

Suez Canal

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Before the construction of the Suez Canal there was no direct water communication between the Mediterranean and the Red Sea, but at various eras such communication existed by way of the Nile. Trade between Egypt and countries to the east was originally overland to ports south of the Gulf of Suez; the proximity of the roadstead at the head of that gulf to Memphis and the Delta nevertheless marked it as the natural outlet for the Red Sea commerce of Lower Egypt. The fertile Wadi Tumilat extending east of the Nile valley almost to the head of the gulf (which in ancient times reached north to the Bitter Lakes) afforded an easy road between the Nile and the Red Sea, while the digging of a navigable canal connecting the river and the gulf gave the northern route advantages not possessed by the desert routes farther south, e.g. that between Coptos and Kosseir. Aristotle, Strabo and Pliny attribute to the legendary Sesostris (q.v.) the distinction of being the first of the pharaohs to build a canal joining the Nile and the Red Sea. From an inscription on the temple at Karnak it would appear that such a canal existed in the time of Seti I. (1380 B.C.). This canal diverged from the Nile near Bubastis and was carried along the Wadi Tumilat to Heroopolis, near Pithom, a port at the head of the Heroopolite Gulf (the Bitter Lakes of to-day). The channel of this canal is still traceable in parts of the Wadi Tumilat, and its direction was frequently followed by the engineers of the freshwater canal. Seti's canal appears to have fallen into decay or to have been too small for later requirements, for Pharaoh Necho (609 B.C.) began to build another canal; possibly his chief object was to deepen the channel between the Heroopolite Gulf and the Red Sea, then probably silting up. Necho's canal was not

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

completed according to Herodotus 120,000 men perished in the undertaking. Darius (520 B.C.) continued the work of Necho, rendering navigable the channel of the Heroopolite Gulf, which had become blocked. Up to this time there appears to have been no connexion between the waters of the Red Sea and those of the Bubastis-Heroopolis canal; vessels coming from the Mediterranean ascended the Pelusiatic arm of the Nile to Bubastis and then sailed along the canal to Heroopolis, where their merchandise had to be transferred to the Red Sea ships. Ptolemy Philadelphus (283 B.C.) connected the canal with the waters of the sea, and at the spot where the junction was effected he built the town of Arsinoe. The dwindling of the Pelusiatic branch of the Nile rendered this means of communication impossible by the time of Cleopatra (31 B.C.). Trajan (A.D. 98) is said to have repaired the canal, and, as the Pelusiatic branch was no longer available for navigation, to have built a new canal between Bubastis and Babylon (Old Cairo), this new canal being known traditionally as Amnis Trajanus or Amnis Augustus. According to H. R. Hall, however, " It is very doubtful if any work of this kind, beyond repairs, was undertaken in the times of the Romans; and it is more probable that the new canal was the work of 'Amr " (the Arab conqueror of Egypt in the 7th century). The canal was certainly in use in the early years of the Moslem rule in Egypt ; it is said to have been closed c. A.D. 770 by order of Abu Ja'far (Mansur), the second Abbasid caliph and founder of Bagdad, who wished to prevent supplies from reaching his enemies in Arabia by this means. 'Amr's canal (of which the Khalig which passed through Cairo and was closed in 1897 is said to have formed part) had its terminus on the Red Sea south of the Heroopolite Gulf near the

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

present town of Suez. In this neighbourhood was the ancient city of Clysma, to which in 'Amr's time succeeded Kolzum, perhaps an Arabic corruption of Clysma. The exact situation of Clysma is unknown, but Kolzum occupied the site of Suez, the hills north of which are still called Kolzum. After the closing of the canal in the 8th century it does not appear for certain that it was ever restored, although it is asserted that in the year 1000 Sultan Hakim rendered it navigable. If so it must speedily have become choked up again. Parts of the canal continued to be filled during the Nile inundations until Mehemet Ali (A.D. 1811) ordered it to be closed; the closing, however, was not completely effected, for in 1861 the old canal from Bubastis still flowed as far as Kassassin. This part of the canal, after over 2500 years of service, was utilized by the French engineers in building the fresh-water canal from Cairo to Suez in 1861-1863. This canal follows the lines of that of 'Amr (or Trajan).

Maritime Canal Projects. Apart from water communication between the Mediterranean and the Red Sea by way of the Nile, the project of direct communication by a canal piercing the isthmus of Suez was entertained as early as the 8th century A.D. by Harun al-Rashid, who is said to have abandoned the scheme, being persuaded that it would be dangerous to lay open the coast of Arabia to the Byzantine navy. After the discovery of the Cape route to India at the close of the 15th century, the Venetians, who had for centuries held the greater part of the trade of the East with Europe via Egypt and the Red Sea, began negotiations with the Egyptians for a canal across the isthmus, but the conquest of Egypt by the Turks put an end to these designs. In 1671 Leibnitz in his proposals to LouisXIV. of France regarding an expedition to Egypt

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

recommended the making of a maritime canal, and the Sheikh al-Balad Ah' Bey (c. 1770) wished to carry out the project. Bonaparte when in Egypt in 1798 **ordered the** isthmus to be surveyed as a preliminary to the digging of a canal across it, and the engineer he employed, J. M. Lepere, came to the conclusion that there was a difference in level of 29 ft. between the Red Sea and the Mediterranean. This view was combated at the time by Laplace and Fourier on general grounds, and was finally disproved in 1846-1847 as the result of surveys made at the instance of the Societe d' Etudes pour le Canal de Suez. This society was organized in 1846 by Prosper Enfantin, the Saint Simonist, who thirteen years before had visited Egypt in connexion with, a scheme for making a canal across the isthmus of Suez, which, like the canal across the isthmus of Panama, was part of the Saint Simonist programme for the regeneration of the world. The expert commission appointed by this society reported by a majority in favour of Paulin Talabot's plan, according to which the canal would have run from Suez to Alexandria by way of Cairo.

For some years after this report no progress was made; indeed, the society was in a state of suspended animation when in 1854 Ferdinand de Lesseps came to the front as the chief exponent of the idea. He had been associated with the Saint Simonists and for many years had been keenly interested in the question. His opportunity came in 1854 when, on the death of Abbas Pasha, his friend Said Pasha became viceroy of Egypt. From Said on the 30th of November 1854 he obtained a concession authorizing him to constitute the Compagnie Universelle du Canal Maritime de Suez, which should construct a ship canal through the isthmus, and soon

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

afterwards in concert with two French engineers, Linant Bey and Mougel Bey, he decided that the canal should run in a direct line from Suez to the Gulf of Pelusium, passing through the depressions that are now Lake Timsa and the Bitter Lakes, and skirting the eastern edge of Lake Menzala. In the following year an international commission appointed by the viceroy approved this plan with slight modifications, the chief being that the channel was taken through Lake Menzala instead of along its edge, and the northern termination of the canal moved some 175 m. westward where deep water was found closer to the shore. This plan, according to which there were to be no locks, was the one ultimately carried out, and it was embodied in a second and amplified concession, dated the 29th of January 1856, which laid on the company the obligation of constructing, in addition to the maritime canal, a fresh-water canal from the Nile near Cairo to Lake Timsa, with branches running parallel to the maritime canal, one to Suez and the other to Pelusium. The concession was to last for 99 years from the date of the opening of the canal between the Red Sea and the Mediterranean, after which, in default of other arrangements, the canal passes into the hands of the Egyptian government. The confirmation of the sultan of Turkey being required, de Lesseps went to Constantinople to secure it, but found himself baffled by British diplomacy; and later in London he was informed by Lord Palmerston that in the opinion of the British government the canal was a physical impossibility, that if it were made it would injure British maritime supremacy, and that the proposal was merely a device for French interference in the East. Although the sultan's confirmation of the concession was not actually granted till 1866, de Lesseps in 1858 opened the

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

subscription lists for his company, the capital of which was 200 million francs in 400,000 shares of 500 francs each. In less than a month 314,494 shares were applied for; of these over 200,000 were subscribed in France and over 96,000 were taken by the Ottoman Empire. From other countries the subscriptions were trifling, and England, Austria and Russia, as well as the United States of America, held entirely aloof. The residue of 85,506 shares¹ was taken over by the viceroy. On the 25th of April 1859 the work of construction was formally begun, the first spadeful of sand being turned near the site of Port Said, but progress was not very rapid. By the beginning of 1862 the freshwater canal had reached Lake Timsa, and towards the end of the same year a narrow channel had been formed between that lake and the Mediterranean. In 1863 the fresh-water canal was continued to Suez. So far the work had been performed by native labour; the concession of 1856 contained a provision that at least four-fifths of the labourers should be Egyptians, and later in the same year Said Pasha undertook to supply labourers as required by the engineers of the canal company, which was to house and feed them and pay them at stipulated rates. Although the wages and the terms of service were better than the men obtained normally, this system of forced labour was strongly disapproved of in England, and the khedive Ismail who succeeded Said on the latter's death in 1863 also considered it

¹ 1 These formed part of the 176,602 shares which were bought for the sum of 3,976,582 from the khedive by England in 1875 at the instance of Lord Beaconsfield (q.v)

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

as being contrary to the interests of his country. Hence in July the Egyptian foreign minister, Nubar Pasha, was sent to Constantinople with the proposal that the number of labourers furnished to the company should be reduced, and that it should be made to hand back to the Egyptian government the lands that had been granted it by Said in 1856. These propositions were approved by the sultan, and the company was informed that if they were not accepted the works would be stopped by force. Naturally the company objected, and in the end the various matters in dispute were referred to the arbitration of the emperor Napoleon III. By his award, made in July 1864, the company was allowed 38 million francs as an indemnity for the abolition of the *conzie*, 16 million francs in respect of its retrocessions of that portion of the freshwater canal that lay between Wadi, Lake Timsa and Suez (the remainder had already been handed back by agreement), and 30 million francs in respect of the lands which had been granted it by Said. The company was allowed to retain a certain amount of land along the canals, which was necessary for purposes of construction, erection of workshops, &c., and it was put under the obligation of finishing the fresh-water canal between Wadi and

Suez to such dimensions that the depth of water in it would be *zj* metres at high Nile and at least *i* metre at low Nile. The supply of Port Said with water it was allowed to manage by any means it chose; in the first instance it laid a double line of iron piping from Timsa, and it was not till 1885 that the original plan of supplying the town by a branch of the fresh-water canal was carried out. The indemnity, amounting to a total of 84 million francs, was to be paid in instalments spread over 15 years. The abolition of forced labour

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

was probably the salvation of the enterprise, for it meant the introduction of mechanical appliances and of modern engineering methods. The work was divided into four contracts. The first was for the supply of 250,000 cubic metres of concrete blocks for the jetties of Port Said; the second, for the first 60 kilometres of the channel from Port Said, involved the removal of 22 million cubic metres of sand or mud; the third was for the next length of 13 kilometres, which included the cutting through the high ground at El Gizr; and the fourth and largest was for the portion between Lake Timsa and the Red Sea. The contractors for this last section were Paul Borel and Alexandre Levalley, who ultimately became responsible also for the second or 60 kilometres contract. For the most part the material was soft and therefore readily removed. At some points, however, as at Shaluf and Serapeum, rock was encountered. Much of the channel was formed by means of dredgers. Through Lake Menzala, for instance, native workmen made a shallow channel by scooping out the soil with their hands and throwing it out on each side to form the banks; dredgers were then floated in and completed the excavation to the required depth, the soil being delivered on the other side of the banks through long spouts. At Serapeum, a preliminary shallow channel having been dug out, water was admitted from the fresh-water canal, the level of which is higher than that of the ship canal, and the work was completed by dredgers from a level of about 20 ft. above the sea. At El Gizr, where the soil, composed largely of loose sand, rises 60 ft. above the sea, the contractor, Alphonse Couvreur, employed an excavator of his own design, which was practically a bucket dredger working in the dry. A long arm projecting downwards at an angle from an engine on the bank carried a number of buckets,

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

mounted on a continuous chain, which scooped up the stuff at the bottom and discharged it into wagons at the top. In 1865 de Lesseps, to show the progress that had been made, entertained over 100 delegates from chambers of commerce in different parts of the world, and conducted them over the works. In the following year the company, being in need of money, realized 10 million francs by selling to the Egyptian government the estate of El Wadi, which it had purchased from Said, and it also succeeded in arranging that the money due to it under the award of 1864 should be paid off by 1869 instead of 1879. Its financial resources still being insufficient, it obtained in 1867 permission to invite a loan of 100 million francs; but though the issue was offered at a heavy discount it was only fully taken up after the attractions of a lottery scheme had been added to it. Two years later the company got 30 million francs from the Egyptian government in consideration of abandoning certain special rights and privileges that still belonged to it and of handing over various hospitals, workshops, buildings, &c., which it had established on the isthmus. The government liquidated this debt, not by a money payment, but by agreeing to forego for 25 years the interest on the 176,602 shares it held in the company, which was thus enabled to raise a loan to the amount of the debt. Altogether, up to the end of the year (1869) in which the canal was sufficiently advanced to be opened for traffic, the accounts of the company showed a total expenditure of 432,807,882 francs, though the International Technical Commission in 1856 had estimated the cost at only 200 millions for a canal of larger dimensions. The formal opening of the canal was celebrated in November 1869. On the 16th there was an inaugural ceremony at Port Said, and next day 68 vessels of various nationalities, headed

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

by the " Aigle " with the empress Eugenie² on board, began the passage, reaching Ismailia (Lake Timsa) the same day. On the 19th they continued their journey to the Bitter Lakes, and on the 20th they arrived at Suez. Immediately afterwards regular traffic began. In 1870 the canal was used by nearly 500 vessels, but the receipts for the first two years of working were considerably less than the expenses. The company attempted to issue a loan of 20 million francs in 1871, but the response was small, and it was only saved from bankruptcy by a rapid increase in its revenues. The total length of the navigation from Port Said to Suez is 100 m. The canal was originally constructed to have a depth of 8 metres with a bottom width of 22 metres, but it soon became evident that its dimensions must be enlarged. Certain improvements in the channel were started in 1876, but a more extensive plan was adopted in 1885 as the result of the inquiries of an international commission which recommended that the depth should be increased first to 8J metres and finally to 9 metres, and that the width should be made on the straight parts a minimum of 65 metres between Port Said and the Bitter Lakes, and of 75 metres between the Bitter Lakes and Suez, increasing on curves to 80 metres. To pay for these works a loan of 100 million francs was issued. These widenings greatly improved the facilities for ships travelling in opposite directions to pass each other. In the early days of the canal, except in the Bitter Lakes, vessels could pass each other only at a few crossing places or gares, which had a collective length of less than

² Anm.: This is not correct, Captain Nares, commanding officer of HMS Newport managed at night to place his ship in front of the French Ship and passed first the Canal

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

a mile; but owing to the widenings that have been carried out, passing is now possible at any point over the greater part of the canal, one vessel stopping while the other proceeds on her way. From March 1887 navigation by night was permitted to ships which were provided with electric search-lights, and now the great majority avail themselves of this facility. By these measures the average time of transit, which was about 36 hours in 1886, has been reduced by half. The maximum speed permitted in the canal itself is 10 kilometres an hour. The dues which the canal company was authorized to charge by its concession of 1856 were 10 francs a ton. In the first instance they were levied on the tonnage as shown by the papers on board each vessel, but from March 1872 they were charged on the gross register tonnage, computed according to the method of the British Merchant Shipping Act 1854. The result was that the shipowners had to pay more, and, objections being raised, the whole question of the method of charge was submitted to an international conference which met at Constantinople in 1873. It fixed the dues at 10 francs per net register ton (English reckoning) with a surtax of 4 francs per ton, which, however, was to be reduced to 3 francs in the case of ships having on board papers showing their net tonnage calculated in the required manner. It also decided that the surtax should be gradually diminished as the traffic increased, until in the year after the net tonnage passing through the canal reached 2,600,000 tons it should be abolished. De Lesseps protested against this arrangement, but on the sultan threatening to enforce it, if necessary by armed intervention, he gave in and brought the new tariff into operation in April 1874. By an arrangement with the canal company, signed in 1876, the British government, which in 1875 by the purchase of the khedive's shares,

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

had become a large shareholder, undertook negotiations to secure that the successive reductions of the tariff should take effect on fixed dates, the sixth and last instalment of 50 centimes being removed in January 1884, after which the maximum rate was to be 10 francs per official net ton. But before this happened British shipowners had started a vigorous agitation against the rates, which they alleged to be excessive, and had even threatened to construct a second canal. In consequence a meeting was arranged between them and representatives of the canal company in London in November 1883, and it was agreed that in January 1885 the dues should be reduced to 9 francs a ton, that subsequently they should be lowered on a sliding scale as the dividend increased, and that after the dividend reached 25% all the surplus profits should be applied in reducing the rates until they were lowered to 5 francs a ton. Under this arrangement they were fixed at 7 Francs per ton at the beginning of 1906. For ships in ballast reduced rates are in force. For passengers the dues remain at 10 francs a head, the figure at which they were originally fixed. By the concessions of 1854 and 1856 the dues were to be the same for all nations, preferential treatment of any kind being forbidden, and the canal and its ports were to be open " *comme passages neutres* " to every merchant ship without distinction of nationality. The question of its formal neutralization by international agreement was raised in an acute form during the Egyptian crisis of 1881-82, and in August of the latter year a few weeks before the battle of Tel-el-Kebir, navigation upon it was suspended for four days at the instance of Sir Garnet Wolseley, who was in command of the British forces. At the international conference which was then sitting at Constantinople various proposals were put forward to ensure the use of the canal

Suez Canal

Encyclopaedia Britannica, Eleventh Edition, vol XXVI

to all nations, and ultimately at Constantinople on the 29th of October 1888 Great Britain, Germany, Austria, Spain, France, Italy, the Netherlands, Russia and Turkey signed the Suez Canal Convention, the purpose of which was to ensure that the canal should " always be free and open, in time of war as in time of peace, to every vessel of commerce or of war, without distinction of flag. " Great Britain, however, in signing, formulated a reservation that the provisions of the convention should only apply so far as they were compatible with the actual situation, namely the " present transitory and exceptional condition of Egypt, " and" so far as they would not fetter the liberty of action of the British government during its occupation of that country. But by the Anglo-French agreement of the 8th of April 1904 Great Britain declared her adherence to the stipulations of the convention, and agreed to their being put in force, except as regards a provision by which the agents in Egypt of the signatory Powers of the convention were to meet once a year to take note of the due execution of the treaty. It was by virtue of this new agreement that the Russian warships proceeding to the 'East in 1904-1905 were enabled to use the canal, although passage was prohibited to Spanish warships in 1898 during the war between Spain and the United States.

L'Isthme et le Canal de Suez, historique, flat actuel, by J. Charles-Roux (2 vols., Paris 1901), contains reprints of various official documents relating to the canal, with plates, maps and a bibliography extending to 1499 entries