Suez to such dimensions that the depth of water in it would be 21/2 metres at high Nile and at least 1 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 was probably the salvation of the enterprise, for it meant the introduction of mechanical appli­ances and of modem 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 Gisr; 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 sod 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 Gisr, where the soil, composed largely of loose sand, rises 60 ft. above the sea, the contractor, Alphonse Couvreux, employed an excavator of his own design, which was practically a bucket­dredger working in the dry. A long arm projecting downwards at an angle from an engine on the bank carried a number of buckets, 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 by the “ Aigle ” with the empress Eugénie 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 t871, 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 81/2 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 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, 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 91/2 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 73/4 francs