oriental Steamship Company, the Peninsular and Oriental route to Australia which had been discontinued in 1854 due to the Crimean War. The service was operated "between Singapore and Sydney, via King Georges Sound, Adelaide, and Melbourne."³

The Panama Railroad, "completed in 1855, was almost unique in having no local traffic and in being a connecting link between two seaports which exist only because of through trade. To improve its traffic this road promptly established a steamship line from New York, and made contract arrangements with the then existing Pacific steamship companies plying north to Portland and south to Valparaiso."⁴ The Royal Mail Steam Packet Company advanced £25,480 or \$124,000 to the building of the railroad.⁵

¹Jesse E. Saugstad, op. cit., p. 251.

²Ibid., p. 247.

³Ibid., p. 405.

⁴J. Russell Smith, Ocean Carrier, p. 172.

⁵Jesse E. Saugstad, op. cit., p. 247.

The discovery of gold in California added to the demand for cargo and passenger services. This demand was greatly accelerated by the establishing of the Panama Road and placed the company "in a highly strategic position in so far as its future fortunes were concerned." The company acquired other subsidized lines and became the "central organization in a combination of more than 20 British shipping companies controlling the operations of about 2,000,000 tons of shipping."¹

Jesse E. Saugstad, op. cit., p. 247.

The Cunard Steamship Company.--"The first subsidy to Cunard Company was made for military and diplomatic purposes only, but when subsidized American ships appeared, the Cunard grant was increased to maintain the British flag in the trade."¹ The company maintained "practically a monopoly of the Atlantic steamship" from 1840-1860. However, serious competition with the sailing vessels did not arrive until "the advent of iron and steel and of high-pressure and compound engines gave vessels economy and efficiency." Keen competition was furnished by the Collins Line, the American Line, the Guion Line, and finally, in 1870, by the White Star Line.²

In 1856 "the Cunard Company built the Persia of iron," a 3,300-ton ship with paddle-wheels. In 1862 the company built the Scotia, the "last and finest paddle-ship ever built for the Atlantic service." This ship crossed the Atlantic "two hours under nine days," definitely beating the sailing ship as a passenger-carrier across the Atlantic.³ The Servia, a steel vessel, was built in 1881. It "lowered the Atlantic voyage to seven days, one hour, thirty-eight minutes."⁴

In 1882 the Cunard Company purchased the Oregon, a 7375-ton ship, from the Guion Line. Having a speed of nineteen knots she was the fastest vessel afloat until Cunard built the Umbria in 1884 and the Etruria in 1885. The two last ships were intended for armed cruisers

¹J.R. Spears, The Story of the American Merchant Marine, pp.324-325.

²E. Keble Chatterton, The Mercantile Marine, p. 182.

³Ibid., p. 186.

⁴Ibid., p. 190.

if needed. In 1885 the Etruria sailed from Queenstown to New York in six days, six hours and thirty-six minutes; in 1892 the Umbria maintained an average of over nineteen and half knots. In 1892 and 1893 the Cunard Company launched the Campania and Lucania respectively. These vessels had a speed of twenty-two knots.¹

In 1903 the Cunard Line was actively engaged in emigrant traffic, bringing 18,522 cabin and 33,957 steerage passengers to the United States.²

The Cunard Line represents the best example of the Admiralty's interest in speed achievements. From 1903 to 1908 this line was granted an annual subvention of \$729,975, which resulted in production of the Lusitania and the Mauretania, the two fastest commercial vessels in the world. The vessels proved too large for cruiser service during the World War, as did also the Aquitania. These vessels, however, proved an excellent training school.³

Six Cunard ships were withdrawn from regular service in August 1914 to act as cruisers and transports in the World War. At the outbreak of the war Cunard owned 16 liners of 8,000 tons and upwards, employed in the Atlantic service. The line also had 9 small vessels employed in the Mediterranean. During the war 9 vessels were bought. The company lost 22 vessels in the war.⁴ The company handled, during the World War, "1,587 vessels on 1,737 voyages for the wheat executive, collier sections, and other authorities."⁵

¹E. Keble Chatterton, The Mercantile Marine, pp. 192-195.

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³Jesse E. Saugstad, op. cit., p. 205.

⁴Ibid., p. 207.

⁵Ibid., p. 208.

After the World War the Cunard Company took over the German Imperator, which became the Berengaria. The vessel was converted from coal burning to oil burning and has an average speed of 23.38 knots.¹

¹Jesse E. Saugstad, op. cit., p. 202.

German lines

Hamburg-American.—The Hamburg-American line was founded on "German and Russian emigrant traffic to the United States," the greatest rush occurring between 1880-1892. In 1848 the line made two voyages, carrying 168 passengers. In 1907, 470,290 passengers were carried; 142,000 of the steerage passengers and 33,000 of the cabin passengers landed in New York. Prosperity from this service caused keen competition with other lines. Nevertheless, in 1903 the company landed at New York 23,965 cabin passengers and 114,458 steerage passengers. During the Russian cholera epidemic of 1892 the German government established control stations on the border "for the inspection of Russian emigrants who were on their way to the United States."² In 1914 the company was the largest carrier of ocean passengers in the world. It represented 1,306,619 tons and 431 vessels.³ It was also one of the ten companies forming the shipping union in Germany.⁴

Under peace terms of the World War Germany was compelled to surrender all of her commercial ships of 1,600 tons gross and upwards, "one-half (tonnage basis) of those between 1000 and 1,600 tons gross, and one-quarter (tonnage basis) of all steam trawlers and fishing boats."⁵

¹Jesse E. Saugstad, op. cit., p. 174.

²Ibid., p. 174.

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⁴E. Keble Chatterton, The Mercantile Marine, p. 208.

⁵Jesse E. Saugstad, op. cit., p. 175.

North German Lloyd.--The North German Lloyd was organized by German merchants, in 1857, who had acquired a wealth of experience thru their interest in the American Ocean Steam Navigation Company.¹ It offered the keenest competition with the Hamburg-American line for emigrant traffic to the United States. It was second in size, having 811,000 tons and 168 vessels.²

The North German Lloyd was a member of the Shipping Union in Germany, which was subsidized to the extent of 107,950 pounds, and which reached every part of the world.³ In 1886 Belgium gave the line a subsidy of 80,000 francs a year for calls at Antwerp on voyages to and from the Far East.⁴

In 1927 the North German Lloyd floated \$20,000,000 thirty-year, 6% , bond issue in the United States. In November, 1928, 175,000 shares were issued against 35,000,000 marks par value of common stock. The shares carried the voting right of 1 vote for each 20 marks par value.⁵

In 1903 the line landed in New York 36,031 cabin and 119,079 steerage passengers. Like the Hamburg-American, the line was aided indirectly by the Government during the Russian cholera epidemic. The Kaiser Wilhelm der Grosse of this line was the fastest and largest vessel afloat in 1897. It had a gross tonnage of 14,349 and made the crossing from Southampton to New York at an average speed of 21.39 knots. The Kaiser Wilhelm II was the most powerful vessel built up to 1903. In 1929 the North German Lloyd completed the Bremen.

¹Jesse E. Saugstad, op. cit., p. 51.

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³E. Keble Chatterton, The Mercantile Marine, p. 208.

⁴Ibid.

⁵Jesse E. Saugstad, op. cit., p. 188.

French lines

Line to United States following American Revolutionary War.--The contract with the Compagnie Messageries Maritimes (previously, the Messageries Nationales) was the beginning of French subsidies to commercial lines. The original contract was concluded February 28, 1851 and approved July 8, 1851. It was a 20-year contract and thereafter was to be renewed year by year. The company was to receive an annual subsidy of 3,000,000 francs (which was the amount of the deficit when operated under government control) for a period of ten years, "after which there was to be an annual reduction of 100,000 francs (\$19,300) until the amount was reduced to 2,000,000 francs a year at the expiration of the original contract."¹

The service is considered a public utility by the French government and aims to develop commercial exchange between France and her colonies. The company was to operate "three principal lines out of
 15 - Marseille--one to Malta by way of the Italian coast, one to Constantinople (Istanbul), and one to Alexandria--besides a secondary line connecting Constantinople and Alexandria, a total of 315,000 miles a year."²

The contract of 1911 with the Messageries calling for service to
 20 the colonies for a period of 25 years was completely upset during the World War, nearly half of the vessels having been lost. The French

¹ Jesse E. Saugstad, op. cit., p. 102.

² Ibid., p. 103.

Government took one year to study the situation and reported that certain services to far away colonies must be carried on at any cost. In the reorganization the Messageries agreed to organize a subsidiary company of 60,000,000 francs. The subsidy granted was dependent upon the balance sheet of the company.

Against receipts of all kinds are to be set off all the ordinary expenses of operation, including insurance on all the fleet. Other liability items include, first, the sum required for annual amortization at amounts fixed for the 16 ships of the Messageries Maritimes and at 5 per cent for new ships; second, annual interest charges and repayment of loans; third, the sum needed to pay 7 per cent on paid-up stock; fourth, repairs and renewals at the rate of 2 per cent of the book value of the existing ships and 1 per cent for new ships, subject to modification if necessary; fifth, the sum of 20,400,000 francs to the Messageries Maritimes annually up to 1936, and thereafter annually up to 1946 the sum of 16,337,000 francs, and in 1947 (when the contract expires) 13,910,000 francs; sixth, an operator's commission of 10 per cent of the excess of receipts over ordinary operating expenses, including insurance."¹

In case of a profit, 80 per cent was to go to the French Government and 20 per cent to the company. "The company's share, however, can not exceed a 4 per cent dividend on its stock; and this, with the 6 per cent guaranteed, permits a maximum 10 per cent dividend. Any excess over that rate is to go half to the Government and half to the reserve fund." In case of losses, 80 per cent is to be borne by the Government and 20 per cent by the company. The company's "liability may extend to the amount of its commission for operation (10 per cent of operating profits), but not beyond that."² Under this arrangement the Government paid a subsidy of 45,000,000 francs in 1923-24 and 32,000,000 francs in 1924-25. Since then the subsidy has shown a tremendous increase each year. In 1935 the appropriation for subsidies amounted to 405,650,000 francs, of which 202,500,000 was paid to the Messageries Maritimes under the twenty-five year contract dating from July 28, 1921.³

¹Jesse E. Saugstad, op. cit., pp. 106-107.

²Ibid., p. 107.

³Merchant Marine Policy and Shipping and Shipbuilding Subsidies,

Japanese lines

Nippon Yusen Kaisha.--The country of Japan was the best example of ship subsidies before the World War.¹ In 1865 the Nippon Yusen Kaisha company occurred as a consolidation of two of these lines, viz., the Mitsubishi Company and the Kyado Unyo Kaisha or Union Transport Company. The capitalization of the two lines was \$5,478,000. The government subsidy was a guaranty of 8% on the capital for 15 years, "with parallel increases of subsidies and capital as the company developed."² At first the company provided services in the home-coasting trade or to China and Vladivostok, operating 18 lines and 40 vessels. It inaugurated its first regular ocean-going service in 1894 with the establishment of the Kobe-Bombay line, and in 1895 with the Kobe-Manilla line. During the Sino-Japanese War the government purchased fourteen foreign built vessels of 41800 gross tons and placed them under the operation and management of this company.

In 1896 the Nippon Yusen Kaisha "opened its Japan-Europe service and projected the construction of 12 twin-screw 6,000-ton steamers, 2 in Japan and 10 in Great Britain, which were to be operated fortnightly. . . ."³ Another monthly service was established to Australia, with three passenger vessels. These vessels, of 3,500 gross tons, were built in Great Britain.

After the cessation of the Russo-Japanese War, in 1906, the Nippon Yusen Kaisha "built 6 twin-screw vessels of 10,000 gross tons,

¹Marguerite M. McKee, The Ship Subsidy Question in United States Politics, Smith College (1922).

²Jesse E. Saugstad, op. cit., p. 322.

³Ibid., p. 323.

3 vessels of 12,000 tons, 6 cargo vessels of 6,000 gross tons, and 6 cargo vessels of 7,000 gross tons; in all 21 vessels of an aggregate gross tonnage of 174,000".¹ Later the Nippon Yusen Kaisha and the Osaka Shosen Kaisha (the two leading companies) combined with other operators in the Yangtze and formed the Nishin Kisen Kaisha. The new company was aided by the government and operated the Shanghai-Hankow, Hankow-Ichang, and Shanghai-Suchow-Yanchow lines.

The early Government subsidies of 8 per cent on paid up capital enabled the Nippon Yusen Kaisha to build up large reserves for all purposes. Its "dividend-equalization reserve fund," in 1922, amounted to \$9,860,000. For several years dividends of the company were paid partly out of this fund. The financial panic of 1927 placed the company in a favorable position to issue debentures because of the easy money market following in 1928. As a result the company was able to finance its own tonnage when asked by the Ministry of Communications to again undertake subsidized trans-Pacific services to California. The company took over the California line and the west coast of South America line of the Toyo Kisen Kaisha "and increased its (N.Y.K.) capital from 100,000,000 yen to 106,250,000 yen (from \$49,800,000 to \$52,913,000)."² The company undertook to build:

3 vessels of 51,200 gross tons for the California line
 3 vessels of 34,800 gross tons for the Seattle service
 2 vessels of 23,600 gross tons for the London service
 1 vessel of 9,700 gross tons for the South American service.

¹ Jesse E. Saugstad, op. cit., p. 324.

² Ibid., p. 348.

The company recognized and took advantage of the need existing for reasonably safe employment of capital after the 1927 panic. Debentures amounting to \$14,940,000 were floated to cover the cost of building three vessels to be operated between the "Far East and Puget Sound," and part of the "cost of construction for the service between the Far East and San Francisco."¹

Contracts with the Government prevented the Nippon Yusen Kaisha from taking advantage of the high freight rates prevailing during the World War, so that in 1920-21 the Japanese Diet, acting upon the wishes of the company, reduced the Government supervision over the commercial operations of the company and authorized the European and Australian lines and the Seattle line, to carry the mail on a measurement-mileage basis. The principal was retained in 1929 on the lines running to London and Melbourne. Three other lines were subsidized under 5-year contracts:

The Japan-Seattle Line was under contract to begin January, 1929, and end in December, 1933. Two vessels were to make 10 sailings annually and three new passenger vessels were to make sailings every four weeks. The section on vessel equipment called for two vessels over 10,000 gross tons with a speed of 17 knots, and three passenger motor liners to be built of 11,000 to 12,000 gross tons each and of 17 to 19 knots speed. Subsidies for the first two years amounted to \$848,885 for each of the last three years.

The Japan-San Francisco Line was to run from January 1, 1930 to December 31, 1934, with one or more sailings every three weeks. Vessel

¹Jesse E. Saugstad, op. cit., p. 348.

equipment called for three vessels of 13,000 to 14,000 gross tons each and of a speed of 18 to 20 knots. Subsidies during the five years amounted to \$1,166,042, \$1,426,840, \$1,426,840, \$1,422,643, and \$1,368,087 respectively.

Japan-West Coast of South America Line began under a contract running from January 1, 1930 to December 31, 1934. Sailings were to be made twice every three months. Vessel equipment called for four vessels of 7,000 to 9,700 gross tons each, with a speed of 14 to 16 knots. Subsidies for the five years were \$1,109,059, \$1,099,092, \$1,104,603, \$1,017,749, and \$1,025,110 respectively.¹

Contract for April 1934 to March 1935 called for 10 or more vessels for the Yokohama-London Line (over 9000 tons) with a speed of over 16 knots. The contract with the Yokohama-Melbourne Line for the same period called for 3 vessels over 5000 tons, with a speed of over 15 knots. Other contracts with the company during this period provided for services to North America, South America, China, the Near East, and Habana.²

Under the Ship Improvement Law of 1932, providing for the scrapping of vessels, the Nippon Yusen Kaisha received a subsidy of 2,365,200 yen due to the construction of six new vessels, comprising 43,800 gross tons.³

¹Jesse E. Saugstad, op. cit., pp. 333-334.

²Merchant Marine Policy and Shipping and Shipbuilding Subsidies, Memorandum on France, Germany, Great Britain, Italy, and Japan, prepared for the Senate Committee on Commerce in the Consideration of S. 2582, Senate Document No. 60, p. 48.

³Ibid., p. 57.

The "K" Line.--The "K" line (Kokusai Kisen Kaisha) represents a number of private owners who had built tonnage during the World War and who combined after the war was over. Their vessels comprised about 500,000 dead-weight tons. During 1919 and 1920 the company built 47 cargo vessels, of a total tonnage of 247,236 gross tons. The Deposits Bureau of the Ministry of Finance (a repository for public funds), thru the Japanese Industrial Bank, issued a statement in March, 1929, which showed that out of advances amounting to \$16,185,000, the Kokusai Kisen Kaisha received \$14,542,000.¹

Under the Ship Improvement Law of 1932, the company built three new vessels, comprising 20,900 gross tons, for which the Government granted a subsidy of 1,128,600 yen.²

¹Jesse E. Saugstad, op. cit., p. 327.

²Merchant Marine Policy and Shipping and Shipbuilding Subsidies, Memorandum on France, Germany, Great Britain, Italy, and Japan, prepared for the Senate Committee on Commerce in the Consideration of S. 2582, Senate Document No. 60, p. 48.

³Ibid., p. 57.

Italian lines

Italy began to subsidize her merchant marine under postal contracts in 1862, after services operated by private companies proved unsuccessful financially. Amounts stipulated in subsidy contracts increased from 7,921,056 lire (\$1,528,000) in 1862 to 23,610,400 lire (\$4,556,800) in 1912. Reorganization after the World War provided for subsidies to "indispensable lines" and "useful lines." The indispensable lines connect "by shortest route and with adequate speed the islands with the Italian mainland." The useful lines connect "Italian ports with foreign ports." Appropriations for both services for 1934-35 amounted to 297,912,000 lire or \$15,670,171. All mail up to 30 percent of the measurement capacity of the vessel was to be carried without charge. Also, special provisions were made for national emergencies. Services were to continue for "five years from July 1, 1933," according to some of the contracts. Most of them, however, called for services until the year 1942 or 1946. There were eighteen routes--Far East-India, India, Australia, South America, North Brazil, North America, Africa, South Africa, North and East Africa, Mediterranean, Adriatic, and Black Sea, North Europe, Spain, Pola, Brioni Islands, and Parthenopean and Pontine Islands.¹

The Merchant Marine tonnage increased from 2,884,406 gross tons June 30, 1935, to 3,098,159 gross tons June 30, 1936. In December, 1936, the Government proposed that the nine existing companies cease to operate

¹Merchant Marine Policy and Shipping and Shipbuilding Subsidies, Memorandum on France, Germany, Great Britain, Italy, and Japan, prepared for the Senate Committee on Commerce in the Consideration of S. 2582, Senate Document No. 60, pp. 29-35.

on January 1 and be reorganized into four companies, under Government control. The four new companies, and their capitalization are:

Italia, 500,000,000 lire
Lloyd Triestino, 300,000,000 lire
Tirrena, 150,000,000 lire, and
Adriatica, 150,000,000 lire.

Control is to be vested in the Industrial Reconstruction Institute, a state institution, which will have the majority of capital shares.¹

¹John Moody, Moody's Governments and Municipalities, p. 2828.

Canadian lines

Canadian Transport Co.---The Canadian Transport Co. is a privately owned company receiving trade subsidies from the Canadian Government. Services extend between Vancouver and the British West Indies. Calls are made at Port of Spain, Trinidad, and, if warranted, at any port or ports on the northeast coast of South America; also, if warranted, at Barbados and at ports in the Leeward and Winward Islands. Eight to twelve sailings a year are made at intervals of four to eight weeks. The steamers or motor ships are to be of not less than 7,000 dead weight. The maximum annual subsidy is not to exceed \$48,800, payable at the rate of \$3,000 for each single trip from Vancouver to Trinidad, together with \$700 for every call at Jamaica and \$900 for every call at British Guiana. Free transportation is to be received by Canadian trade commissioners and their wives and children and Canadian Commercial agents." Also "through" bills of lading are to be issued "from any Canadian loading port to any ports in the British West Indies which may be reached by connecting lines from Trinidad." In "Shipping and Shipbuilding Subsidies, page 464, Jesse E. Saugstad gives the following quotation from the Canadian Minister of Trade:

I contend that Canada, in view of her export trade in manufactured goods, rendered possible by the services, can well afford, where necessary, to subsidize transportation to

¹Jesse E. Saugstad, op. cit., p. 464.

every country in the world. * * * I do not believe that there is any form of government assistance which will be shown in the future to be of such importance to this Dominion as the assistance which we are giving to those who employ labor in the country, to find markets for their products in foreign fields.

Mails are carried free. The contract of 1930 provided for services to British East Africa, with monthly sailings from Montreal in summer and from Halifax or St. John in winter. Calls are made at the Azores (at option of contractor), Gibraltar, Malta, Alexandria, one port in Palestine, Port Said, Suez, Aden, Mambasa, Tanga, Zanzibar, and Dar-es-Salaam, also at Port Sudan. Vessels are to be 6,000 dead-weight tons, with a speed of 10 knots. The subsidy was to be \$13,750 per trip, or at the rate of \$165,000 annually. The contract was suspended on March 21, 1931 until January, 1932, owing to adverse economic conditions.¹

¹Jesse E. Saugstad, op. cit., p. 465.

Elder, Dempster Co.—The Elder, Dempster Company is a subsidiary of Royal Mail but operates under its own name. It operates in the nature of a trade-route subsidy between Canada and South Africa, receiving on an average about \$125,000 for monthly sailings. "For the years 1926-27, 1927-28, and 1928-29 the annual estimates were \$100,000; for 1929-30, \$125,000; for 1930-31, \$150,000. For 1931-32 the amount proposed in the budget estimates was reduced to \$120,000"¹ It is stipulated in all contracts "that payment of the subsidy is subject to the provisions of the necessary funds by a vote of the Parliament of Canada."²

Sailings are to South Africa, extending to Beira, Portuguese East Africa. The vessels leave from Montreal in summer and from St. John in winter. They are required to call at Cape Town and not less than two other South African ports. Optional calls may be made at Sierra Leone, West Africa, transshipping cargo there for West African ports, and at Lourenco Marques in Portuguese East Africa. Twelve sailings are required. Any excess sailings are made without subsidy, and are not required under the contract.

The vessels are to be of not less than 5,000 dead-weight tons capacity, and not less than 10 knots speed, and fitted with refrigerated space. Passenger accommodations are not required, but many are equipped to carry a few passengers. The mails are carried free one way "from Canada to South Africa."

¹ Jesse E. Saugstad, op. cit., pp. 464-465.

² Ibid., p. 464.

The contract also provides "against discriminations against shippers of Canadian goods and products, who shall have precedence for Canadian goods and products over all other shippers, and freight and passenger rates are subject to the approval of the Minister of Trade and Commerce."¹

The company lost 36 out of 101 steamers during the World War.²

¹ Jesse E. Saugstad, op. cit., p. 465.

² Ibid., p. 207.

Brazil line

The Lloyd Brasileiro.--The first interest of the Brazilian government in shipping was to furnish a means for transporting passengers and mails between Brazilian ports, since two-thirds of the population lived on the cool eastern plateau extending from Pernambuco to Rio Grande do sul. A coastwise steamer line with Navy vessels was put into operation. In 1836 the government subsidized a "coastwise steamer line to connect Bahia, Pernambuco, Ceara, Maranhao, and Para."¹ Under the Decree No. 208 of February 19, 1890, the five principal subsidized lines were combined into the Lloyd Brasileiro, which was to receive the total amount of the subsidies formerly granted the five units forming the combination, about \$700,000 annually. The Bank of Brazil loaned the new company \$5,520,000 at 7 per cent.²

The company was to become the foreign-going commercial fleet and also to engage in the coastal trade. It "was to provide a potential navy which could be diverted to military use at small cost to the treasury,"² and to form a trans-Atlantic steamship line.

Several changes in organization were made during the first three years, and in 1893 the Brazilian Government placed the operation of the line in the hands of the Bank of Brazil. Despite this fact, the company failed in 1909 and was reorganized. In 1911 the company "was placed directly under the control of the Government and so remained throughout the World War."³ In 1916 forty-three captured German vessels of 215,430 gross tons, which were seized in Brazilian

¹ Jesse E. Saugstad, op. cit., p. 439.

² Ibid., p. 442.

³ Ibid., p. 442.

ports, were turned over to the line. In 1919 the company opened foreign services to Hamburg, New Orleans, and New York.

In 1920 the government succeeded in returning the company to private ownership. The new company was incorporated as the Companhia de Navegacao Lloyd Brasileiro. The property had been valued at from 32,200 to 97,400 contos. A subsidy of about 18,000,000 milreis was granted--12,000,000 for coastwise services and 6,000,000 for foreign service. In 1924 the total subsidy was increased to 23,000,000 milreis, and in 1926 the amount was 19,675,000 milreis. No subsidy was granted in 1927, due to high profits.

On July 4, 1928, the President of Brazil signed a decree authorizing the Brazilian Government to conclude a shipping service contract with the Lloyd Brasileiro Steamship Co. which, in effect, is one of the largest single subsidized shipping service contracts in the world. The contract provided for a grant of 18,000,000 milreis (\$2,154,600 at \$0.1197 to the milreis, the average rate for that year) annually for operations covering 965,000 miles of passenger service at an average rate of about \$2.15 per mile over the entire service, in addition to cargo services to Europe and North America as well as coastal and inland river services.

The services comprise eight passenger lines, the principal subsidy grants being upon the mileage made over three lines on the Brazilian and South American coast and on one line extending to France.

There are eight cargo lines, including lines to Liverpool, New York, and New Orleans, but bounties are not granted on cargo-vessel operation.¹

¹Jesse E. Saugstad, op. cit., p. 445.

United States lines

The Collins Line.--The United States was interested in establishing the Collins Line as a competitor of the English Cunard vessels. The first contract, March 3, 1847, not only granted a subsidy but advanced funds for the construction of four vessels. The line operated between the United States and Liverpool and enjoyed a subsidy of \$19,250 per round voyage, 20 voyages to be made each year. On July 21, 1852 this was increased to \$33,000 per round voyage for 26 voyages annually.¹ This total, \$858,000 per annum, was reduced to \$385,000 after two of the vessels were destroyed--the Artic in 1854 and the Pacific in 1856. Finally the conflict between the North and the South over issues which brought on the Civil War consumed public attention and resulted in the failure of legislation for continuing the subsidy and caused the company to collapse in 1858.²

At the close of the war the country found itself too engrossed in internal developments made possible by the development of railroad transportation and the discovery of gold in California to be concerned about subsidies for foreign trade. From 1860 (or 1870) onward America's major interest was in internal home development. Attention was centered on the railroads.³

¹Jesse E. Saugstad, op. cit., p. 52.

²E. Keble Chatterton

³Ibid.

The next act providing for subsidies to vessels engaged in foreign trade was the Act of 1891, under which the American Line was subsidized. The Act called for \$4 a mile for ships of 8000 tons and speed of 20 knots, \$2 per mile for vessels of 5000 tons, with a speed of 16 knots, \$1 per mile for vessels of 2500 tons and a speed of 14 knots, and "two-thirds of a dollar a mile" for vessels of 1500 tons and a speed of 12 knots. These subsidies were provided for the purpose of maintaining "lines of ships which would be useful as scouts, transports, etc. in time of war."¹ The Inman Line organized in 1850 was reorganized in 1893 and merged in the American. Thru the steamers the City of New York and the City of Paris (1888) the line introduced twin screws of a large size into the Mercantile Marine. This gave "Independence and increase of efficiency" which the steamship never before possessed nor has since lost.²

The American Line is "now operated as a part of the fleet of the International Mercantile Marine Company." It consists of two American built ships and two British ships "placed under the American flag by special act of Congress." The subsidy is sufficient to maintain the line but not to increase it.³

¹J.R. Spears, The Story of the American Merchant Marine, p. 327.

²E. Keble Chatterton, The Mercantile Marine, p. 198.

³J.R. Spears, op. cit., pp. 330-331.

CHAPTER VI

ENCOURAGEMENT TO AVIATION AND SHIPPING

Airways - Luft Hansa

Promoting safety and regularity by the establishment and maintenance of airways is one of the primary aids which the governments render aviation. The airways of the German subsidized company, the Luft Hansa (or Lufthansa), represent the world's first comprehensive airtrust. In the first year the Lufthansa installed three wireless stations, and these paved the way to greater safety and regularity of service. They also served as an example for other countries.

Lacking colonies or foreign bases, the Lufthansa created bases on the Atlantic by establishing vessels from which airplanes could be serviced in mid ocean, and then catapulted once more on their way. Lufthansa now fly to thirty-two different countries and cross the Atlantic regularly each week in both directions.¹

The Pan American Airways are equipped with ground radio control stations, which make it possible for the line to receive weather reports and other information necessary to establish reliability of service.² The radio is perhaps one of the most useful aids to aviation. The service provides a radio compass, a radio beacon, two-way connecting radio facilities, a directive radio marker beacon to prevent multiple or "split" courses, and a "cone of silence" marker.

¹"Commercial Aviation in Germany," Aircraft (September 1, 1936), p. 5.

²Nigel Tangye, The Air is Our Concern, p. 55.

Waterways

National and state governments early recognized their responsibility to promote the safety of navigation by aiding in the development of suitable harbors or waterways.¹

In the United States regular appropriations began to be made by Congress in 1822 and these have increased progressively "as the result of the demand for vessels of deep draft to accommodate the increase in the volume of maritime trade."² "The Rivers and Harbors Act of 1930 authorized waterway improvement to the extent of \$144,000,000."³ This was the last appropriation before the Act of August 30, 1935.⁴

In considering the bill of 1935 the Committee on Rivers and Harbors divided the improvement projects into two groups. One group, to which allotments had been made by the Public Works Administration, amounted to \$105,011,457.30. The other group involved an expenditure of \$167,470,715.70.

¹J. Russell Smith, The Ocean Carrier, p. 502.

²Emory R. Johnson, Grover G. Huebner, and Arnold K. Henry, Transportation by Water, p. 464.

³Ibid., p. 560.

⁴Rivers and Harbors Bill, Report No. 424, to accompany H.R. 6732, Committee on Rivers and Harbors, 74th Congress, 1st Session, p. 2.
U.S. Statutes at Large, 74th Congress (1935-36), p. 1028.

Bounties

The practice of granting bounties¹ was a popular means for aiding shipping until 1880.² France, however, continued the practice until 1920³ and Italy's law of 1911 called for such assistance until 1926. The World War interrupted Italy's plans, but on July 1, 1926, a new law was passed providing for construction bounties until June 30, 1938, "based upon the gross tonnage of the vessel, the efficiency of the propelling unit, and the speed of the vessel." In addition a bounty of \$5,000,000 is appropriated each year for steel hulls, approved by the general staff of the Navy, in order to encourage the installation of guns for defense. A new law in 1929 "provided for additional construction bounties under a progressive scale according to the speed of the ship." The same assistance was extended in 1934 to "vessels reconditioned for the purpose of increasing their speed."⁴ Administration of the law is vested in the Minister of Communications, but precedence must be given to "ships building for the subsidized lines" approved by him.⁵

In the United States, construction and navigation bounties have been replaced by "Construction-Differential" subsidies and "Operating-Differential" subsidies. These differentials are granted in order

¹A sum of money for the construction of ships, or for navigation purposes, in order to promote the public welfare without requiring, under contract, that a specific service be rendered the state in return.

²Jesse E. Saugstad, op. cit., p. 11.

³Merchant Marine Policy and Shipping and Shipbuilding Subsidies, Senate Document No. 60 (March 13, 1935), p. 7.

⁴Ibid., pp. 38-41.

⁵Ibid., p. 41.

to place the shipping companies of the United States engaged in foreign trade on a parity with shipping companies of other nations. The amount of the construction-differential is the difference between the cost of constructing or reconditioning a vessel in the United States and what the cost would have been had the work been done in a foreign country. If features are added for national defense purposes they are paid for by the Government exclusive of the subsidy. The operating-differential is based upon the difference between the cost involved in operating an American vessel, including the cost of labor etc., and the cost of operating a foreign vessel. Administration of the law is vested in the United States Maritime Commission, which is composed of five members. Plans for constructing and reconditioning vessels must be examined and approved by the Navy Department.¹

¹The Shipping Act, 1916, as amended; Merchant Marine Act, 1920, as amended; Merchant Marine Act, 1928, as amended; Merchant Marine Act, 1936. Suits in Admiralty Act, Intercoastal Shipping Act, 1933, and other laws relating to the United States Maritime Commission (Revised to July 1, 1936), pp. 71,84,93.

Loans, etc.

In Belgium, the law of April 12, 1864 admitted free of duty all materials for repair of vessels and all vessels transferred to Belgian registry. Law of August 18, 1907 gave right to make loans to companies operating under the Belgian flag; also gave exemptions from pilotage fees, light dues, etc. These exemptions were made to the Kosmos Line as early as 1874.¹ Other countries have granted similar aids to the shipping industry from time to time.

Loans were granted to shipping companies of the United States under the Jones-White Act, called the Merchant Marine Act of 1928.² The law of 1920, which was amended in 1924 and 1927, permitted loans to private companies to construct, improve or recondition ships, out of a fund created by the sale of vessels built for government use during the World War. Two-thirds the cost of construction might be advanced. Under the Act of 1928 three-quarters of the cost of the vessel might be advanced, with repayment within twenty-years, at a very small interest rate.³

The "construction-differential" law of 1936 permits the Maritime Commission to construct a vessel when application is made for a subsidy and to sell it, after deducting the differential, to the applicant on a 20-year basis, with interest at $3\frac{1}{2}$ per cent on unpaid balances. Some

¹Jesse E. Saugstad, op. cit. p. 437.

²U.S. Senate Report No. 97 (May 15, 1933), p. 1

³Emory R. Johnson, Grover G. Huebner, and Arnold K. Henry, Transportation by Water, p. 464.

consideration is now being given to making a similar provision for aiding the air craft industry. In France, "If a carrier needs a new type of airplane built for the international service, the Government will pay all the cost of building the plane."¹

The Government of Italy finances foreign aircraft sales up to 70 per cent. Three largest Italian aircraft manufacturers have formed a consortium, under Government jurisdiction and with Government support to sell Italian planes to China at cost.²

In Russia "workers flying clubs are being organized and the Government is providing planes for flight instruction."³

In the United States, when air mail lines were taken over by private companies, the Airways Division of the Department of Commerce, in cooperation with the United States Weather Bureau, was charged with the duty of supplying adequate weather information for the airways. . . . weather reporting stations have increased and Special Weather Bureau representatives to interpret the observations have been stationed at a number of airports.⁴ The "Daniel Guggenheim Fund for the Promotion of Aeronautics in cooperation with the U.S. Weather Bureau has organized an experimental meteorological service for the airways between Los Angeles, San Francisco and Oakland."⁵

"Berlin constructed its airport in the center of the city by razing buildings from an area sufficient to its needs."⁶

¹Post Office Department Appropriation Bill for 1938. Hearings before the Subcommittee of the Committee on Appropriations, House of Representatives, p. 440.

²Aircraft Year Book 1935, p. 44.

³Civil Aviation - A Report, p. 45.

⁴James G. Wooley and Earl W. Hill, Airplane Transportation, p. 271.

⁵Ibid., p. 281.

⁶Ibid., p. 184.

CHAPTER VII

NEED FOR AVIATION SUBSIDIES

Lack of private available capital

Newness of the industry.--Prior to the World War public interest in aviation centered in the performance of a few stunts by various planes. In America, the interest was similar to that manifested in the early development of the railroad, when "not even a promise of 10 per cent lured bankers and investors,"¹ and of the telephone. "The telephone. . . . all but died a natural death because business men of Alexander Graham Bell's time regarded it purely as a toy and an interesting excitement."²

Losses during initial period of operation.--The adaptation of aviation to commerce "dates only from the termination of the World War and its economic worth had not been definitely established previously to 1926."³ "The story of commercial aviation really starts with the armistice."⁴ Because of the great risk involved great difficulty was experienced in the United States in procuring sufficient capital. But in 1925 donations were granted out of civic pride, and the feeling to build up aviation as an important auxiliary to the national defense. This attitude continued more or less thru 1926. After sensational flights of 1927 the general public became fanatically interested.⁵

¹Richard Rea Bennett, Aviation, Its Commercial and Financial Aspects, p. 33.

²Loc. cit.

³James G. Wooley and Earl W. Hill, Airplane Transportation, p. 345.

⁴The Aeroplane, Vol. 36, No. 20.

⁵James G. Wooley and Earl W. Hill, op. cit., p. 345.

Aeronautical stocks in 1928 were in a position closely analogous to that of railroad issues during the 60's and 70's when a gullible but informed public absorbed 'paper' railroads to the tune of untold millions.¹

.....
the vast majority of funds placed in airplane transportation projects will have to be written off by an uninformed public as the price of injudicious speculation.²

¹James G. Wooley and Earl W. Hill, op. cit., pp. 343-344.

²Ibid., p. 347.

Early obsolescence.--When the Merchant Marine Act of 1928 was passed in the United States the "American flag fleet of cargo carriers was" already "becoming obsolete, particularly with regard to speed."¹

The East India Company had a general rule that the life of the ship in their business was eight years, and that she was then sometimes worth repairing for four more years of service. The life of an iron ship has scarcely been determined on the basis of life of material but are steadily being broken up because they are obsolete and incapable of competing with the newest types embodying the results of a half-century of progress in motive power and design.²

Similar to the above quotations are the following ones with regard to aviation:

An example of the startling menace of obsolescence is to be found in the experience of one American transport company which, during its short history, has already junked three progressive types of planes for a still more modern craft.³

Obsolescence is affected by capital cost, maintenance, and rate of progress of development in design.⁴

During the World War "development of the airplane had been given such impetus that frequently designs were obsolete before they could be put to use."⁵

The best plane on a line today might be obsolete the next day.⁶

The flying life of an airplane, when properly maintained, is much longer than originally estimated and appears to be limited more by obsolescence and inadequacy than by actual depreciation.⁷

Since the World War Japan has granted a subsidy amounting to eleven million yen for the scrapping of obsolete vessels. Italy has paid as high as 25 lire or \$1.32 per gross ton scrapped.⁸

¹Emory R. Johnson, Grover G. Huebner, and Arnold F. Henry, op. cit., p. 490.

²J. Russell Smith, The Ocean Carrier, p. 13.

³Richard Rea Bennett, op. cit., p. 35.

⁴Ivo Edwards and F. Tyrms, Commercial Air Transport, p. 147.

⁵James G. Wooley and Earl W. Hill, op. cit., p. 40.

⁶John Goldstrom, A Narrative History of Aviation, p. 84.

⁷Civil Aviation - A Report (1926), p. 11.

⁸Senate Document No. 60, op. cit., pp. 54, 36-37.

Failure of Government to operate lines successfully.--Prior to the World War aviation had not been adopted either for commercial or military use. The war, however, hastened its development and proved its worth as a military device for communication and observation.¹ That the government made no attempt to operate commercial lines following the war was probably due to past experiences in operating the Merchant Marine. "Government systems of finance do not lend themselves to economy in the operation of undertakings of this nature, the overhead charges involved in State administration being out of proportion to the services rendered in comparatively small enterprises."²

¹Vergil D. Reed, The Principles of Economic Geography, p. 154.

²Ivo Edwards and F. Tymms, Commercial Air Transport, p. 18.

Service of aviation in promoting the public interest.--

Carriers in the air, like carriers on the land and sea are public utilities and therefore should be encouraged by the government. Such a service is in demand for the carriage of passengers, mails and express in all the countries of the world. During the last ten years aviation firms more than doubled, airplanes in operation trebled, and the miles flown by miscellaneous, commercial, and private flyers increased four times. The annual air-mail poundage is now seventeen times as great as it was in 1926, and the number of passengers carried per year is one hundred forty-nine times the total for that year.¹

The scheme of England to introduce "the carriage of all letter mails by air"² will accelerate communication throughout the world far more than did the reduction in the postal rates of the Merchant Marine in its early history. "Last year, doubling of frequencies over most of the system and a postal rate of 6 pence (12 cents) per half ounce to Capetown or to India, increased loads to the point of seriously limiting passenger capacity on trunk routes."³

By shortening the distance between large centers of activity and sparsely settled areas the problem of unemployment will be lessened or solved. England attempted to solve this problem in 1922 by encouraging migration from Great Britain and Northern Ireland to Canada, Australia, and New Zealand but the Act passed proved unsuccessful because of

¹Last Ten Years of Progress, U.S. Air Commerce Bulletin, Vol. 7, No. 12 (June 15, 1936), pp. 279-285.

²Nigel Tangye, op. cit., p. 63.

³Daniel Sayre, "Britain Bids for New Airways to Conquer," Aviation, p. 71.

"distance" between these countries.¹ During the past few years aviation has made it possible for the United States to establish in Alaska 164 families from agricultural districts of the north-western part of the United States. These families are adding to the economy of Alaska by introducing every variety of farming-- "truck gardening, dairy farming, sheep raising, and poultry."²

Thru the service of aviation the horror of "distance will be wiped out. By pushing suburban districts as far as 100 miles from all large centers aviation will add to the improvement "in standards of living and business" already begun by the invention of the automobile.³

Because of the speed at which travel is possible and the penetration which planes can make into the interior of a country, aviation will render a great service in the preservation of health. In Australia "numerous lives have been saved by the Medical Air Taxi Service carried on by the Queensland and Northern Territory Aerial Services Limited."⁴

Encouraging aviation as a means of recreation acts as an essential to every family, resulting in "a flying race as much at home in the air as on the ground and quite free of its present terrestrial bondage in the form of national boundaries, national likes, and international dislikes."⁶ At present airplanes are being used for "sport

¹Charles Dennistoun Burney, The World, the Air, and the Future, p. 25.

²Post Office Department Appropriation Bill for 1938, Hearings before the Subcommittee of the Committee on Appropriations, House of Representatives, p. 450.

³Nigel Tangye, op. cit., p. 41.

⁴Charles Dennistoun Burney, op. cit., p. 36.

⁵Ibid., p. 30.

⁶Nigel Tangye, op. cit., p. 41.

flying, aerial photography and mapping, instruction flying, forest patrol, crop dusting to kill pests and plant diseases, aerial taxi service, spotting for fish fleets and miscellaneous flying."¹

"Air transport can, and will undoubtedly fulfil a most important role, by keeping those far-away districts in touch with the world, supplying the scattered inhabitants with the necessities and some of the comforts of civilization, bringing them medical aid when sorely needed and, in general, by supplying a link with the outside world."² This link becomes closer and closer each day as new types of aviation are discovered and developed. The "rocket" plane which is being developed by "Interplanetary" societies in Germany, France, the United States, and other countries to travel thru the stratosphere to the moon and Mars and Venus³ is making rapid strides despite capital handicaps. A successful rocket mail service is now in operation between "Schockel and Radegund, two small towns near Graz, Austria. Ing. Friedrich Schmiedl was the person who established this first officially recognized rocket mail service. His rockets deliver letters from one town to the other in a matter of minutes while previously it required hours by ordinary posts."⁴ Model Airplane News for April, 1937 (page 32), also states:

This work has inspired other rocket experimenters and plans are being developed for a trans-oceanic rocket postal service. Through

¹James G. Wooley and Earl W. Hill, Airplane Transportation, p. 72.

²Ivo Edwards and F. Tymms, Commercial Air Transport, p. 36.

³Alvin Edward Moore, "Sky-Rocketing through Space," Popular Aviation (April, 1937), p. 62.

⁴Nick Limber, "What About Rockets?" Model Airplane News (April, 1937), pp. 5,30,32.

a service of this type, mail could be sent from London to New York in less than thirty minutes. The mail would not be subjected to weather conditions, as the rockets would travel above the troposphere where no atmospheric changes occur.

Men well versed in astronomical subjects believe that it is possible for ships of this class to succeed in "interplanetary exploration."

Then will adventurous exploring men push out into the vast ocean of space that awed their fathers, going with enthusiasm in their eyes to the strange worlds--worlds that they and their children will conquer for the glory of their kind--for the advancement of man of the earth.¹

This development in international and interplanetary aviation is motivated by air-mindedness stimulated thru scientific achievements to accommodate the needs of domestic aviation. An example of such achievements is the "automatic pilot," which has resulted from a ten-years experiment. This automatic pilot is said to be capable of flying a plane more accurately than can be done by a human being. It is very expensive but is to be used in the United States in 1938, when five companies introduce jointly a four-engine airplane capable of carrying 16,000 pounds. It is predicted that the four-engine plane will reduce the cost of air service for the mail to 1.05 mills per pound mile. The plane will carry forty people.²

¹Alvin Edward Moore, "Sky-Rocketing Through Space," Popular Aviation (April, 1937), p. 62.

²Post Office Department Appropriation Bill for 1938, Hearings before the Subcommittee of the Committee on Appropriations, House of Representatives, pp. 420-421.

Service of aviation in developing national defense.--Until international jealousies have been wiped out commercial air planes will serve as training schools from which the government might draw its personnel to man the vessels of aviation in times of emergency or national defense. Such vessels will furnish an opportunity for daily practice and experience in manipulating and managing airplanes and airships and thus provide a necessary auxiliary to the air corps of the nation. But the expense of obsolescence makes it imperative that the commercial enterprise be aided thru government subsidies.¹

The standing of the nations of the world today depends upon the strength in the air, as it formerly did upon the strength upon the sea. The day has passed when armies on the ground or navies on the sea can be the arbiter of a nation's destiny in war. The main power of defense and the power of initiative against an enemy has passed to the air.²

"At the signing of the Armistice in 1918, the aeroplane had reached a high state of development from the point of view of military requirements"³ and that consideration of aviation is necessary in any future program is proved by a statement in Commercial Air Transport reflecting the attitude of England, the leading maritime nation of the world. The statement reads: "From the military point of view, a flourishing aircraft industry is absolutely essential for aerial defence; further, well established and properly organized air routes

¹Based on Hearings before the U.S. House of Representatives, 1936.

²John Goldstrom, A Narrative History of Aviation, p. 98.

³Ivo Edwards and F. Tynms, Commercial Air Transport, p. 8.

are necessary for the rapid transfer of air force from one portion of the Empire to another. Air transport will provide both these Imperial assets."¹ In this connection it is proposed that long non-stop flights between important world junctions be carried out by the airship and that feeder services, and "independent services which do not connect with the airship trunk routes be conducted by the aeroplane."²

"The assistance which air transport can offer, and as it expands will continue to offer in increasing measure, to the defence of a country, provides perhaps the most obvious claim to subsidization."³ This has been one of the primary reasons leading to the subsidizing of air mail in Alaska⁴ and to the establishing of the trans-Pacific service.⁵

¹Ivo Edwards and F. Tynms, op. cit., vii-viii.

²Ibid., p. 158.

³Ibid., p. 13.

⁴Hearings on the Appropriation Bill for 1938, U.S. House of Representatives, p. 444.

⁵Ibid., p. 26.

CHAPTER VIII

COUNTRIES GRANTING AVIATION SUBSIDIES

Germany

Germany began to subsidize commercial aviation in the spring of 1920. In 1926 the Junkers Luftverkehr and the Aero-Lloyd merged to form the Luft Hansa (or Lufthansa), the German subsidized line. At this time more of the Junkers planes were in use the world over than any other type of plane. The company started operation with thirty lines, to which twenty-four other lines were added during the next few months.¹ In 1933 the Lufthansa absorbed all the public air transport companies.²

Scheduled night flights with passengers enabled Lufthansa, in 1926, to cover route between Berlin and Moscow in one day, a distance of 1150 miles within 16 hours. Two ships of Junkers were first to try commercial flight from Europe to China as pioneers of present German-Chinese air traffic.

In the first year Lufthansa flew 3,750,000 miles, carried 36,000 passengers, and installed three wireless stations. In 1927 a line was added to Vienna and Oslo. Due to the cooperation of Reichpost (German mail) railway traffic and air traffic were directly connected during

¹John Goldstrom, A Narrative History of Aviation, p. 137.

²Colonel * * *, Bulletin: Germany Rearms in the Air, p. 17.

this same year by organizing the "Fleis-Verkehr."

In 1928 close cooperation was had with the steamship lines by means of collecting and forwarding service, and in the following year this cooperation was made more efficient by the catapult flights from¹ the newly-built North German Lloyd liner "Bremen," on the North Atlantic between Cherbourg and New York.

Progress in blind flying permitted important commercial lines to be established from Berlin, over Cologne, to London and to Paris.

In 1933 the company introduced Junkers Ju 52 tri-motored monoplane. This plane had a speed of 150 miles per hour and could carry seventeen passengers and a crew of three.

In February 1934 a regular air mail service was opened between Germany and South America, establishing the first mail route across the Atlantic, flown regularly and exclusively with airplanes. Within Germany, cruising speeds were increased to 187 miles per hour by introducing the Heinkel He 70 "Blitz" (lightning) monoplanes, and Germany therefore possessed the speediest commercial air service in Europe. This caused traffic to leap up. Junkers Ju 86 and Heinkel He 111, both twin-engined, obtained a speed of 220 miles. They seat ten passengers and reduce distance between Berlin and Cologne, or Munich, "to short hops in 100 minutes or less."²

¹"Commercial Aviation in Germany. Complex Airline System of Deutsche Lufthansa," Aircraft, (September 1, 1936), p. 5.

²Loc. cit.

According to an article in *Aero Digest* (February 1937) entitled "Soviet Aviation Today," aviation is most effective in destroying disease germs: "Aviation has become Russia's most efficient medium for destroying malaria breeding havens in the Caucas, Central Asia and Transcaucasia; infected regions are dusted from the air. Agricultural insect pests, especially the locust, are destroyed from the air.

There are in the U.S.S.R. airlines exclusively devoted to the transport of express. Sulphur produced in the Kara-Kum steppes of Turkmenia is brought to Ashkhabad mainly by plane. Large quantities of babbitt are flown from the factories where it is produced directly to the manufacturing plants which use it. Considerable cargo is carried by air in Eastern Siberia and the Far East. In the first-named area planes transport furs, gold and other valuable metals, and materials, various equipment and even food. Research into future demands of Eastern Siberia on aviation reveals that in this part of the country alone in the next few years air express transport may reach 40,000,000 ton-kilometers."¹

¹Peyton M. Magruder and Lucien Zacharoff, "Soviet Aviation Today," *Aero Digest*, Vol. XXX, No. 2 (February 1937), pp. 28, 29, 48.

England

England began to subsidize aviation in 1919. In 1924 "Imperial Airways" started under unified management and in 1933 required a subsidy of £450,000. The purpose in consolidating the airways was to develop a system of air routes between the colonies and the mother country. "In 1926 the first section of the air line to India was opened with a service between Cairo and Basra; this was extended in 1929 to Karachi and at the same time the section between Genoa and Alexandria was opened, so that the England-India air service was established." In January 1932 a trunk line was established to Cape Town. Subsequently this was extended "Progressively to Calcutta, Rangoon, and Singapore, and finally at the close of 1934 to Australia."¹

Recently the line has made some very important advances as stated in the article by Daniel Sayre, entitled "Britain Bids for New Airways to Conquer" (February, 1937): In 1936 both the Penang-Hongkong service and the Khartoum-Kano, Nigeria, service were established. "Total present routes stand at slightly over 87,000 miles." To maintain this service a "moderate direct annual subsidy from the home government, supplemented by further subsidies from Colonial and Dominion governments, by a substantial share of the post office's income from air mail postage, and by assistance

¹Nigel Tangye, The Air is Our Concern, pp. 57-59.

from the Air Ministry in aircraft development costs." Forty new planes are to be had during 1937.--

28 18-ton flying boats, of 740 hp. each, speed $199\frac{1}{2}$ miles per hour,

12 four-engined Armstrong-Whitworth "Ensign" land planes, top speed 200 miles per hour; also a

Short-Mayo composite, consisting "of two flying boats designed to take-off when fastened together into a single unit.

Beginning April 1 the new seaplane service will carry mail to South Africa "at the regular unsurcharged postage of three cents per half ounce. The plan is stated as follows:

Normal schedules will call for twice-weekly service between London and Sidney; three planes from London to Singapore; five from London to Calcutta; nine from London to Egypt; London-Kisumu, three, and London-Durban, two with provisions for connections to China and West Africa.

The ultimate aim is "to achieve a two and a half day schedule to India and to East Africa, a four and a half day schedule to South Africa and to Singapore, and a six-seven day schedule to Australia."¹

According to testimony before the Committee on Appropriations, frequency of service is being increased to provide for daily service to India, five schedules a week to Australia, and five schedules a week to Cape Colony. Also, this summer (1937), working jointly with the United States, Great Britain will put into operation a trans-Atlantic service, using airplanes.²

¹Daniel Sayre, "Britain Bids for New Airways to Conquer," Aviation, (February, 1937), p. 25.

²Hearings on Appropriation Bill for 1938, U.S. House of Representatives, pp. 27, 441.

Italy

As early as 1927-1928 Italy's appropriation for subsidies was 700,000,000 lire. Additional funds for colonial aviation was paid by the Ministry of the colonies. The Air Ministry grants liberal subsidies, provides meteorological information, the free use of army transports and army communication facilities, and other aids.¹

The distance of mileage flown increased from 2,889,444 in 1932 to 2,735,916 in 1934; and the number of pounds of mail increased from 115,082 to 124,518. In May, 1935, there were thirty civil aviation lines.²

On April 2, 1937, Italy announced "a four-year plan" of air force expansion which will have "a superior air council for Italian East Africa and one command each for Sicily, Sardinia, Libya and the Aegean Islands."³

¹John Goldstrom, A Narrative History of Aviation, p. 150.

²Moody's Governments and Municipalities, p. 2828.

³"Italy Launches Plan to Double Air Force," The Washington Daily News, April 2, 1937.

France

In France subsidy "is an annual money grant in accordance with the number and character of airplanes maintained and number of miles flown."¹ The French air line "toward the Near East is an international service to Roumania and Poland with tentative extensions to Angora, Turkey." Its "primary object is to serve as a political connection with Roumania and other central European and Balkan states, and to interest these countries in French aeronautical products."²

The most successful French air line from a commercial and technical point of view is the service to Northern Africa. This line offers a real economic benefit, and as a consequence the traffic, particularly mail, has shown a very marked development; practically all the territory served by this line is friendly to France, and there is no competing line.³ There are three main French lines: one in Western Europe, one extending to Central Europe and toward the Near East, and one extending to French colonial territory in Northern Africa and toward South America. French subsidies are large enough to permit operation with little or no paying load and still meet expenses.

Law of July 31, 1920 authorized Federal Government "to enter into a 10-year contract with private companies and to give them subsidies for regular services." Law of 1924 provided that all airplanes

¹The Aircraft Year Book, Vol. Seventeen (1935), p. 23.

²Civil Aviation - A Report, pp. 38-39.

³Ibid., p. 39.

⁴John Goldstrom, op. cit., p. 143.

must be of French manufacture.¹ In 1929 the Cie Gen. Aéropostale and the Cie Air Afrique combined into the Cie Transafricaine at the instance of the French Government, the Government granting the new line a 20-year concession.²

¹John Goldstrom, op. cit., p. 143.

²The Aviation Year Book 1931, p. 204.

United States

Following the World War, the Post Office, with the cooperation of the Army Air Service, started (on May 15, 1918) an experimental air mail service between Washington and New York, including a stop at Philadelphia. The six discarded Army-training planes used were very unsatisfactory¹ but the skill of Lieutenant James C. Edgerton as a pilot, and especially his success in flying thru a thunderstorm during the month of July, did much to establish public confidence in the reliability of air mail.²

On August 10, 1918, the Post Office Department turned the service over to civilian personnel, thus causing to be established "the world's first legitimate non-military air transport enterprise."³

On May 15, 1919, the first flight was made on the Chicago-Cleveland route, and on July 1, 1919, services were started connecting the Great Lakes with the Atlantic Seaboard.⁴

Public Law No. 187 (approved April 24, 1920) placed \$1,250,000 at the disposal of the Postmaster General to "establish, operate, and maintain an aeroplane mail service between New York, New York, and San Francisco, California, via Chicago, Illinois, and Omaha, Nebraska. The Act of April 4, 1924 (No. 68) provided \$1,500,000 for operation and maintenance of this line, and Public Law No. 36 (approved March 3, 1926)

¹John Goldstrom, *A Narrative History of Aviation*, p. 100

²Popular Aviation (December, 1935)

³John Goldstrom, op. cit., p. 100.

⁴Ibid., pp. 101-119.

authorized an expenditure of \$210,000 for the fiscal year 1926.¹

Law of February 2, 1925 (No. 359) was "An Act to encourage commercial aviation and to authorize the Postmaster General to contract for air mail service." It was called the "Air Mail Act" and under it payments were to be at "a rate not to exceed four-fifths of the revenues derived from the air mail" carried on the contract line. The Act was amended June 3, 1926 (Public Law No. 331) to permit payment "not exceeding \$3 per pound for the first one thousand miles and not to exceed 30 cents per pound additional for each additional one hundred miles or fractional part thereof for routes in excess of one thousand miles in length." The Act was amended again on May 17, 1928, to permit the Postmaster General to issue air mail route certificates in lieu of existing contracts. These certificates authorized the carriage of mail over a certain route for a period not to exceed ten years, subject to cancellation if the holder failed to carry out rules and regulations. Rate of compensation was to be determined by periodical negotiation between the holder of the certificate and the Postmaster General.

Under Public Law No. 178 (approved April 29, 1930) the Act of February 2, 1925, was amended "further to encourage commercial

¹Elmer A. Lewis, Laws Relating to Postal Air Service, pp. 105-107.

aviation." Section 4, as amended, read:

The Postmaster General is authorized to award contracts for the transportation of air mail by aircraft between such points as he may designate to the lowest responsible bidder at fixed rates per mile for definite weight spaces, one cubic foot of space being computed as the equivalent of nine pounds of air mail, such rates not to exceed \$1.25 per mile: Provided, That where the air mail moving between the designated points does not exceed twenty-five cubic feet, or two hundred and twenty-five pounds, per trip the Postmaster General may award to the lowest responsible bidder, who has owned and operated an air transportation service on a fixed daily schedule over a distance of not less than two hundred and fifty miles and for a period of not less than six months prior to the advertisement of bids, a contract at a rate not to exceed 40 cents per mile for a weight space of twenty-five cubic feet, or two hundred and twenty-five pounds. Whenever sufficient air mail is not available, first-class mail matter may be added to make up the maximum load specified in such contract.

Section 2 amended section 6 of the Act of May 17, 1928, to read:

The Postmaster General may, if in his judgment the Public interest will be promoted thereby, upon the surrender of any air-mail contract, issue in substitution therefor a route certificate for a period of not exceeding ten years from the date service started under such contract to any contractor or subcontractor who has satisfactorily operated an air-mail route for a period of not less than two years, which certificate shall provide that the holder thereof shall have the right so long as he complies with all rules, regulations, and orders that may be issued by the Postmaster General for meeting the needs of the Postal Service and adjusting mail operations to the advances in the art of flying and passenger transportation, to carry air mail over the route set out in the certificate or any modification thereof at rates of compensation to be fixed from time to time, at least annually, by the Postmaster General, and he shall publish in his annual report his reasons for the continuance or the modification of any routes: Provided, That such rates shall not exceed \$1.25 per mile. Such certificate may be canceled at any time for willful neglect on the part of the holder to carry out any rules, regulations, or orders made for his guidance, notice of such intended cancellation to be given in writing by the Postmaster General and forty-five days allowed the holder in which to show cause why the certificate should not be canceled.

On March 27, 1934, Public Law No. 140 was passed authorizing the Postmaster General "to accept and use equipment, landing fields, men, and material of the War Department, for carrying the mails by air, and for other purposes." It also authorized the Postmaster General to turn over to the War Department appropriations made on March 3, 1933, for air mail service. Services under this law did not prove satisfactory, so on June 12, 1934, another law (No. 308) was passed "To revise air-mail laws, and to establish a commission to make a report to the Congress recommending an aviation policy." This law provided for a base rate of pay which shall not "exceed 33 1/3 cents per airplane-mile for transporting a mail load not exceeding three hundred pounds," and that,-

Payment for transportation shall be at the base rate fixed in the contract for the first three hundred pounds of mail or fraction thereof plus one tenth of such base rate for each additional one hundred pounds of mail or fraction thereof, computed at the end of each calendar month on the basis of the average mail load carried per mile over the route during such month, except that in no case shall payment exceed 40 cents per airplane-mile.

This Act was amended August 14, 1935, and is the one under which the present air service is operated.¹

For the fiscal year ended June 30, 1937, the Government paid \$12,000,000 for domestic air mail service. Of this amount, about \$5,000,000 was paid to the three subsidized transcontinental routes: United Airlines, \$2,400,000; T.W.A., \$1,700,000; American Airways,

¹All the laws cited have been taken from "Laws Relating to Postal Air Service," compiled by Elmer A. Lewis, Superintendent, Document Room, House of Representatives (1935).

about \$800,000.¹

Public Law No. 107 was approved March 28, 1928 and was the first legislation providing a foreign air mail service. It stipulated that the rate of pay "shall not in any case exceed \$2 per mile." Public Law No. 904, approved March 2, 1929, stated that the rate "shall not in any case exceed \$2 per mile each way."² This rate is in effect at the present time.³

America's international air transport system is represented by the Pan-American Airways. The company also holds contracts with foreign governments. The line started in 1928 with service between Miami, Fla., over the water to Havana, Cuba.⁴

At the beginning of 1935 the American System linked the United States with thirty-three other countries and colonies to the south. It operated over 31,606 miles of airways, using a fleet of 127 transport aircraft on regular schedules, and employed 2594 men and women trained in all the various and highly specialized branches of long distance and over-water transportation.⁵

The amount appropriated for foreign air mail service for the year 1937 was \$9,717,500. The annual rate paid the Pan-American Airways is \$4,932,945. Payments to the Pan-American-Grace line (owned, 50-50, by the Grace Steamship Lines and Pan-American) in 1936 amounted to \$1,371,193. The annual rate paid to the subsidiary of Pan-American operating the Transpacific service is \$1,806,480. This company is experiencing difficulty in extending its line from Manila to Canton, China, because of

¹Post Office Department Appropriation Bill, 1918. Hearings before the Subcommittee of the Committee on Appropriations, United States Senate, on H.R. 4720, pp. 100, 107.

²Elmer A. Lewis, Laws Relating to Postal Air Service, pp. 108, 110.

³Post Office Department Appropriation Bill, 1938, op. cit., p. 95.

⁴Nigel Tangye, The Air is Our Concern, p. 54.

⁵Ibid., pp. 54-55.

"nine-power treaty, which requires China to give to every country the same rights." As an alternative, the company is considering operating to "Macao, about 20 miles off the China coast, a Portuguese possession, or to Hong Kong."¹

According to an article in "Pan American Air Ways" for May and June (1936) a large program is to be put into effect this year. The first dawn-to-dusk air services between North and South America became effective July 15, 1936. Service over Eastern air route to Argentina was increased from 1 to 2 thru trips each week as far as Rio de Janeiro.

On new schedules, the West Indies, as far as San Juan, Puerto Rico, will be within 24 hours of cities as far west as Chicago. Jamaica, in the northern Caribbean, will be within 18 hours and Colombia, on the South American continent, will be within 24 hours of principal cities in the United States. The Panama Canal Zone, Venezuela, and Colombia and Ecuador on the Pacific side of the continent, will be within 48 hours of New York while Lima, capital of Peru, will be within $2\frac{1}{2}$ days, northern Chile within 3 days and Santiago, the Capital, within four days. New Pan-American-Grace Airways schedules from Santiago call for crossing the Andes and delivery of mail, passenger and express in Buenos Aires within half a day of Santiago.

Other lines are cited in the article. The lines are the result of the increasing trade between the United States and the "southern Americas."²

¹Post Office Department Appropriation Bill, 1918. Hearings before the Subcommittee of the Committee on Appropriations, United States Senate, on H.R. 4720, pp. 93, 95-96.

²"Faster Service on both Eastern and Western Routes Starts July 15," Pan American Air Ways. (May and June, 1936), pp. 1, 3.

Japan

Japan established regular air service between the principal cities of the Empire in 1928. By 1933 there were four companies, viz., the Japan Air Transport Company Ltd. (Nippon Koku Yuso Kabushiki Kaisha), the Nippon Koku Yuso Kenkyu-jo, the Asahi Teiki Koku-kai and the Tokyo Koku Yuso-sho. Of these, the largest and most important is the Japan Air Transport Company, which was established in 1928 as "a subsidized semi-government enterprise." This line operates regular passenger and mail services between Tokyo, Osaka, Fukuoka, Ulson, Seoul, Heijo, Shingishu and Dairen. Among the thirty-five planes operated, there are twelve "Super Universals 6-passenger Fokkers of the land type monoplane," three six-passenger Fokkers sea planes, and six eight-passenger land type monoplanes.¹

No account is given of the subsidy, if any, granted the other three companies. One of these is operated by a research company and one by the Regular Aerial Navigation Society. The other, the Tokyo Air Transport Co., is operated "mostly for pleasure."²

¹Moody's Governments and Municipalities, p. 2849.

²Loc. cit.

CHAPTER IX

COMPETITION OF MERCHANT MARINE AND AVIATION

Air communication vs. marine communication

Service.--"It has been the function of sea communications to enlarge the confines of the world, to make civilization co-extensive with the whole habitable universe; and by the synthetic agency of trade and commerce, to bring all the families of mankind into inter-dependent relations. It will be the function of the air to intensify and complete this synthetic process."¹

Communication services carried out by the Merchant Marine have been a means for effecting political protection and have served to knit together the individuals of nations into social groups through its postal services and by encouraging the mobile instinct of human beings. The inhabitation of new countries brought about by this encouragement to move about carried with it a demand for "place utility" and as both inhabitation and the creation of new wants increased, the reaction was a demand for a further increase in the means of postal communication. It has been proved that through the services of aviation places not accessible by the marine or by the marine-rail-road may be penetrated, for example, Alaska,² and that planes are capable of operating on both sea and land. This places the services

¹Charles Dennistoun Burney, The World, the Air, and the Future, p. 167.

²Air Commerce Bulletin, U.S. Dept. of Commerce (January 15, 1937), Vol. 8, No. 7, pp. 153-157.

of aviation far above that of the Merchant Marine for communication purposes, plus the additional advantage accruing from speed in general on all lines, with especial significance in places like Alaska and the Philippine Islands,¹ and a disposition to encourage night flying as a further means for hastening communication.²

England's ploy to speed up communication provides for a readjustment of her airway system and is designed "to make the world's first real test of no-surcharge air transport of first class mail."³

Realization for the need of quick communication is shown in the steady growth of aviation during the last decade in Russia, the United States, and in other countries. It has been possible to achieve this realization without any unbalanced increase in the cost of operation. "On the sea every additional knot is gained at a large and increasing expenditure of power," whereas in the airplane service "the longer the distance the more apparent is its superiority." Speed is therefore "one of the basic advantages the airplane has to sell."

¹Air Commerce Bulletin, U.S. Dept. of Commerce (Aug. 15, 1935), pp. 27-29.

²Britain Bids for New Airways to Conquer, Aviation (February, 1937), pp. 25, 69, 71, 75.

³Progress, Pan American Air Ways (January - 1936 - February), p. 10.

Air transportation vs. marine transportation

Distribution of perishable products.--Aviation, by maintaining a higher speed rate than the Merchant Marine, not only is more serviceable in the distribution of perishable products, but because of its ability to penetrate places inaccessible by the marine or other forms of transportation the aviation service plays an especially significant part in the welfare of nations. Beginning in the winter of 1930, fresh eggs, meats, fruit, and greenstuffs were delivered to the inhabitants of Alaska for the first time. This was done by the airplane and "many such foodstuffs as are now commonplace in such places in winter were then an unheard of luxury."¹ The airplane is especially advantageous for fast transportation of choice fruits, cut flowers, perishable plants and seeds.²

"Any improvement in the transportation system tends to increase and balance production and, therefore, makes for greater prosperity. Indeed, airplane transportation is finding its initial worth in the creation of time, place and form utility beyond the capacity of the older and slower mediums of conveyance. For the present its value lies principally in checking waste which previously had to be tolerated as a charge against doing business and for the salvage of which industry can well afford to pay the comparatively high rates necessary to successful airplane transportation."³

¹Recent Developments in Alaskan Aviation, U.S. Air Commerce Bulletin, January 15, 1937, pp. 513-517.

²John Goldstrom, A Narrative History of Aviation, p. 141.

³"Scientists Fly in Search of Plants," Pan American Air Ways (May and June, 1936), pp. 1,6.

³James G. Wooley et al, Airplane Transportation, p. 6.

Delivery of valuable goods.--Time as a factor in reducing waste and expense in the delivery of perishable goods is no less a factor to be considered in avoiding the loss of interest on money in transit, which heretofore "has been accepted and absorbed as a charge incident to doing business." From Pacific Coast points to points on the Atlantic Seaboard the period for clearing checks "varies from five to seven days--according to distance--and the interest losses on millions of dollars transferred daily between various financial centers of the nation runs to an enormous figure." If use is made of air mail,--the time necessarily allowed for clearance between Pacific and Atlantic points is but three days--thereby effecting a saving of from two to four days interest on funds so dispatched and of smaller margins on shorter distances. This saving translated, means that taking two and one-half per cent as the interest on time deposits a check for \$500 on which three days are saved in transit will earn an additional ten cents or, taking six percent as the commercial value of money, the earnings would be twenty-four cents. . . . the savings on comparatively small amounts more than offset the excess postage required for air mail dispatch.¹

The above statements with reference to the expense of transmitting money apply equally as well to the foreign exchange between nations, and to the shipment of gold and currency from one country to another. The discount charges on bank drafts, acceptances, etc. involved in foreign trade will be reduced since aviation will make collection on such paper more feasible. Rapid service in transmitting gold for payment of foreign debts will save cost where it is necessary

¹James G. Wooley and Earl W. Hill, Airplane Transportation, pp. 83-84.

to borrow or raise the gold for transshipment.

During August, 1936, ten boxes destined for New York contained gold and silver bullion weighing $408\frac{1}{2}$ pounds, with a value of \$43,404.06 in United States currency.

¹"Ship Gold and Silver to United States by Air," Pan American Air Ways (September and October, 1936), p. 2.

Military aviation vs. the military merchant marine

Military aviation proved valuable in the World War in that it could spot enemies lines, could travel at an unusually high speed, and could operate on land. Today the airship is a competitor for subsidized ocean trade routes,¹ the vessels of which will serve as an auxiliary of the Marine Corps in time of National defence. The Merchant Marine vessels were not useful as carriers of bulky materials until the invention of steel made possible a lighter vessel able to carry heavier burdens because of great strength and durability. The experiments now going on to produce "lighter-than-air" planes may have the effect of proving the superiority of aviation as a carrier of heavy loads and thus as transport vessels in case of national defense.

The German Zeppelin the LZ 129, put into service last December, is twice the size of the Graf Zeppelin--carries 50 passengers instead of 25. A still further improvement is to be found in the LZ 130, which is to be completed this year.²

Another factor in the development of the ship was "design." Changes in this factor of the aviation industry are taking effect much more rapidly than new design in shipbuilding and may result in planes or airships capable of carrying heavier burdens than the finest ships of the Merchant Marine. Designer Guiseppie M. Bellanca

¹The Ship Subsidy Question in United States Politics, "Marguerite W. McKee, Smith College Studies.

²"Lighter than Air Transports." Aeroplane (January 1, 1936), p. 25.

"can see round-the-world airliners as large as two, four, or even five hundred passenger capacity."¹

Demand for air service will have a profound influence in producing large and efficient vessels. This demand includes saving of time and the saving of money thru the saving of time. It also includes luxurious service while in transit. For instance, the Graf Zeppelin service last summer from Germany to South America was four days as compared with twelve or fourteen days on boat. The fare was ten per cent higher, but this extra rate was offset by "the saving in time and living expenses and tips." There was such a demand for this service that passengers had to be turned away nearly every day.

Finally, there is being developed the "rocket," which will connect London with New York in less than thirty minutes and probably explore new worlds beyond the stratosphere.

The rapid development in aircraft, especially in the design and speed of the bombing plane, makes it necessary that nations subsidize aviation as a means of national defense.

¹"Bellanca, Builder Extraordinary." Popular Aviation (March, 1937), p. 17.

CHAPTER X

CONCLUSION

Progress of civilization a result of communication and transportation

The effect of the sail boat.--"The development of the civilization of mankind has been coincident with its development of means of transportation."¹ The first vehicle having a wide influence for this purpose was the sail boat, which had its origin in Egypt. The sail boat went through many changes of development as it was introduced successfully in the leading countries of all the nations, bringing to each in its turn economic and spiritual wealth in the development of trade and in the love of mankind growing out of the interchanging of ideas and of services thru art, invention, and industrial and social relationships.

The effect of the steam ship.---"With the advent of the steam ship these social and economic changes were extended due to the dependability and reliability of the new type of vessel, and due to the speed made possible by them. Faster service was developed both because of the speed of the vessels and because of the short routes which the endurance and reliability of the vessels made it possible to take.

The effect of the railroads.---The railroads made possible interior development and thus permitted civilization to be carried far inland as well as along the coast. The industrial development which they created also placed a further demand upon the ocean service for larger and faster vessels to accommodate the increase

in traffic. As an auxiliary to these vessels, the railroad caused a service to develop connecting the whole world with the center of culture and civilization.

The effect of the airship and dirigible.--The railroad brought untold wealth by stimulating industry and thus again raised the standards of living. Through its influence goods have been created or manufactured at a faster rate than was possible for their distribution. It thus remains for the airship and dirigible to create time, place and form utility, and to provide the added means necessary for more rapid communication. That this is being done may be seen by reading the development of aviation in all the leading nations of the world.

Consolidation of the countries or nations a result of aviation

Obligation of the Government to provide communication.--The obligation of the Government to provide communication within the home country and between the home country and her colonies and possessions has been recognized thru postal subsidies granted the Merchant Marine. The obligation of the Government to provide international service for the development of trade and good will has also been recognized. The inadequacy of the Merchant Marine to meet the present demands with regard to speed and with regard to markets for the distribution of goods requires that air transportation be aided by both indirect and direct subsidies. An attempt is being made to meet this challenge, which will bring nations as near to each other as states have been heretofore and which will result in the breaking down of international barriers as well as state barriers.

Obligation of the government to provide transportation.--Obligation of the government to provide adequate transportation is recognized in the systems set up in Canada, France, and other countries in the coordination of steamship and railroad lines, and at present in the services extended by the Pan American Airways, the airlines of Soviet Russia, Imperial Airways of England, and others. These lines, girdling the world as they do, will soon

result in making all the world one solid country. The interest being taken in aviation by both men and women as a means of transportation, as well as communication, demands that the service be provided through government subsidies.

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