MEN IN ACTION SERIES

Suez Canal
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Union Pacific  Garry Hogg
Snowy Mountains Conquest  Charles Meeking
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In preparation
Alpine Crossings  Gösta Sandström
Underwater Treasure Hunting  Rex Cowan
Highway of the Sun  Renzo Salvadori
Brasilia  Richard Tames
Garry Hogg

SUEZ CANAL
A Link Between Two Seas

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I

Desert Project

It was five o’clock in the morning. I rose from my bed and went outside my tent. Wearing my bright red dressing-gown, I must have looked not unlike a desert Sheikh. I washed my arms, up to the elbows. Anyone might have taken me for a True Believer. In the days of the Spanish Inquisition I should certainly have been burned alive, for among the many crimes that were punished by torture and then burning at the stake was—washing the arms up to the elbows.

Now, as the mist cleared and dawn approached, the camp was beginning to stir. I went back into my tent and dressed fully, for it is cold in the desert at dawn. Then I went to my observation-post, and looked due north. To my right, the eastern horizon was already tinged with gold, though the western horizon was still grey. Suddenly I saw in the sky a brilliantly coloured rainbow, whose two ends plunged to the two horizons. My heart began to beat violently, and I had to try to check the thought now entering my head, that this was an omen guaranteeing the success of the project of which I had not yet spoken, for it was my most precious secret.

Then the Viceroy of Egypt, Mohammed-Saïd, appeared in the doorway of his pavilion. We wished each other good day, with a
firm handshake. We mounted our Arab steeds, and set off from the camp, preceded by two lancers. In my heart was my secret. In my heart, too, was the happy omen of the rainbow. Now I had no doubt in my mind whatever that, before the day’s end, I should have convinced the Viceroy...

With the lancers preceding them, the two men, M. Ferdinand de Lesseps and the Viceroy of Egypt, rode in the desert all day; and all day, as they rode, talked. At sundown, as they came within sight of the encampment, Viceroy Mohammed-Saïd told the lancers to ride on. ‘My friend’, he said, reining his Arab mount to a halt and grasping his companion’s hand, ‘you have convinced me of the excellence of your project. I accept it, and will do everything in my power to make it succeed. You may depend absolutely upon my support.’ For the second time that day the two men, the Egyptian and the Frenchman, exchanged a firm hand clasp: de Lesseps knew that a Viceroy’s word was his bond.

They rode on the last few hundred yards to the camp, passed through the gateway and came to a halt at the entrance to Mohammed-Saïd’s luxurious pavilion. Respectfully, de Lesseps waited until his host had gone inside. Then, unable to contain his elation at the outcome of the long day’s talk, he turned his horse about and put it at full gallop straight at the containing-wall of the encampment, scorning the gateway through which they had just entered. To the acclamation of the lancers and the Viceroy’s servants going about their various tasks, he leapt sheer over the wall and sped off once more into the darkening desert for an hour’s exhilarating gallop: he had to work off somehow the excitement he felt, now that his
cherished project had been approved in the highest quarters and so seemed certain to be fulfilled.

Even if at that moment he had known that it would be ten long and often anxious years before its fulfilment, years during which he would come up against every conceivable obstacle and frustration, he would still have felt this sense of elation: for this project was one that had been in his heart for many years. It was nothing less than 'the practical uniting of Occident and Orient', the constructing of a canal 'entre deux mers', between sea and sea. We know it today as The Suez Canal.

Ferdinand de Lesseps was by no means the first man to conceive the notion of cutting a channel that would link the eastern end of the Mediterranean with the northern tip of the Red Sea, known as the Gulf of Suez, and thus save shipping between West and East—Occident and Orient—the many thousands of miles of voyaging round the Cape of Good Hope. Napoleon (among others) had had the idea before him. But it had never been tried out: the obstacles being too great, the equipment available in his day too ineffective. In any case, he was too fully occupied with his many ambitious schemes of conquest and military campaigns. The project called for a man of vision as well as of action, a diplomat who could lead men by persuasion rather than by force of arms. A man like Ferdinand de Lesseps, for example: a dreamer who was capable of translating his dreams into reality.

The difficulties confronting anyone tackling such a project were formidable. On a lesser scale, canals had been dug out of this intractable desert region since almost the beginning of recorded history. The Pharaohs, rulers of a great race that produced some of the world's finest
engineers, had set their slaves to work on such projects more than three thousand years ago. One that came nearest to being fulfilled was a length of canal constructed about 600 B.C. Before it was abandoned in despair it had caused the death of more than a hundred thousand slave-labourers.

It is still possible to identify, in various parts of the Isthmus of Suez, the remains of these canals, started so many centuries ago, worked on for so long, and abandoned so desperately when completion proved impossible. De Lesseps, like others to whom the notion had come from time to time over the years, certainly knew something of what had been attempted in the past, by the Egyptians, by the Persians, by the Romans, and others; but he was not the sort of man to be discouraged by the experiences of those who had passed that way before him.

To have some inkling of the sort of problems that would immediately confront him it is necessary to know something about the Isthmus of Suez which was to be the scene of his operations for ten long years and ultimately surrender to his faith and powerful drive. It has of course (almost entirely thanks to the development of his Canal) had a face-lift in the years that have elapsed since the last shovel-load of gritty soil and rock was lifted out of its bed and thrown aside, towards the end of 1869—exactly a century ago. But in his day it was a truly menacing stretch of territory.

It is the north-western part of the huge Sinai Peninsula, which is sandwiched between Africa, to the west, and Arabia, to the east. This peninsula may be likened to a rock-climber's chock-stone, from which he belays himself when working his way up a rock chimney (in this case the
northern part of the Red Sea). This wedge-shaped chockstone seals-off, as it were, the Red Sea from the Mediterranean, about a hundred miles to the north. For much of its length it is detached from the land-mass to the east, and for even more of its length from the far greater land-mass of Africa to the west. In fact, it clings to that continent for only a bare hundred miles.

It was, in de Lesseps’ day, desolate country indeed, composed largely of sheer desert and roamed by nomadic tribes with their camels. Even today, once well clear of the Nile and of the Maritime and Freshwater Canals, it is still little more than waterless and wind-blown desert, on a smaller scale, admittedly, than the Kalahari, the Gobi or the Sahara, but formidable enough in its aridity, its unbearable heat by day and bitter cold at night. Nowhere does it rise to as much as sixty feet above sea level, and there are depressions in it which are in fact well below sea level. So, there are no mountain ranges—such as those which confronted the men who built the Union Pacific Railroad spanning America from Atlantic to Pacific, a giant task which was being undertaken at almost exactly the same time as the Suez Canal. There are no mountains comparable even with the hills that presented such obstacles to the engineers who laid the track to carry the first European transcontinental train, the famous Orient Express, from Paris to Istanbul on the edge of Asia. But there were other problems, hardly less formidable in their way and demanding the maximum of resolution as well as vision and a rare degree of faith.

This wedge-shaped chunk of land has interested geologists for many years, and interests them still. It possesses some unusual features which, to an expert, tell a fascinat-
ing story. Excavation has revealed a vast number of fossils of sea creatures. These fossils prove that at some time in the distant past the whole of this region lay beneath the sea; it was a sea bed on which were deposited the fish that died and became fossilised. Calculations show that what today is arid terrain was covered by deep water a hundred million years ago. But some sixty or seventy million years ago there seems to have been an earth movement of unimaginable violence which threw up part of this sea bed, turned it over upon itself and left it to dry out well above neighbouring sea levels to the north and the south.

But it was not the whole of this area that became thrust upwards and overturned in this way; the southern part was not involved in this cataclysmic upheaval. It remained immune from the forces that worked on the sea bed farther to the north, and the result is the vast ‘trench’, some 1,400 miles long and 200 miles in width, which is shown on the atlas as the Red Sea, separating Africa from today’s Saudi Arabia.

Nor is that the end of the story. The trench was not open at its southern end. Even thirty million years ago (quite ‘recently’ in geological time) the water in the Red Sea was Mediterranean water, not, as might be supposed, water from the Indian Ocean to the south. Experts know this because they have found Mediterranean-type fossils in the bed of the Red Sea. But some fifteen million years later still, the Indian Ocean at last broke through the southern barrier of the trench and flooded it; so, for a while, the waters of the Mediterranean mingled with those of the Indian Ocean. Experts have identified fossils of marine creatures peculiar to both seas embedded side by side.
Desert Project

And still that is not quite the end of this strange story! At some remote date about which geologists are still arguing, there were more violent earth movements, though they were not quite on the scale of those of seventy million years ago. They up-thrust a hundred-mile stretch of the land-mass between the Gulf of Suez and the Mediterranean so that once again these waters were separated; they spilled back, either southwards or northwards, into their own basins, leaving the land in between high and dry except for a series of large pools of brackish salt water, the last surviving signs of the mingled seas that flowed over this land millions of years ago. They bear names on the map: Lake Mensaleh, Lake Ballah, Lake Timsah, the Great and the Lesser Bitter Lakes. The two last are especially well named.

There is an odd sidelight to this geological story. No professional geographer, of course, would call Africa an island. For that matter, no one really thinks of Australia as an island, though strictly speaking that land-mass of 3,000,000 square miles is an island, an island-continent. Where, though, does Africa come into this? Well, a few million years ago it was in fact separated from Asia by a stretch of water that linked the Mediterranean with the Red Sea and the Indian Ocean, so that it was a true island. Today, once again, it is separated from Asia by a stretch of water linking the Mediterranean and the Red Sea: a canal cut by man, this time, not a channel caused by violent subterranean earth movements. Apart from a few lock-gates and other artificial contrivances, Africa is completely detached from Asia: she is a true island, or island-continent, all over again.

A century ago, then, de Lesseps was considering the
gigantic task of cutting a channel roughly a hundred miles in length between sea and sea, running almost exactly north-south and very roughly parallel with the Nile where it flowed northwards from Cairo to its huge delta on the Mediterranean coast, some seventy miles or so to the west. The Nile was virtually the only source of fresh water in the whole region; on it, Egypt depended wholly for survival—it was its true life-line; from it, those ancient canal-builders, whether Pharaohs, Persians or Romans, had intended to lead water eastwards to irrigate the intractable desert and so guarantee life to those who fought to survive in it.

Remote as it was from the territory through which de Lesseps proposed to cut his canal, the region known today as the Canal Zone, it would have to be relied upon as his life-line too. As for other lines of communication: these he would have to create for himself. True, a railway-line between Cairo and the town of Suez had been opened shortly before he embarked upon his project, but it lay far to the west and south of the area through which he would be constructing his canal. There were also some caravan trails, notably one which ran from south-west of Cairo north-eastwards across the desert in the direction of Syria and lands beyond. These trails had existed almost since the dawn of time: legions of camel-trains had used them down the centuries; but they were unlikely to be of any use to de Lesseps.

Apart from these lines of communication there was nothing: just a wasteland of rock and stony, sandy soil, a few sprawling areas of salty, brackish marsh land, acres and acres of mud-flats such as those to the south of Pelusium, dried-up portions of ancient sea bed, and here
and there a challenging ridge-plateau of harder rock that would prove among the most formidable of the natural obstacles he had to challenge and conquer if his project was to succeed.

If de Lesseps had lived in the helicopter age he would have been able to obtain an easy bird’s-eye view of the hundred or so miles of desert through which he proposed to cut his canal. Starting from the northern end, he would have hovered above the coastline of the Mediterranean as it swelled and hollowed past the Nile Delta, from Alexandria by way of Rosetta and Damietta eastwards to Gaza. It was a coastline where the water was generally so shallow that even twenty or thirty miles off shore the depth was no more than eight or nine fathoms. The shore line consisted largely of sand-dunes, forming a sort of rim often only a hundred yards or so wide enclosing lagoons and swamp-land such as Lakes Etko, Burlos and, largest of them all, Mensaleh. It was a barren, inhospitable coastline, lacking harbours, lacking even any navigable inlets, and swept by currents which constantly shifted sandbanks and shoals hither and thither, so that the small coastwise vessels of the south-eastern Mediterranean were perpetually exposed to unpredictable hazards.

So far as the engineer was concerned, probably the most depressing feature of the landscape of the northern part of the Isthmus of Suez was the great, sprawling, shapeless, shallow lagoon, Mensaleh, which occupied most of the terrain eastwards of the Damietta mouth of the Nile and southwards for something like thirty miles. A narrow sandy bar was all that prevented it from merging with the shallow waters of the Mediterranean. Around its rim there lived a poverty-stricken community of fishermen,
eking out a precarious livelihood in the only way they knew.

Just to the south of the southern tip of Mensaleh was the ancient stopping-place of the east-west-bound caravans and camel-trains, El Qantara. From his helicopter, de Lesseps would have been able to see the track reaching out south-westwards and north-eastwards from El Qantara, indented in the desert sand. Immediately to the south he would see the shallow depression, hanging like a droplet from the lowest tip of Lake Mensaleh, the near-dry bed of Lake Ballah—though there would be hardly enough water in it to justify the word 'lake'. And immediately to the south of this he would see the first of the three ridge-plateaux that lay in his path, that named El Guisr. The word is Arabic for 'sill'. De Lesseps, being a Frenchman, translated it into le seuil, which means threshold. To de Lesseps a threshold was a springboard, a gateway to something new and splendid over the horizon.

Beyond El Guisr lay desert, interrupted, some forty-odd miles from the coast, by a stretch of brackish, shallow water larger by a good deal than Lake Ballah, though much smaller than Lake Mensaleh, named Lake Timsah, some six miles or so in length and rather less than that in width. It lay at almost exactly the half-way mark between the two ends of the projected canal.

To the south of Lake Timsah was the second ridge-plateau, the Serapeum Ridge. From the air it would not look any more formidable than El Guisr; in fact, it was to offer a very serious challenge to de Lesseps' engineers, though not so serious a one as that which came near to defeating them far to the south, at Chalouf, only ten miles inland from the town of Suez.
Immediately south of the Serapeum Ridge came the Great and the Lesser Bitter Lakes, which were in fact almost one unbroken stretch of brackish, salt-encrusted water, some twenty miles in length between the Serapeum and the Chalouf Ridges. Geologists say that they once formed part of the Red Sea, but were cut off by wind-blown sand swept off the desert and consolidated by its own accumulating weight to form a rock ridge. Certainly Chalouf was to present de Lesseps’ engineers with an immense challenge; only within months, or even weeks, of the opening of the Canal was it finally pierced.

This, then, was the terrain through which Ferdinand de Lesseps had resolved to carve a channel that would link West with East by uniting the Red Sea with the Mediterranean. As it was to link the west with the east, and as it was a project still very much in the air, a brain-child of his own which had yet to be born, it must be made to appeal both to Westerners and to those who lived in, or had connections with, the East. So, diplomatically, he set out to embrace them all. He put forward two basic reasons for constructing a Suez Canal:

One. A notable impetus will be given to long-distance navigation and so to emigration from Europe to the vast countries of the Orient; thousands of miles of sea voyaging by way of the Cape of Good Hope will be avoided;

Two. Those millions who make the Pilgrimage to Mecca will have their journey facilitated for all time.

He had in mind also, however, a third good reason for constructing his Canal: ‘The desert’, he wrote in his Journal, ‘should become once more at least as fertile as it is
said to have been in olden times; thus the climate will once again be healthy and productive for the local inhabitants.’ This was idealism, of course; it was characteristic of the man, who was to show throughout his long working life that he was something of a visionary as well as an intensely practical individual.
De Lesseps: the Man

Ferdinand de Lesseps, whose brain-child became the Suez Canal, was a remarkable character, right from his childhood. His father held a high rank in the Diplomatic Service, so the family travelled widely, following his various postings. From his earliest days, young Ferdinand knew what it was to visit foreign parts and to mix with people whose way of life was very different from his own.

One of his favourite occupations was to set off on long walks, exploring the countryside all round the various towns in which his father was based. Before he was six years old his father and mother had realised that their small son's ambition was to travel widely. The first time he saw a camel-train he became very excited, and told his parents that he wanted to go out into the desert and see what it was like for himself, instead of just being told about it by others. They smiled, and said nothing at the time; but they had a pretty good idea that the boy would take the first possible opportunity of satisfying this ambition.

From his early years he gave evidence of courage and determination; these were qualities that were to stand him in good stead throughout his long life—he lived to be
almost ninety, and was immensely active throughout almost the whole of his life.

One good example of his character dates from his schooldays, when he was a thirteen-year-old in a Paris lycée. The story is told of him that, for a 'dare', he undertook to swim across the Seine from bank to bank. His schoolfellows, less daring, took the ferry. In one of his long letters home—he was to be a tremendous letter writer all his life—he wrote about the episode; but there is no hint in his letter that he was indulging in self-glorification:

I tied my shoes to the back of my neck, he wrote, using my garters for the purpose. I stuffed my shirt inside my hat, which I then crammed back on my head. Then I dropped into the river. I could only use one hand for swimming, because I had to use the other to hold clear of the water, at the end of a stick, my jacket, waistcoat and breeches. I'm afraid my endurance was barely equal to my resolve, and when after a big struggle I got to the other bank I had swallowed a lot of water! And so had my clothes, in spite of my efforts: they were absolutely wringing wet. I had to hang them on the branches of a tree on the bank, and then wait about in a state of nature until they had dried enough to be put on again.

Someone once said of the young de Lesseps: 'Ferdinand's nature requires action just as his body requires food.' It was a true statement, and one that was borne out with every year that passed as he grew from boyhood into manhood and on into old age. He himself, in one of his moments of self-exposure, made the remark: 'I am never so calm as when I am the very centre of trouble.' It was a statement that was to be illustrated over and over again, right to the end of his life.
Not surprisingly, he followed his father into the Diplomatic Service. He rose rapidly in rank, and was only twenty-seven when he was appointed a Vice-Consul and sent to Alexandria, an important Egyptian city even in those days, as it is now.

His arrival there coincided with an outbreak of the dreaded cholera. He had hardly taken up his official duties before he was appointed Chairman of the Public Health Committee. There was a reason for this: de Lesseps' reputation as a man who could get things done had preceded him into Alexandria, and the authorities believed that he would be just the man to tackle the problems set by the outbreak. In the ordinary way, the appointment would have meant very little: a desk job, a job of administration. But now, the city was in the grip of the terror that cholera always produces, and de Lesseps determined to get to grips with it; he would go out and about and see the problem for himself, at the closest possible quarters.

A newspaper correspondent was impressed by this attitude, and duly reported back to his editor in Paris:

It was Vice-Consul de Lesseps who made himself responsible for the total evacuation of the Okelli, an area of Alexandria almost entirely inhabited by Maltese immigrants who were suffering greatly from cholera, where the plague for some reason seems to have been especially virulent. From its outbreak the district has been sealed off, while arrangements were being made to move the unhappy Maltese to isolation hospitals. But the miserable families were too stunned by the disaster to respond. It needed M. de Lesseps himself, in his capacity as Health Officer, to persuade them. He went among them, urging them to go, bending over the beds of the sick and the dying, consoling the grief-stricken, encouraging those who had
not yet succumbed to the dread disease. No one but M. de Lesseps could have succeeded.

Hard-bitten newspapermen are not usually impressed by the work done by officials, and tend to play down anything they do. But this was different: here was an official who really had aroused his admiration. M. de Lesseps, he said, was not merely doing a magnificent job—and one which he could have been excused for passing on to a subordinate—but was doing it without incurring hostility. Much as they hated having to leave their plague-stricken homes in the Okelli, the Maltese were doing as they were bidden. They called de Lesseps ‘father’, and ‘rescuer’; like stricken animals, they were showing their appreciation of what he did for them.

In one hospital, [the newspaperman went on], there were no fewer than forty-two plague cases so bad that the hospital staff abandoned them, unwilling to risk contagion. M. de Lesseps heard of this, and immediately went to the hospital and entered the ward where these misfortunes lay, ill and dying and dead. He rallied the doctors and nursing staff and persuaded them to take up their duties, appointing a new doctor, on whom he could rely, to take charge. The courage with which this newly-appointed Vice-Consul tackles the problems facing the citizens of Alexandria deserves their deepest gratitude as well as admiration.

The dreaded cholera was slow to die out. De Lesseps was involved with it for the better part of two years, never flinching from tackling the most unpleasant situations himself instead of leaving it to his underlings. Yet he had the gift of inspiring others to follow his example: observers throughout his life were to comment on his ability to in-
spire loyalty in those who worked alongside him. He did not seek any reward, but when at the end of his tour of duty in Alexandria he returned to his native France he was created a Chevalier de la Légion d'Honneur, an award any Frenchman is proud to receive.

Cholera in those parts, and in those days, was a constant menace. It could arise suddenly, without warning, and spread among an unsuspecting community with the rapidity of a bush fire. More than thirty years later, when de Lesseps' project was more than half way to completion, it broke out again, as virulently as before, and again in Alexandria. Characteristically, de Lesseps departed at once for the scene, dropping his immediate task of supervising his teams of engineers and labourers along the length of the Canal to concentrate all his energies on quelling the new outbreak. He had always shown an awareness of the importance of the individual, in an age when most employers tended to regard their employees as 'expendable'. 'In addition to their pay,' he had declared once in an argument with some other and less scrupulous employers, 'workers are entitled to food, accommodation, medical and other welfare services.' And he consistently practised what he preached.

He may or may not have known that, many centuries before his day, more than a hundred thousand labourers had died in the task of canal building in the Isthmus of Suez, died miserably under the whips of their savage overseers. He himself was able to say that even when he had no fewer than fifty thousand men in his employ, the casualty rate was less than one in every five thousand. It was a magnificent record and proof of the pains he took to ensure the welfare of the men who worked for him. The
hospitals he caused to be erected at strategic intervals along the line of the canal as it was a-building rarely had to cope with more than a handful of casualties at any one time: men injured by landslips in the cuttings they were working on (often because they ignored the warnings of their foremen), or affected by the violent alternation of blazing midday heat and bitter night-time cold.

At the time of this new outbreak de Lesseps was sixty; his Canal was about half completed. On arrival he found that one of the city’s chief doctors had deserted his post in a panic. De Lesseps promptly had him officially deprived of his post and removed from Alexandria so that his bad example would not be followed. The situation was complicated by the fact that there had also been outbreaks of cholera in the desert town of Zagazig, a hundred and twenty miles or so south-east of Alexandria, to which people might have been evacuated; at Ismailia, on the line of the canal; and also in Cairo itself, which was linked with Alexandria by a railway-line and was the obvious place to which to evacuate people.

De Lesseps took stock of the situation and reported on his findings. Cholera victims, he said, were dying so fast that ‘we had trouble finding medical orderlies to deal with the sick, and men to bury those who had died.’ The harbour, he reported, was crammed with shipping in which the wealthier Egyptians were trying to escape the menace of contagion. One aspect of the situation that complicated matters was the fact that workers were fleeing eastwards to Port Said, now a flourishing township established at the northern end of the canal and named after de Lesseps’ friend and sponsor, Mohammed-Saïd, Viceroy of Egypt. ‘It is there’, he reported, ‘that real danger exists. There
1. Ferdinand de Lesseps
may well be a complete breakdown in organisation at the working-sites as a result. My men in charge are begging me to go there and take over, but I cannot leave here for the moment.'

Later he managed a flying visit to Port Said, to assess the situation. He found absolute chaos reigning. ‘Deserters’, he wrote, ‘have spread panic. I have had more trouble calming the scared who are well than I have had with those who are dying. But I may say that I arrived just in time to calm down the labourers of so many nations whose fears no one hitherto seems to have been able to quell.’

By a sad irony, his generous attitude towards those in trouble was rewarded by a personal blow. During this outbreak of cholera his son Charles was at Ismailia in his capacity as the Company’s local manager. With him was his wife, and his small son, also named Ferdinand. And little Ferdinand fell a victim to the plague. De Lesseps himself was at Zagazig when the news was brought to him. Without a moment’s delay he mounted his favourite Arab steed and rode like a whirlwind through the desert night, covering sixty-odd miles in the bitter darkness. He was sixty years old, and to many a man of his age such a ride might well have proved fatal. As it was, he arrived, but too late. ‘He found only the dead body of his beloved grandson,’ Charles said later. ‘And at the sight, I believe for the first and only time in his life, his vitality failed and he fell senseless beside the small body on the bed.’

Perhaps it could be said that de Lesseps’ attitude towards these outbreaks of cholera was foolhardy rather than brave. But there are countless other examples of unquestioned courage to be found in the career of this remarkable man. He seems to have been indifferent to
physical pain. When he does refer to this, as when he wrote about his schoolboy feat in swimming across the Seine, there is never any hint of self-glorification; in fact, he writes in a curiously dead-pan style, understating facts rather than drawing attention to them.

For example, there was the occasion when he was in a steamer cabin at midnight and his mosquito-net caught fire. In a matter of seconds the whole cabin was alight. Fire swept over him, his nightshirt offering him no protection at all. He fought his way through the flames to the door and contrived to get it open. The first thing he did was to make his way to the bridge and call on the captain to cast-off the lines by which the vessel was moored to the quay, for he knew that there was a large consignment of highly inflammable goods stacked alongside waiting to be loaded in the morning. Then, he wrote:

*Parts of my body were raw, and there were second-degree burns on my legs. I had to be carried to a bed, and there, after my skin had been covered with cotton, the raw patches were sprinkled with water from the Nile. As a result, I escaped the fever which ordinarily would have supervened. When the Viceroy came to see me I could not of course rise from my bed, but I told him that my accident could be regarded as a good omen, in that I always paid in advance my debt to bad luck.*

Physical courage above the ordinary. And there is an example of courage both physical and moral in an encounter that de Lesseps had with some Bedouin chiefs a few years later, during one of his early reconnaissances into the desert to plan the route of his projected canal.
He had been promised every assistance from the nomads who were virtually the sole inhabitants of the desert. To begin with, he had assumed that this promise would be fulfilled; but from time to time reports came in to him from his various surveying parties that they were being interfered with in their activities. In one or two cases, members had been taken away bodily to the nomads' tents, and rescued only with the greatest difficulty. Messages of protest had been delivered, but did not seem to have any lasting effect; the interference continued, unpredictably and menacingly.

As the man ultimately responsible, de Lesseps decided that it was up to him to take a strong and decisive line. He sent messages to a number of Bedouin sheikhs inviting them to take coffee with him on a certain date and at a certain place in the desert. In his famous Journal for the month in question he tells the whole story; tells it, as was his wont, in some detail but without frills:

After the ceremonial washing, I held out in front of them a six-barrelled revolver. None of them had ever seen anything like it. I then called for six bottles to be set out in a row at some distance from my tent, and told the sheikhs to watch. One by one, I fired and smashed each bottle in turn. I then faced round on them and said: 'My good friends and guests, I have been led to understand that a Turkish officer, declaring himself to have been sent here by the Government, has instructed you to withhold supplies from me and the men in my employ. I must ask you to explain to this creature, who is most certainly a mere impostor, that we now propose to go into the desert. You should add that we are twenty in number, and that among these I am by no means the most skilful user of a revolver. And you may add that any black spot that we may
happen to see in the desert is likely to be mistaken by me and my men—for a gazelle.

De Lesseps laconically sets down in his Journal that from that day onwards there was no more trouble of that kind so far as he himself or his men were concerned.

It is a great pity that neither his voluminous Journals nor the huge number of letters he wrote have been translated into English. There are five large volumes of these, and interspersed among their pages any number of descriptive and narrative pieces that shed light on the man and build up a vivid picture of the work into which he threw himself heart and soul. How he found time, during his intensely active life, to fill so many pages of his diary, to write such legions of letters, must always remain a mystery.
Desert Reconnaissance

Strangely enough, it was the first outbreak of cholera, in 1832, that was the root cause of de Lesseps' resolve to construct a canal that would link the Mediterranean with the Red Sea. He was on his way east to Alexandria to take up his new post there as Vice-Consul when one of his fellow-passengers was taken suddenly and violently ill, and died in hideous agony. The ship's captain was discreet enough to conceal the cause of the death, but as soon as they docked at Alexandria the vessel, and all her passengers, de Lesseps of course among them, were put into quarantine.

The newly-appointed Vice-Consul, a man of whom it was said that he needed action in the same way as his body needed sustenance, felt horribly frustrated. Here he was, feeling as fit as anything, surrounded by his fellow-passengers, any one of whom might at a moment's notice be found to be a carrier of this dread disease and unwittingly communicate it to him before he could be isolated. He might, of course, succumb directly to the disease itself.

Aboard a small vessel there was not much opportunity to do anything, or even to steer clear of his fellow-passengers. But he did contrive to find a corner where he could
be on his own, and since there was nothing really active that he could do, he turned to reading. One book that came his way, and that he read with enormous interest, and re-read several times over before the period of quarantine was officially ended, bore the intriguing title, *Le Grand Canal des Deux Mers*. It was a lengthy memorandum prepared by another Frenchman, an engineer named Lepère, for consideration by Napoleon at about the time that that great soldier-conqueror was toying with the idea of following in the footsteps of the Egyptians, the Persians and the Romans in constructing a canal through the Isthmus of Suez.

For some reason the memorandum had not interested Napoleon sufficiently for him to give his engineers the go-ahead; probably more spectacular types of conquest were occupying his mind. The idea was dropped. And by pure chance the memorandum drifted into de Lesseps' hands. The story it had to tell fired his imagination, burned deep into his mind, his heart. Though the immediate task of coping with the cholera outbreak was to occupy his waking thoughts for a long time to come, and though in fact for the next twenty years he was to serve in various capacities in towns and capital cities in various parts of Europe, the germ that was implanted in him during his period of quarantine aboard ship was never allowed to die; it remained dormant, simply awaiting the moment when it was to be fanned once more into life.

He remained a diplomat for some twenty years. But in his early forties, when he was in Rome, he resigned. Perhaps he had the feeling that there was some other, and very different task which would absorb his enormous energies, his capacity of leadership. He had not been en-
tirely happy for some time past. He knew in his heart that he wanted to be, as it were, out on his own, doing pioneer work, challenging Fate and, if necessary, his fellow-men, in some major enterprise.

About that time, disaster struck him. His wife, to whom he was devoted, and his eldest son, named Ferdinand also, both died suddenly of scarlet fever, a disease which in those days was almost as virulent a scourge as cholera, and all too rarely capable of being controlled by medical science. Shattered by his double loss, he cast about him for some occupation to distract his mind, to occupy it so fully that he would hardly have time to reflect on what had befallen him. Some inspiration prompted him to turn his attention once more to the idea of *le grand canal*, about which he had first read in Lepère’s memorandum written for Napoleon.

*I am going to accomplish something*, he was to write soon afterwards, *which is not designed to be of personal gain to myself. Thank God I see my way clear and my course true and uninterrupted. I am resolute as to this. I shall not permit anyone or anything to make me deviate from the course I am setting myself. I have full confidence that I shall succeed in steering my ship into port…*

The ‘port’ was to become Port Said, named after the Viceroy of Egypt. In the Arabic tongue, as de Lesseps constantly reminded people, especially the many who told him he would never succeed in his project, *said* means ‘happy’.

Though there were to be periods when the Viceroy’s loyalty was put to some strain by the pressures brought to bear on him by unfriendly or jealous powers, for the most
part he did all he could to encourage the diplomat-turned-engineer in his self-appointed task. De Lesseps was never to forget, even long after his friend's death, that it was during that expedition into the desert to watch some military exercises that he had poured out the details of his secret project and won the Viceroy's promise of support. The words still rang in his ears, to be repeated time and again when things were going badly, or there was opposition from the various vested interests that sought to interfere with him: 'My friend, you have convinced me of the excellence of your project. I accept it, and will do everything in my power to make it succeed. You may depend absolutely upon my support.'

That had been a memorable occasion—in the desert. From his childhood days, the desert had meant something to de Lesseps. It was to mean more and more. For all the obstacles and frustrations it put in his way, he never tired of it, never lost his feeling for it. His Journals and his letters are full of references to it. They suggest that he was almost in love with it, as a man may be in love with the mountains he attempts to climb and eventually conquers. He would have laughed if anyone had called him a poet; yet time and time again in his many references to the desert he comes close to poetry.

It was the desert, of course, that he had to survey before drawing up his campaign for constructing a canal across and through it. He decided to do one of his earliest surveys from the southern end northwards. So, he went to Suez, 'a mere point,' as he described it in a letter to a friend, 'surrounded by desert, with a population of three thousand or so.' Today it has a population of over 200,000. In fact, even in the middle of last century, and before the Suez
Canal was begun, it was a sea port of some note, for it was the port from which the P. & O. liners conveyed passengers and freight to India and the Far East; it was the port, too, at which they disembarked home-coming passengers for the last stage of their long journey, overland to the Mediterranean coast and then by sea to such ports as Marseilles and their various destinations scattered about all over Europe.

But it was a stark sort of a place, Asian rather than European. Few people other than the natives, and employees of the shipping-line and Suez–Cairo railway, lived there. It was a transit-town, a jumping-off place for eastwards and westwards bound passengers. And for one northward-bound traveller, certainly: M. de Lesseps, on the eve of his survey of the terrain through which his projected canal would run. And because the desert lay on its doorstep, he could write about it, for all its shortcomings, with a touch of poetry on his pen:

The rising sun is shining into my room. I get out of bed and go over to my window, to open it and lean out, contemplating awhile what is spread out before me. The waters of the Red Sea are bathing the walls of the nearest buildings. Far to the right, some four or five miles away and more, the Attaka Hills rise from the desert. In the opposite direction, much farther away, there are the foothills of the chain which culminates in the peak of Sinai.

This part of the coastline has a roseate tint which is reflected in the water. I dare say that is the origin of the name, Red Sea. Now early risers are beginning operations on the quays. Small boats are being rowed out to vessels which have either recently come into the harbour or are about to leave for the Orient. The oarsmen propel them with poles at the ends of which small wooden discs are
lashed, but they seem handy enough with them. The boats themselves remind one of Chinese junks [he probably means sampans], as they have sharp stems and no decks between stem and stern. The costumes both of natives and of strangers give an advanced glimpse of Arabia, India, and China...

Having written almost lyrically about what he can see from the window of his small hotel, he ends on a more matter-of-fact note: 'This is a wretched sort of a place. The only water offered one to drink is brackish. But my Canal will give its inhabitants all the water they need; and, what is more, the incentive to better themselves.'

For this early reconnaissance he took with him two fellow-Frenchmen, experienced hydraulic engineers, Messieurs Linant and Mougé. Like himself, he knew they were imbued with what he always called l'esprit de l'entreprise. You could translate this as 'Spirit of Adventure': certainly it was in this spirit that Ferdinand de Lesseps lived out almost the whole of his long life.

Mounted on horseback, the party set off from Suez in good time. The three men had with them their own personal servants. They had also an escort of fifteen mounted bashi-bazouks, Turkish irregular soldiers with an appalling reputation for fierceness and cruelty. It seems rather an odd choice of escort for three French civilians to engage, especially as this was not to be a major reconnaissances but, as much as anything, a search for relics of one of the ancient and long-abandoned canals that the desert sands had almost obliterated.

De Lesseps mentions that they came upon the canal they were searching for, and were in fact surprised to find that its banks were in parts still visible after all those
centuries during which windblown sand had swept across them. Mougel and Linant were astonished to note, when they got out their measuring-tapes, that the dried-up canal bed had been no less than seventy feet in width. De Lesseps made no comment; but it will have struck him forcibly that, with the sort of canal he was now projecting, the herculean labours of the slaves who had excavated that ancient canal would have to be repeated by his own work force on an even greater scale.

Among his records of this early reconnaissance there is an absurd incident of no real importance, though it illustrates his sense of humour:

On the way back from this canal, he wrote, the three of us took our usual siesta, in a tent which we had brought with us for just this purpose. Abdullah, M. Linant's Negro servant, provided us with excellent coffee. But Ibrahim, my personal servant, apparently vanished. Later he reappeared, cutting a most imposing figure. He had bought himself a magnificent gilded sword, an officer's swagger-stick, a pair of patent-leather shoes, and a vivid cummerbund of red and purple silk to swathe his portly middle. Now: where did Ibrahim obtain the money necessary to make such purchases? I will tell you. It was from the pockets of a suit of my own that I was not wearing at the time! So much for the faithless Ibrahim: I threw him out, neck and crop, to find a new master.

Certainly the disloyal Ibrahim was not with de Lesseps when he and his party set out, in the last days of 1854, again from Suez, to make a more serious reconnaissance along the line which his Canal was destined to follow. At first it was just a sandy waste, rising steadily to the rocky Chalouf Ridge which, in the last stages of the construction
of the canal, was to prove such an obstacle. In a way it was a relief to surmount the ridge, for much of the terrain immediately north of Suez had consisted of treacherous quicksand, which involved laborious effort and was always potentially dangerous.

From the top of the Chalouf Ridge they looked northwards at the sinister depression known as the Bitter Lakes, outlined in the windswept sand by the encrusted salt which framed them, a constant reminder that once they had been filled to the brim with sea water. It was either just south of the Bitter Lakes, or just to the north of them, near Lake Timsah, that the Israelites had passed, thousands of years before. De Lesseps was always conscious that the wasteland through which he was planning to cut his Canal to link sea and sea had formerly been inhabited, or at least passed through, by the nomadic tribes of which he had read in his Old Testament. He commented on this, both in his Journal and in letters to his friends. As he found himself within view of what he believed to have been the scene of Israelite activities in Biblical times, he was moved to write:

*Baal-zephon is the spot where the Israelites were told to pitch their camp before their crossing of the Red Sea. I believe it to have been close to the ancient Red Sea lagoons, now called the Bitter Lakes since the Red Sea has been drained from them. They will become lagoons once more, when my Canal passes through them, as I intend that it shall.*

*Assisted by the great storm which is described in the Bible story, the Israelites, I believe, must have passed their period of waiting, at the time of low tide, in the depression that lies between the Bitter Lakes and the dried-up lagoon to the north of them, Lake*
Timsah. There would have been extensive sand-dunes then, as there are now. And then, as now, when the moon shone down on them, they would have seemed like whitewashed walls hemming them in. But they crossed the Red Sea when the tide was low, whereas next morning the Egyptian army pursuing them was engulfed, first in these treacherous quicksands and then in the waters of the Red Sea as the tide rose once more.

For this more extensive reconnaissance de Lesseps and his party exchanged horses for camels and donkeys. Mougel and Linant experienced a good deal of difficulty in mastering the art of mounting and riding the ‘ship of the desert’, as the camel has been traditionally known to Europeans. But de Lesseps, characteristically, mastered the art at once. He had longed to ride a camel ever since he had had his first glimpse of a camel-train strung out along the desert sand; he knew that the camel was a strange and treacherous animal, as well as quite indispensable to those who must ride in true desert lands. In his many references to the animal it appears sometimes as ‘camel’, sometimes as ‘dromedary’. There is no difference, since the dromedary is a single-humped Arabian camel, as opposed to the twin-humped Bactrian camel.

Whether he refers to it as camel or dromedary, he writes of its challenge in those early days in characteristic humorous vein:

One needs to be pretty alert in the matter of mounting a dromedary. The instant you have thrown your right leg over its back, it will jerk from its squatting posture to its feet. So, you must lean first of all smartly forward, and then, as the beast straightens out its immense hind legs, lean as smartly backwards, or you will be
thrown to the ground—and from a not inconsiderable height! I was quickly at home on my dromedary, for I have kept in good training and carry little spare flesh. I soon learned to tolerate both the long-striding gait and what I can only call a bumping trot. In between those two extreme forms of motion, if only you can persuade your mount to adopt it, there is a pace that may almost be said to be comfortable.

The de Lesseps reconnaissance was well organised and well equipped. It was all very well, he argued, for the Bedouin to live off the land: like the camel, the nomad seemed able to subsist on strikingly little food or water. Not so the Europeans, however. Especially since they were French, with a tradition of good living. At need, de Lesseps could live as Spartan a life as anyone; but he was not going to go out of his way to be uncomfortable, let alone hungry or thirsty.

They took with them what they jokingly referred to as their ‘farmyard’. There were chickens for eating, hens for their eggs, and to be eaten, too, when they ceased to lay; turkeys, too, and pigeons. So much for their larder-on-foot. But they had a more ambitious larder with them, too; and a chef to cook their meals and servants to wait on them during this desert safari. The meals had, as de Lesseps duly recorded, a truly cosmopolitan character: ‘Mutton from Calcutta, potatoes from Bombay, peas from England, Egyptian chicken, wine from France (of course!), and China tea.’ They carried with them some twenty barrels of drinking-water, for making tea and coffee. It may be imagined what this would taste like, having come originally from the Nile (the nearest source of supply) and having been transported across the desert for days on end. It was
a precious commodity, and two men were detailed to be on permanent duty guarding it during the hours of darkness.

During each successive day the party sweltered in the heat of the desert sun, which blazed down upon them unmercifully from dawn to dusk and was reflected upwards from the sand and stone over which they travelled, and most brutally off the encrusted salt round the Bitter Lakes. Soon after sundown the appalling heat of the sand, which had seemed to be on fire from the sun it had absorbed, cooled down, and a bitter cold infested the desert air. It was all the more unendurable because of the sudden contrast with the day they had just endured.

De Lesseps, of course, was prepared for this, and had fitted out his expedition with appropriate tents: three for sleeping in and one for cooking and eating in. He shared one tent with Ingénieur Linant, and in a letter home described what life in it was like:

*There is a central pole, and on each side of this a mattress, over which is thrown a native rug, to form a divan de jour—a bed that could be used at need by day as well as by night. In clips on the central pole, on each side and within instant reach of the two divans, are our rifles—just in case! Linant and I have each of us two saddle-bags, which we keep close beside our mattresses. At the head of our two mattresses there is a plank set across a post driven into the sand. On it, between us, there stands an oil-lamp. On the centre pole, too, there are hooks for our watches, within easy view as we lie on our mattresses. Our pillows are in fact camel-saddles covered with skeet skin dyed bright red. The only other furniture in our tent, if it can be called such, is a trestle table. The tent is hardly the most comfortable of accommodation, but at least it offers us shelter from the bitter cold of the desert night.*
It was after they had reached Lake Timsah, where they spent some time taking accurate measurements, for it was de Lesseps' plan to make use of part of its bed to reduce the long miles of excavating when his Canal arrived at that point, that they had their first near-disaster. In fact—at least, if we are to accept his account of it in a letter home written next day—it turned out more comically than tragically.

They had completed their measurements of Lake Timsah and settled down for the night when a storm blew up unexpectedly, as it sometimes does in deserts. Their servants had not taken as much care as they should have done when erecting the tents: the sand had been loose, and they had not used the appropriate tent-peg. Linant and de Lesseps, who shared a tent, were lying on their mattresses, their heads buried in the bright red sheepskins that covered their camel-saddle pillows. They were almost asleep, after a long and exhausting day, when, suddenly, their tent collapsed upon them.

It was no lightweight tent, such as today's mountain climbers equip themselves with, but a massive affair of the type then traditional in desert country.

M. Linant, de Lesseps wrote, succeeded in extricating himself from its heavy folds, but I myself was completely trapped. I could hear the rest of my party struggling with the guy-ropes that should have withstood the force of the wind, but all I could do, enveloped as I was by the folds of the tent, was to act as a sort of flying-buttress to the tent-pole. What an absurd position for the future Directeur du Canal des Deux Mers to find himself in!

One of de Lesseps' more endearing characteristics was his ability to poke fun at himself.
4. Workmen loading dromedaries with spoil
They pressed on next day. Only a year or two later, the two explorers, Burke and Wills, were making a similar journey from the south northwards, across the hitherto unexplored centre of Australia, 'from sea to sea', as they put it. They made the crossing, but were doomed tragically to perish of starvation and exposure on their return journey, having been given up as lost by their support party. It was, of course, a sea-to-sea expedition on a far more ambitious scale than de Lesseps' reconnaissance northwards from Suez across the hundred miles or so of desert between sea and sea; nor was de Lesseps' journey to end in disaster.

In due course his party reached El Qantara, the ancient crossing-point of the east-west caravan-trains. They came to the verge of the great brackish lagoon, Lake Mensaleh, stretching away from them north-westwards to the Damietta mouth of the Nile. They were within sight of the Mediterranean. Another few tedious miles, through swamp-land and limitless stretches of treacherous mud, and they reached the coast. 'So', de Lesseps wrote, 'we saluted the Mediterranean. We conveyed a greeting from the Gulf of Arabia, from the Red Sea herself, to which we had pledged ourselves to unite her. The first part of our reconnaissance had been completed.'

There was as yet no town of Port Said; so their trek across the desert was not ended, even though the purpose for which it was undertaken had been fulfilled. They turned south-westwards, clearing as quickly as they could the sprawling, smelly lagoon, to pick up the ancient caravan trail which would lead them eventually to Cairo, a hundred miles distant. But the desert was by no means done with them yet. De Lesseps' Journal records that they
encountered desert weather so bitterly cold that in order to avoid freezing to death they trudged for miles alongside their camels, simply to maintain the circulation of blood in their veins. It was a constant reminder that the desert is unpredictable in its moods, and that no man can ever afford to challenge it lightly, if he is to survive.
This was by no means the only sort of reconnaissance de Lesseps had to undertake before commencing actual work on his Canal. Money for the ambitious enterprise had to be found, and its continued supply guaranteed over the period during which construction would be in progress. Mohammed-Saïd was generous, but he could not be relied on to foot the whole of what would prove to be an enormous bill.

Thanks, however, to his long career in the diplomatic field, de Lesseps not only had contacts in many European countries but he moved easily among men in many walks of life: statesmen, diplomats, industrialists, financiers and bankers. It was to these, in various countries, that he turned with requests for financial aid on a considerable scale, for the floating of loans on which he could continue to draw. It was not always easy. He had to use all his powers of persuasion, to communicate his own burning faith in the essential rightness of his project, before some of them would co-operate, before money was forthcoming in quantities for his purpose. He might be filled with the spirit of adventure, but he was intelligently cautious, and
determined not to leave anything to mere chance. The more surveying he did in advance, the better his prospects of success.

He was a methodical worker, and drew up his plans in good order. As he saw it, the construction of his Canal would involve three major sections. First, he would have to cut a channel through the swamps of Lake Mensaleh, from the Mediterranean coast southwards, and through the little Lake Ballah beyond that. Then he would have to carve a passage through the El Guisr Ridge—the 'sill', or threshold. Beyond this lay Lake Timsah, a near-dried-up depression that he intended in due course to flood with Mediterranean water.

Second, he must unite Lake Timsah and the Great and Lesser Bitter Lakes. This would involve chiselling a route through the formidable Serapeum Ridge that separated them. Thirdly, he would have to link the Bitter Lakes with the Gulf of Suez by a channel that would have to be carved out of the Chalouf Ridge, just south of the Bitter Lakes. The layout of his programme, therefore, involved the piercing of three major ridges and excavating a channel through the levels of sand and quicksand that separated one from the other. Additionally, he would have to cope with the depressions, of which he hoped he might be able to make some use. Water would have to be channelled through, either from the Mediterranean or from the Red Sea, according to which end of his Canal was soonest ready; and according to the levels of the Mediterranean and the Red Sea respectively, for there were some who said that their levels differed, though they were eventually proved to be wrong about this.

He realised from the start that he would be up against
one major problem: that of supplying water to the thousands of labourers he intended to employ. There was virtually no fresh water in the desert. The ancient canals that had been dug to carry drinking-water eastwards from the Nile had long since dried up and been for the most part obliterated by windblown sand. There was a small river, the River of Moses; but it was little more than a stream that flowed south-westwards off a hillock to the west of El Qantara. It was used by the camel-trains—when there was any water in it; but for much of the year it was hardly more than a trickle. All the water they had used during their reconnaissances had been Nile water, carried in casks, and tasting pretty foul towards the end of each trip. Suez itself was supplied with water transported in trucks along the Cairo–Suez railway.

De Lesseps was a realist. He faced the problem fairly and squarely. If he could not supply his army of labourers with all the drinking-water they required, he might as well give up his project before it had got under way. He saw only one practicable solution: it was to locate a reliable source, and channel this to where it was wanted. This really amounted to the constructing of two canals. The first would be a Freshwater (or Sweetwater, as it came to be known) Canal; the other would be his main canal, to be known as the Maritime Canal. Of the two, for the time being, the first was the more important. It need not be so large, but it must be begun at once, and constructed on a scale that would guarantee its efficiency.

Second only to this problem was that of creating an artificial harbour that could be used as a base for operations. Though he had done his first reconnaissances northwards from Suez, he decided that his main base should in
fact be at the northern end of the projected canal, on the Mediterranean shore; this was chiefly because he knew that the main supplies of materials and equipment would come to the Isthmus of Suez along the waters of the Mediterranean, on which there were long-established shipping lanes.

It must be a port capable of handling vessels of some size. It must possess warehouses and adequate workshops, and living-quarters for the hordes of workmen who would be based there in various capacities, including the off-loading of cargoes and despatching them southwards along the Canal as it penetrated ever deeper into the desert. So, de Lesseps took the long view; he organised his campaign as a military commander might organise a campaign involving a distant battlefield and all-important lines of communication. It proved to be a wise policy.

Few sites can have seemed less promising than the one he proposed for the northern end of his Canal, for the base of operations, the headquarters of the Suez Canal Company. It lay on the eastern rim of the sprawling lagoon named Lake Mensaleh, a stretch of brackish water separated from the Mediterranean itself by a long line of sand-dunes not more than a hundred or so yards wide for the most part, and known as ‘slob’. Immediately to the east of the lagoon edge there lay a wide and forbidding expanse of swamp and mud-flats where today the town of Pelusium is shown on the map. These revolting mud-flats stretched inland almost to El Qantara, the desert township through which the ancient caravan-route between Cairo and Syria passed.

There was no water in the area. The nearest supply was many miles to the west, at the Nile mouth of Damietta.
All the water required for an ever-growing population of workers would have to be laboriously transported on camel back, in barrels and goatskins. At the time de Lesseps decided on this site, the only inhabitants of the desolate region for miles around were a colony of poor fishermen making a scanty and insecure living by fishing in the foul waters of the lagoon, which for the most part was hardly a fathom deep.

In April, 1859, de Lesseps set off from Cairo for the site he had chosen. He could have travelled on camel back, as he had done on various reconnaissances; but this time he set off down the Nile from his provisional base in Cairo to its outlet at Alexandria. He had a specific reason for taking this route; it was to have a close look at the immense and ancient quarries at Mex, near Alexandria, which he intended to use as his chief source of supply of hewn stone that he would require for his harbour walls and other massive works which would transform a barren site into an outstanding sea port.

Having assured himself that there would be an inexhaustible supply of stone in the Mex quarries, he then sailed east from Alexandria, along the curving coastline formed by the mouths of the Nile Delta, by way of Rosetta, to Damietta, some thirty or more miles short of the site he was making for. It was only a short voyage, but it was an important one, and one that was marked with some ceremony; for it was the prelude to the great moment, dreamed of by de Lesseps for years, when the first spadeful of soil would be dug and thrown to one side, marking the commencement of his Canal. De Lesseps, as usual, set it all down in his clear and picturesque style, inserting here and there a touch of intimate detail:

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On April 19th, in the morning, our little fleet, sailing appropriately under the flag of France, duly arrived at Damietta. Notable in our small fleet was the French Vice-Consul’s vessel. We tied up at Damietta, for now Lake Mensaleh had to be traversed, and our vessels drew too much water for us to be able to use them any further. Tomorrow, four fishing-boats will enable us to complete our voyage. When we reach the site, we shall pitch our tents. In the mean time, here at Damietta, I am the guest of the French Vice-Consul. He has allocated to me a delightful room at the top of the house he occupies, with a notable view southwards over the desert. We are fourteen in number, here, and are all to dine with him. A fitting prelude to the ceremony tomorrow, when we inaugurate my Canal. . . .

The following day they travelled slowly in a small flotilla of fishing-boats, south-eastwards along the length of the lagoon. De Lesseps felt his heart begin to beat more rapidly with every mile that they drew nearer to the site. If his companions felt any twinges of depression as they looked eastwards over the mud-flats and swampland that awaited them, they were not shared by Ferdinand de Lesseps.

On arrival, the French tricolour was raised over the site on a flagstaff specially prepared for it. Then—though not a brick or stone of it had as yet been laid—the non-existent town of Port Said was ceremoniously inaugurated.

Then came the next step. Surveyors with tapes and mark-poles began to lay out the first few hundred yards of the projected canal. A double row of stakes was driven into the spongy, treacherous mud, running almost due southwards across the eastern fringe of Lake Mensaleh. On 25th April, with appropriate ceremony, de Lesseps took a shiny
new spade and dug out the first spadeful of soil—the first, as he remarked, of many hundreds of millions of spadefuls that would have to be dug out before, 100 miles to the south, they broke through into the Gulf of Suez, having challenged and conquered the desert itself.

When he had dug out that first spadeful and tipped it on one side, he ceremonially handed his spade to his next-in-command, who in turn dug out a spadeful before handing it over to the man next in command to himself. ‘And so,’ de Lesseps recorded, ‘throughout the whole of my staff. And after the Europeans, the spade was handed to the first of the 150 native labourers, and then to each in turn until the youngest-recruited of them all had ceremoniously knocked on the threshold of the desert of the Isthmus of Suez we had solemnly undertaken to span.’ It was a moment that must have meant more to him than he could bring himself to say publicly, so near was this project to his heart, so long had it been the very mainspring of his life.

After the picturesque and very human ceremony of ‘turning the first sod’—traditional on such occasions and, as it happens, being echoed almost at the same time many thousands of miles away in America, at the inauguration of the Union Pacific Railroad in Nebraska—came the sheer hard graft. A harbour had to be constructed, and quickly constructed, at the site where the new town was to be built, capable of accommodating and dealing with coastwise shipping laden with raw materials, men and supplies. Until this was in operation little progress could be made with the cutting of the canal itself.

De Lesseps had laid his plans well in advance. Mule and camel-trains for the transport of provisions and water had been organised; there were no fewer than three thousand
animals in all, to cater for the ever-growing army of labourers who were to be employed. The water would come from the eastern channel of the Nile, that flowed into the Mediterranean at Damietta. Provisions from Cairo would be delivered to a rail-head at Samanoud, on this same branch of the Nile, about half way between the capital city and the coast. Camel-trains would halt on the western edge of Lake Mensaleh and the barrels and crates they carried be off-loaded on to a flotilla of small, shallow-draught boats that could ferry their cargoes to the opposite side of the lagoon. The old saying that ‘an army marches on its stomach’ was as true for de Lesseps as for Napoleon or any other military commander planning major campaigns: certainly he was leaving nothing to chance.

His engineers’ first task was to see to the accommodation of the shipping. Vast quantities of timber were brought to the site, and a makeshift pier consisting of massive piles driven through the shallow water into the soft sea bed was constructed. The piles were then topped by cross-beams substantial enough to carry a light railway track, along which trucks and mobile cranes could be moved from point to point. This was the preliminary step. But a timber pier could not be expected to stand up to the heavy wear and tear of moving vessels and the off-loading of massive and bulky cargoes; nor could the treacherous shifting-sands of the area be relied on for long to hold the piles in position. As soon as possible, a pier constructed of stone blocks such as those used today for harbour works must take the place of the timber one.

The next step was to construct an artificial island in the shallow water some distance out from the shore line. This was done by driving in an immense number of massive
piles in a roughly oblong pattern, close together, and then in-filling the space they enclosed with loose stone, gravel and rock. This is much the same method as the Dutch engineers have adopted, and are using still, in the reclamation of land from their inland lakes and wide estuaries, the creating of what they call ‘polders’. The most outstanding example of this may be seen today in their ambitious ‘Delta Plan’, a twenty-five year operation in the southern part of their country which is now rather more than half way towards completion.

The artificial island which de Lesseps’ engineers constructed was to be linked with the timber pier, and the timber in due course to be replaced with giant blocks of stone. One unusual feature of this operation, however, is that the piles, instead of being square were round, and were actually ‘screwed’ into the sea bed. De Lesseps’ men believed that this would enable them to withstand more successfully the immense sideways pressure exerted on them by the coastal currents and tides.

He himself stayed on the site, supervising every smallest detail of the various operations that were now going ahead simultaneously: the construction of the pier and the artificial island; the consolidating of the marshy ground to take the foundations of the warehouses and workshops and other necessary buildings; the digging of a ‘pilot’ canal—referred to by him as a *rigole de service*—that would enable waterborne supplies to be brought up close to where the much larger Maritime Canal was being excavated, and eventually to enable dredgers to be brought into operation so that the laborious business of hand digging could be speeded up.

So occupied was he by the day to day, hour to hour
problems that confronted his team of engineers, and therefore himself, that he hardly had time to take note of the unhappy international situation that was developing in the background. There was the declaration of war by France, his native land, on Austria, in an attempt to liberate Italy from its yoke. Russia, then as now, had an eye to the main chance and was looming in the background, alert for developments from which she might profit. Britain, too, was on the alert. Turkey was being 'difficult'. This is no place to analyse the international situation, but de Lesseps had to bear in mind that his friend and sponsor, the Viceroy of Egypt, was not an entirely free agent; and if he and his country got caught up in threats of war, the Canal itself would suffer.

But he was ever an optimist. He rightly took the view that for the time being his best course was to concentrate on the job immediately to hand, ignoring what the future might hold. The more he concentrated on detail the better it would be for all concerned. He said as much, time and again, in letters to his friends and in the crowded pages of his Journal. And he laid particular emphasis on anything that augured well for the future of his cherished project:

_We have found a number of things that offer us encouragement_, he wrote. _For example, on the south side of our site there is a considerable area in which salt-wort, a kind of coarse scrub, grows in profusion. It supplies us with all the kindling we need for our fires. Also, in Lake Mensaleh there is plenty of fish, so our labourers will be able to have all they want to eat without our having to send farther afield for this sort of commodity at any rate. Best of all, we_
are not going to be put to the labour (not to mention the additional expense) of cutting our own fresh water canal at the northern end of our project to guarantee supplies of drinking-water for our men: Mohammed-Saïd has made himself responsible for this undertaking. He has recruited a labour force of some 10,000 men, and has already set them to work on a channel between four and five feet deep to run for a mile and a half between the lagoon and Damietta, which is some thirty miles westwards along the coast from our working-site.

His men worked like beavers on the creation of an adequate port, and worked, what is more, in the most unpromising conditions. As soon as the timber pier had been constructed, shiploads of stone began to come in from the quarries at Mex. As soon as there was sufficient stone, it was used to replace, stage by stage, the original timber. This timber pier was transformed into a mole, or giant wharf, substantial enough to carry cranes that were capable of dealing with the largest of the blocks of hewn stone delivered to the site.

In addition, a French firm undertook to manufacture concrete blocks on the actual site, as soon as a slipway could be prepared, and to place these in position as required. Even by today's standards, they were giant blocks: on average, each contained about twelve cubic yards of concrete, and they weighed something like twenty tons apiece. They were cast in enormous moulds, allowed to set, and were then ingeniously sent sliding down specially prepared ramps to the positions designed for them below the surface. De Lesseps calculated that his engineers would require almost 30,000 of these enormous blocks to complete the preliminary work. The supplying of these concrete
blocks, made on the spot, of course accelerated operations a very great deal—to the great pleasure of de Lesseps and his loyal team.

So, Port Said sprang into being. At first it was little more than a shanty town, the main endeavour having been concentrated on the constructing of the piers and deepening of the harbour for the vessels that were to tie up against them. An early task was the building of a lighthouse for the safe guidance of the ships’ masters continually bringing in their vessels with their all-important cargoes. This was a thoroughly practical measure. The coast, though it had no rocks, reefs or cliffs, had been known to coastwise sailors for centuries as hazardous and potentially dangerous to ships and their crews alike. There was little depth of water, there were strong currents, and enormous quantities of silt were carried down the various Nile mouths, to be deposited in the open sea, where they had a treacherous habit of shifting under the influence of the currents so that unexpected shoals could build up in a matter of hours. The new lighthouse (the first of a pair) was the first true landmark in the region that any mariners had ever seen.

Week by week, month by month the new port took shape and substance. Where, in the late spring of 1859, there had been just a wasteland a few feet above sea level, between Lake Mensaleh to the west and the Pelusium mud-flats to the east, now there was already a semblance of a town. The occasional visitor who came there could hardly believe his eyes. Those who were journalists, or foreign correspondents, reported back to their newspapers on the marvels they had witnessed. One man actually travelled all the way there to see with his own eyes
whether what he had read was really true.

He had a complicated journey to face, for his pains. First by very slow train from Cairo to the junction of Tantah, almost due north of the capital; then along a spur-line to Samanoud. There he clambered on to the back of a mule, joining a mule-train as far as El Mansura. Fortunately for him, for he admits he was not accustomed to that mode of transport, this was no great distance, and was close to the Nile all the way, so that he need not fear to die of thirst in the desert, as he had been warned that he might before he started from home. At El Mansura he picked up a felucca which conveyed him to the Nile mouth at Damietta. There he boarded, with several other visitors on official or semi-official business, engineers and others, one of a small flotilla of half-decked-in craft. . . .

We were most of us seasick, [he wrote in his report]. Owing to being bitten by mosquitoes and other insects, we passed an uncomfortable night. Through field-glasses we could see the lighthouse at Port Said. Half a mile from the shore of the lagoon we had to transfer to rowing-boats, as there was not sufficient water for our craft. It was nine o'clock when we eventually did step ashore. The whole of the Port Said colony came to the water's edge to greet us.

Little more than a year ago, this place was a wasteland. Today there are fourteen houses and stores, there is a fifty-foot lighthouse whose beam can be seen at night over a distance of fifteen miles. A pier has been built more than a mile out into the Mediterranean, against which sea-going vessels discharge their cargoes at the rate of at least one every week. There are now two distillation-plants for the provision of drinking water. There is a population of 120 Europeans, and twice that number of Arabs are camped in their tents behind the houses. M. de Lesseps showed us a channel connecting the Mediterranean with Lake Mensaleh. 'It is a small ditch, only, so far,' he said
with pride in his voice; 'but what you are looking at is the beginning of the Maritime Canal'.

A population of only a few hundred. Today Port Said is a flourishing town with well over a quarter of a million inhabitants, larger by far than Suez, which was already a town when the site on which Port Said was built was no more than a swampy stretch of wasteland between a lagoon and the limitless mud-flats to the east.

The development of the town continued simultaneously with the actual cutting of the Canal. In the years that followed its inauguration on that April day, 1859, dredgers were gradually introduced, so that the seaway alongside the quays could be deepened to enable ever larger and larger vessels to tie up and discharge their cargoes. Enormous numbers of massive piles were driven into the treacherous, waterlogged soil so that workshops and warehouses and other buildings, roadways and assembly-yards and so forth could be established. 150,000 square yards of usable land was 'created' in this way—some thirty acres in all. That may not seem anything spectacular to us, today, with our giant earth-removing machinery, our draglines and bulldozers; but in de Lesseps' day there was no such equipment available; it all had to be done the hard way, by hand, without the aid of machines.

The quays, which had started as makeshift timber structures reaching out from the coastline of 'slob' over the treacherous sea bed, were continuously extended and reinforced. A thousand more feet of quays were planned and constructed; well over 500,000 cubic feet of hewn stone was transported from the Mex quarries and discharged on them, consolidating them and buttressing sand
and earth walls where there was the danger of their slipping into the water as the dredging was intensified. In addition to these thousands of tons of natural stone, from quarries that had been worked by the slaves of a succession of Pharaohs thousands of years before, the famous French contractors, MM. Dussaud Frères, installed a giant concrete-producing plant which turned out an inexhaustible supply of mammoth blocks to cater for the ever-increasing demands of de Lesseps’ construction gangs.

The actual excavating at the northern end of the canal was done in grim conditions. The ‘slob’ was everywhere: a gluey substance that was neither solid nor liquid, difficult to handle, useless as a barrier or bank or building material. De Lesseps’ engineers were at first at a loss to know how to deal with it, for they had not encountered such stuff before. In fact, the solution to their worries was found quite by chance, when they happened to notice a small group of the indigenous fisher-folk handling it.

‘Handling’ it, in fact, is exactly the right word. Their practice was to scoop up as much of it as they could in their two hands and forearms and with a rapid lift, squeeze it firmly against their chests, as though clutching a huge, filthy, mud-coloured suet pudding. Under the pressure of their forearms against their breast-bones, much of the water was squeezed out of it. Then, with a quick and practised movement, they transferred the lump to their backs, where they held it to them by crossing over their arms and clasping their elbows in each hand. It was a filthy business, of course, and the men who performed this unusual feat were slimy-grey from head to toe. But it worked. The mud balls became compacted into hard clay, which could then be utilised for building retaining-walls.
So, every single man who could be persuaded, by the promise of money, to leave his normal occupation of fishing and sign on under de Lesseps' foremen, was engaged without delay. The foremen soon complained that the men under their supervision stank to high heaven. The 'slob' in which they worked, and with which they so liberally coated themselves, emitted sulphurous smells like those of decomposing eggs, which the Europeans found almost impossible to endure. Fortunately for all concerned, the labourers were accustomed to it, having lived all their lives on the edge of Lake Mensaleh and the mud-flats of Pelusium. They hardly noticed it at all, and mocked the foremen for holding their fingers to their delicate noses and steering so carefully away from them whenever possible.

They were good workers, for all their mockery. And they were spurred on by what to them was real wealth: they were paid at the rate of eighteen pence a day, which to them was riches indeed! De Lesseps calculated that these men alone, padding about in the slimy mud and excavating literally with their hands, shifted no less than 500,000 cubic yards of 'slob'. Their great value was that they cleared sufficient of the northern end of the canal for it to be possible later to bring in small dredgers, dismantled into sections, which might be expected to speed up progress enormously.

The simple fishermen, most of whom had now abandoned their traditional occupation, naturally resented the advent of these dredgers, brought in from the harbour, when they realised what they would be used for. Three piastres a day, plus free rations of dates, onions, millet and rice, represented affluence to them; they had seized the
chance offered them with both muddy hands, and intended to hang on to it as long as they possibly could. Only the engineers and their foremen were relieved when, at long last, they drew clear of this stinking area of ante-diluvian mud, and could begin the long climb southwards up the first slopes of the El Guisr Ridge.
An Army at Work

De Lesseps' idea of cutting a preliminary channel—the one referred to by him as the *rigole de service*—through the swampland of Lake Mensaleh southwards, to serve as a line of communication for the men working on the Maritime Canal, proved to be of incalculable value. Compared with the main Canal, even before its successive stages of widening, it was a small channel indeed: no more than ten or twelve feet wide and a few feet deep. Its banks consisted largely of enormous numbers of the clay 'pudding-balls' made by the tireless fishermen-labourers, hardened by the ferocious heat of the sun.

It was the surveyors' task to mark out and gauge the levels of the banks and the channel between them. For to the south of the lagoon, and a smaller expanse of swampy water, Lake Ballah, the ground would soon begin to rise steadily as it approached the plateau of El Guisr, actually the highest piece of desert through which the Canal would have to be cut.

Carefully-planned levels were essential if the water, when it was admitted from the Mediterranean, were to run freely through the *rigole de service* and fulfil its function
of enabling vessels to bring up supplies to the working-site.

Surveyors and engineers alike encountered difficulties of many kinds even in the earliest stages, and each had to be coped with and overcome in turn. Storms blew up and enormous quantities of sand swept across from the open desert to fill in and even obliterate lengths of the newly cut 'toy' canal. Pessimists, lacking the faith and drive of de Lesseps himself, forecast inevitable disaster: the sand, they declared, would soon fill in the whole length of the canal, pouring into it faster than it could be removed. When—if ever—water was let into it, the sandy bed would be turned into silt and the level gradually rise to that of the top of the banks. De Lesseps and his engineers smiled and said little: it was not their habit to boast; and they may have been remembering the old saying that if you tempt Providence disaster will inevitably follow.

Minor disasters, of course, did befall them, in spite of their close-lipped silence. Storms swept unpredictably across this northern stretch of the Isthmus, so close to the Mediterranean—which is by no means as permanently sunlit and storm-free as some travel brochures suggest to prospective holiday-makers—and destroyed canal banks laboriously constructed of compressed and sun-baked 'slob'. But there was happily an inexhaustible supply of the wretched material, and an inexhaustible supply, too, of hardy fisherfolk-turned-brick-makers; so, breaches in the canal banks were filled almost as swiftly as they were made.

The men worked with a feverish activity comparable with that of the Dutch as recently as 1953 when they were faced with breaches in the dikes which alone prevented their beloved homeland from being invaded by the fury of the windswept North Sea. Canal banks were repaired and
brought to the stipulated height of six feet above the water that was later to be run between them. Luckily for everyone, for the most part the sun shone with tremendous power and the slob-banks were hardened by it almost to the consistency of concrete by the sheer heat applied to them each day between dawn and dusk. The banks became so solid that roadways could be laid upon them and vehicles carrying massive loads could travel along them from base to working-site.

Once they had cleared the southern tip of Lake Men-saleh, and the smaller Lake Ballah, the terrain consisted almost entirely of sand and fine gravel, with intermittent pockets of clay. Sand, as de Lesseps and his engineers well knew, has no 'body'; if you tried to build a bank with sand it would fall away through its own weight, leaving a slope known to engineers as the 'angle of rest'. This is the slope at which loose, or friable, material like sand and soil will steady and settle.

No one, however, from de Lesseps down the hierarchy of his engineers and foremen dared express unhesitating confidence as to their ability to overcome the plateau of El Guisr, which from now onwards dominated the landscape to the south and promised to interpose an insuperable barrier to the progress of the Canal southwards. They firmly believed that they could conquer it, but were not so foolish as to boast of their ability to do so. To the sceptics they turned a grim smile which said no more, and no less, than wait and see! De Lesseps reminded himself at intervals that in his own language El Guisr was *Le Seuil*; and that *seuil* meant not only sill but threshold—a threshold that would lead on to something beyond...

So, the *rigole de service* was pushed steadily, confidently,
southwards. It came to El Qantara, the point at which, from time immemorial, long camel-trains had passed east and west between Cairo and Syria. The ground rose a few feet with every furlong excavated. And because, as everyone knows, water cannot be made to 'climb' (except through a system of locks), the canal being cut had to be maintained at its correct level, only the banks on either side rising to tally with the land through which the canal was being driven.

Among themselves, de Lesseps and his engineers had speculated long and often as to what would happen as they had to cut deeper and ever deeper into the ground so as to maintain this water level when it was admitted to flow through and past this plateau. They hoped that a natural process would have been at work over the thousands, millions, of years that had passed since the sea flowed unobstructed over the Isthmus of Suez, a process that might solve their problem for them. Sand sufficiently consolidated becomes sandstone, of varying degrees of hardness according to the weight imposed upon it. Sea beds consisting of mud laid down in the form of microscopic particles come in time to be rock hard. Building-stone such as that found in the Cotswolds and elsewhere, oolitic limestone, is composed of myriads of microscopic egg-like marine creatures' shells, compacted by their own sheer weight until they are turned into stone durable enough for the building of cathedrals that have survived for centuries. Such, they thought, might be the case here, also.

And so in fact it proved to be. As they dug ever deeper into the slopes of El Guisr they found that the sand had been consolidated into something nearly as solid and resistant as true rock. Nearly, but not quite. If it had been
rock, they might have had to use explosives to shift it. This was to prove to be the case some eighty miles to the south, when they came to the formidable Chalouf Ridge, just short of the town of Suez itself. But here at El Guisr it was just consolidated sand: material hard enough to call for picks and crowbars rather than spades and shovels, but at the same time firm enough to retain its shape and contours when it had been cut away.

De Lesseps was delighted that the belief he had secretly cherished had proved to be so well founded. He caused the rigole de service to be deliberately flooded, and on the few feet of water between its compacted banks shallow-draught vessels brought up heavy excavating-gear, dismantled into sections for ease of transport and accompanied by skilled mechanics who could assemble the component parts and set the gear in operation. Along the top of the canal banks a narrow-gauge tramway was laid, and some lightweight locomotives and small wagons set to work to complement the shuttle-service in the small canal itself.

It was lucky for the engineers that these banks were more solid than those farther to the north, where the wretched ‘slob’ had been used, for they intended now for the first time to bring into action a mechanical device they had been hoping to use as soon as possible. The solid banks they now had would make this a practicable proposition; if, as they hoped, it worked well, it would speed up progress greatly.

This device consisted mainly in a heavy timber platform erected on the side of the proposed cutting. Two sets of light-weight rails were installed on this, firmly keyed down on to the timber. One set was on the upper side, the other on the under side. To run on these rails, several
hundred pairs of wheels, set on axles, had been specially designed, each axle linked to the next by two lengths of strong chain. And to each axle there had been fitted a small pouch of reinforced canvas, roughly the size and shape of a lawn-mower grass-box, capable of containing perhaps a couple of shovelfuls of soil, sand or loose rock.

The lower end of this timber platform was placed at the spot where the actual hand-digging was in operation, in the bottom of the cutting that was to pass through the plateau of El Guisr. The upper end of the platform lay against the cutting bank. The principle was quite simple; and in fact proved to be more efficient than the engineers had dared to hope it would.

A gang of labourers at the bottom end continuously filled the pouches as they emerged from the under side of the sloping platform and turned to begin its ascent, on the endless-belt principle, to the top. As each pouch in turn reached the top, it tilted over it and automatically discharged its contents on the top side of the banks before continuing down the under side of the platform to the working site at the bottom, ready to be refilled and start its upward journey all over again.

The principle, of course, is identical with that in operation on most slag tips in coal-mining country here or abroad. But whereas slag tips are built up by truckloads of rubble weighing a ton or more apiece, this device was on a Lilliputian scale, the whole endless-belt being operated by a motor developing no more than 8 h.p. ! But it worked. And once the pick-and-shovel brigade had become used to working against a motor, progress became astonishingly rapid.

The actual cutting through the El Guisr Ridge was some
seventy feet below the top of the plateau. It was not all done at once, of course, for this was a trial canal, a service canal, designed for the purpose of bringing to the main working-sites the heavy equipment that would be called into use when the bigger Maritime Canal itself was excavated. But the fact that the banks of the trial canal held firm gave all the encouragement that de Lesseps and his men needed: if a small canal, largely excavated by labourers working with picks and shovels, could be constructed, then there was no doubt whatsoever in their minds that the larger canal could be successfully driven through this ridge that had, to begin with, looked so formidable.

By 1862 it had been conquered. By 1862's end, some thirty and more miles of the Maritime Canal itself had been cut, southwards from Port Said, and to a width of fifty feet or so, and up to six feet in depth. Compared with the Suez Canal as we know it today, this, of course, was hardly more than another 'toy' canal. The Suez Canal has been widened and deepened consistently throughout the century of its existence, as vessels have become larger, their draught increased; but in de Lesseps' day a width of fifty feet was considerable—especially when it is borne in mind that so much of the excavating was done with pick and shovel, by an army of labourers amounting at times to not far short of 20,000 men. It was calculated at the time that something like 50,000,000 cubic yards of material were dug out of the desert in that relatively small length.

Once the mud-clay-ball-making stage had been completed, in the Lake Mensaleh region, the fishermen were paid off. They returned with some reluctance to their traditional occupation, for they had become accustomed
to the relatively high rate of pay they received as labourers on the canal. On the other hand, they had no desire to penetrate farther south into the true desert; they were accustomed to living and working round the shores of Lake Mensaleh, and to them the true desert was another world altogether, a frightening world because it was completely unknown to them. So, they returned to their fishing. Perhaps just a handful of them had some notion of the fundamental change that would be wrought in the desert scene by the Canal which they had helped to construct in its earliest stages.

Now de Lesseps had to see to it that he could call upon all the labour he required, and he set about the task with imagination and drive, as in everything else he undertook throughout his long life. He foresaw the problem from the start, and knew that it would become increasingly acute as they headed southwards from El Qantara. He had seen many examples of the way the Egyptians tended to recruit labour, when he was still in the Diplomatic Service, and he wanted no part of those ruthless and brutal methods. He was sufficiently enlightened to know that men would work better for him, and be more reliable, if they were happy and knew him for a good employer. He has placed on record the situation that came about as a result of his enlightened attitude towards his native labour force, a report that throws some light on his own character, too:

*I have recently completed a tour of the area, he wrote. There are now no fewer than six working-sites in operation, and machinery and equipment on them is being rapidly and efficiently installed. On each individual site there are between two hundred and three hundred native workers—not slaves but free men. At Qantara we*
have installed some six hundred Arabs, recruited from the Syrian frontier to the east. We have built a complete village for them, and to this they have brought their wives and their numerous children. About a hundred of these, from ten years or so upwards, have joined the labour force and apply themselves to their appointed tasks with the greatest enthusiasm and energy.

De Lesseps went on to say that at Port Said, too, he had established an Arab village consisting of some 600 fellaheen, or peasants, and their wives and children. He was on excellent terms with them all, and they had expressed their gratitude for the treatment they were receiving at his hands. In return, they had promised not to desert him during their important Feast of Ramadan, the ninth month of the Mohammedan year, when fasting between the hours of sunrise and sunset each day was very strictly enforced.

In all these villages and camps, he went on, may be heard the strains of Arab music, the music of their tambourines and flutes. At the working-site of La Seuil, the Arabs' El Guisr, a few miles to the north of Qantara, they have even imported a few dancing-girls! Incidentally, I feared that the unexpected death a few weeks ago of the Coptic Patriarch might result in difficulties in the recruitment of workers of that Faith; but I can overcome that. I have sent out into the scattered villages of Middle and Upper Egypt a well-known Egyptian Christian who is loyal to me and I know possesses influence with the peasants.

While some gangs were working on the rigole de service and, in due course, on the Maritime Canal alongside it, others were hard at work on the all-important Freshwater, or
Sweetwater Canal, designed to convey adequate supplies of drinking water to the whole Canal area, and also to serve for the transport of men and equipment to the middle portion of the Canal and continue alongside it southwards to Suez.

The nearest source of such water was at a point in the course of the River of Moses a few miles west of the desert town of Zagazig, which was about forty miles to the north-east of Cairo and on the Cairo–Syria caravan route. Here the river was flowing south-westwards from its origin on a hilltop not far from the western edge of Lake Men-saleh, to join the eastern branch of the Nile a few miles to the north of Cairo. De Lesseps' scheme was to cut a canal that would run across the desert, almost exactly west-east, to meet his Maritime Canal in the region of Lake Timsah, approximately half-way along the route between Port Said and Suez. Then he would turn it southwards, to accompany the main canal the whole way to Suez. It would thus supply not only the vast armies of labourers along the route but the town of Suez itself, which was still dependent on rail-borne water supplies from Cairo. He estimated that this Freshwater Canal would be some fifty miles in length.

An army of 20,000 labourers were set to work on it. Because of its importance, the need for it to be completed by the time the workers on the Maritime Canal reached that far southwards into the desert, de Lesseps for once laid down a minimum daily output per man. It was to be a cubic yard and one-quarter, or roughly a ton and a half, to be shifted in every working day. This would be nothing nowadays, with power tools and earth-shifting equipment; but those native labourers were accustomed to nothing
other than the heavy, short-handled pick and crude shovel, which involved back-breaking labour beneath a sun that produced a temperature, even in the shade of canvas awnings where these were available, often as high as 120 degrees.

In one thing de Lesseps failed with his lowest-grade workers, on whose muscle he was so dependent: he could not persuade them to make use of even so elementary a piece of equipment as the common wheelbarrow. The men would have nothing to do with such new-fangled methods! For them, pick and shovel, and a basket to be filled with loosened sand and soil and rock, and carried on the shoulder to the dumping-ground, was the way to work. This method of earth-removal had been inherited from their ancestors; what had been good enough for them for centuries would be good enough for themselves. De Lesseps shrugged his shoulders and accepted the inevitable.

Inside the first year his army of labourers excavated some twenty miles of channel to carry the fresh water from the River of Moses. It was some sixty feet wide between bank and bank, and a fathom deep. But because the sides had to have a very gradual slope, owing to the material of which they were made, the width of the actual canal bed was considerably less than half what that of the water would be at the surface. De Lesseps estimated that his workers had shifted over 50,000,000 cubic feet of sand and soil in the construction of the first half of the canal alone; by the time it had been carried right through to Lake Timsah, a distance of over fifty miles, he calculated that they had shifted a total of 118,000,000 cubic feet, a mammoth achievement for an army of pick-and-shovellers!

By the time the Freshwater Canal reached Lake Timsah
there were no fewer than 50,000 labourers at work on the Maritime Canal in the central portion. Like road builders anywhere, those engaged on the Canal were at work at various points along the line previously surveyed and staked out; points which would in due course be joined one to another. Some were still battling with the El Guisr plateau, which involved a cutting some seventy feet deep, and correspondingly wide. It was as well that the supply of drinking-water had been guaranteed, thanks to the farsighted de Lesseps, for no man can work, or even survive, in desert conditions, without it.

De Lesseps had the sluice-gates lifted at the point where his Freshwater Canal was to tap the River of Moses. He waited until the water had flowed throughout its full length to Lake Timsah, and found its level. Then he ‘inaugurated’ his canal by sailing along its fifty-mile length from the River of Moses to its terminus.

He did this in some style. First, he went aboard an Egyptian felucca at Cairo and sailed down the Nile to where its two main streams parted, one north-westwards to Rosetta, the other north-eastwards to Damietta. He took the second channel, to the point where, a few miles below Cairo, it is entered by the much smaller River of Moses. He continued along this, upstream, now, until he came to the junction with his new canal. He passed through the sluice-gates, eastwards, in the direction of Lake Timsah, still far out of sight beyond the low desert horizon.

He came to Zagazig, and caught a glimpse of the well-trodden trail that the camel-trains had beaten out across the desert for centuries past, and were doing still. After two days and two nights of sailing he came at length to the site
at Lake Timsah where a vast army of labourers were working on a new reach of his Maritime Canal, their thirst assuaged by the limitless supplies of fresh water flowing along the canal by which he had arrived from Zagazig. A month or two later, when he had taken up temporary residence on the banks of this canal, near Lake Timsah, he wrote to a friend gleefully: ‘Vessels are passing and re-passing beneath my very windows, scores of them, serving my enterprise as they are now enabled to do.’

Later, because it was found that the level of the River of Moses fluctuated with the seasons and so could not be entirely relied upon, de Lesseps had the Freshwater Canal extended westwards so that it could tap the Nile itself, a few miles beyond its junction with the River of Moses. For the time being, however, it proved adequate to the demands made on it; it was only a good deal later that the extension had to be made.

Even de Lesseps was astonished at the speed with which his Freshwater Canal transformed the face of the desert across which it ran. It very literally brought life to the land and to the scattered folk who for centuries had eked out a precarious existence there. Rumours of this reached newspapermen in their comfortable homes in France and elsewhere, and some of them went to see with their own eyes this alleged ‘flowering of the desert’. One or two of them possibly recalled that the projector of this Maritime Canal, and the complementary Freshwater Canal, had once declared his belief that ‘the desert shall become once more as fertile as it is said to have been in olden times, the climate being once more healthy and productive for the local inhabitants.’

One visitor, a man named Frederick George, wrote an
5. The Canal near El Qantara, 1869

6. Work in progress, 1869
7. Labourers removing earth
elaborate account of what he found when he arrived:

The effect of opening out this canal is already perceptible in every direction. A vast extent of land, which a few months back was a dreary wilderness, is now being brought into a high state of cultivation. Every inundation will add considerably to this already valuable territory. Small crops are being raised by the Bedouin, with whom the Suez Canal Company seems to be on excellent terms. All the labourers are well cared for and, as far as one can see, do not appear at all miserable.

Mr George was invited by the Company to make a detailed inspection. He made up a party with a few friends and left for Zagazig, as de Lesseps had done when he inaugurated the Freshwater Canal. At Zagazig there was a Company’s Agent awaiting them. He showed the small party through the crowded native bazaar, where they admired, among other sights, the mountainous bales of cotton awaiting transport either by camel or by boat to various destinations. Then the Agent took them to the wharf and showed them a boat which the Company had placed at their disposal for the fifty-mile journey to Lake Timsah. It was a sailing-boat, but a couple of dromedaries had been provided to help out in case the wind should drop or become adverse.

At two o’clock in the afternoon the mooring-lines were cast off, the Company’s Agent waved them a courteous farewell and bade them god-speed. At first the wind was fair, and they sailed leisurely eastwards, passing one small settlement after another, each no more than a cluster of hovels and tents close to the canal bank; yet, less than a year before there had been nothing here but open, arid desert.
At one such settlement, large enough to have been given a name, Abou Hamad, they found that a fine bridge had been thrown across the canal. It was designed as a drawbridge, so that though people and animals could cross at will from one side to the other, vessels also could pass along the canal when it was raised by a system of ropes and pulley-blocks. The Company, under the inspiration of de Lesseps, seemed to have thought of every possible contingency well in advance.

Now and then they came upon groups of black-clad women filling their water-jars. Near by, their menfolk were busily irrigating small new fields with water from the canal which they collected by means of the traditional Arab shaduf, the container suspended at the end of a pole lowered over a spindle and, when filled, raised by the application of a balance-weight at the other end.

They slept that first night at a Company official station on the Freshwater Canal, Tel-el-Kibeer. Next day they set off again in good time, partly sailing and partly towed by their two dromedaries. In about four hours they came to Lake Mahsahmah. This was not a true lake, but one of the many lesser land-depressions that were desert relics of a bygone age, one that had been topped-up, as it were, by the cutting of the Freshwater Canal and the flow of water that had been admitted into it. 'Here', said Mr George, 'we saw a lake not only full of fish but also the resort of numerous flocks of wildfowl and geese. Good shooting may be had. We saw a solitary heron stalking about the reeds which everywhere dot the surface of the lake. We also saw a species of flamingo.'

Later they came to another Company station, strategically placed along the length of the Freshwater Canal, just
as other and more important stations, to be known as 
gares, were later to be sited along the near-hundred miles 
of the Maritime Canal. This one had the very ancient 
Egyptian name, Rameses. The party stayed long enough to 
be taken by the Company’s resident Agent to some exca-
cavations that were being carried on close to the station. 
They had revealed a striking block of granite statuary 
representing Rameses I sitting among the gods of the 
Egyptian Faith. Mr George was delighted to learn that 
de Lesseps had given strict orders that this was to be care-
fully preserved, and restored as nearly as possible to its 
original condition.

Eventually, towards nightfall, after a journey of absorb-
ing interest and novelty, they came to Lake Timsah, and 
tied up. Everything had been foreseen for their arrival. It 
was some distance from the quayside to the township 
where they were to spend the night, but a number of 
dromedaries had been thoughtfully provided by the Com-
pany so that the party would not have to complete the 
journey on foot.

Mr George made no comment on the art of riding a 
dromedary, so perhaps he had had experience of it already. 
But he did remark on the appearance and impact of Lake 
Timsah, that half-way house between Port Said and Suez. 
‘The shores of the lake’, he reported, ‘are covered with a 
thick, woody shrub peculiar to the desert, which is useful 
as firewood.’ It may be remembered that de Lesseps’ 
men had found this during their pioneer days be-
fore Port Said was established and had made use of it 
for warming themselves at night and for cooking their 
meals.

Finally, Mr George remarked that the waters of Lake
Timsah are ‘very bitter to the taste. The lake’s name, Timsah, means “crocodile”; why, I know not. But having regard to the quality of the water in the lake, it is very evident that if any of these creatures attempted to take up their quarters there, they would inevitably be very soon *pickled!*
The Mastodons Move In

Like most professional engineers—though he was too modest a man to claim to be truly of their company—de Lesseps was interested in statistics. He was careful to see that a record was kept along the whole length of the Maritime Canal, as well as the Freshwater Canal and the rigole de service which was the forerunner of them both. The figures make impressive reading even today; especially when it is borne in mind how primitive his equipment was even when he could make use of it, and how insistent his many thousands of labourers were on using the simple tools they and their forefathers had always used: pick and shovel and shoulder-load.

In the early years, when de Lesseps’ men were tackling the first miles of the Canal southwards from Port Said, a total of some 200,000,000 cubic feet of sand and rock and soil were shifted, most of it by hand in the traditional way. All this was well to the north of Lake Timsah, which, with the township of Ismailia, marked the half-way stage along the Canal. With every mile completed, the workers came a mile nearer to the Freshwater Canal that had been constructed to bring vital supplies to the central portion and
the south: essentially, water from the River Nile.

De Lesseps had a genius for getting the best out of those who worked for him, whether they were fellow-Frenchmen, like his engineers and chief overseers, or the motley gang of unskilled labourers who had flocked to the area as the 'grape-vine', or 'bush-telegraph', brought them rumours of good money to be earned and good food guaranteed by what was now universally known as 'The Company'.

He himself worked to a clear-cut schedule of points-of-achievement. One of these was to be the date on which, for the first time, the waters of the Mediterranean were to be permitted to flow southwards into the shallow, dried-up depression which was Lake Timsah. This, he had promised himself, would not be later than the last months of 1862—three-and-a-half years since that first spadeful of soil was dug out on the site which was to know the flourishing town of Port Said.

The Maritime Canal had not, of course, been excavated yet to the full width and depth it was to have. But by the latter part of 1862 it was a true waterway, wide and deep enough for the passage of shallow-draught vessels that could carry material and equipment southwards from the new quays of Port Said to the working-sites ten, twenty, thirty, forty and more miles distant. This channel had passed through the swampy miles of Lake Mensaleh and Lake Ballah, more than twenty miles in all; through the deep cutting sliced through El Guisr, and had at long last come within sight of Lake Timsah. It was November, 1862.

On 18th November, the eve of his birthday, Lake Timsah and the Mediterranean Sea were linked. As usual, he wrote down his own account of the all-important occasion:
By God's grace and goodness, and in the name of His Highness Mohammed-Saïd, Viceroy of Egypt, and in the presence of a great multitude of people assembled there, I ordained that the waters of the Mediterranean should pass into Lake Timsah. There was a solemn moment as silence fell upon us all. The attention of every man was focused on the dam which sealed off my Canal from the bed of the lake. Suddenly, the water came surging out through the sluice that my men had cut in the barrier. With a tremendous roaring, tearing, sound, it swept the barrier aside, and flooded forward.

A burst of excitement filled the air. The heart of every man present was stirred. I saw tears of emotion stream down the sunburned cheeks of simple workmen. Everyone cheered. There were vociferous huzzahs from those who represented the various interests of several countries, even those from England (who from the start had been unsympathetic and highly critical of the project). The band played the National Anthem of Egypt, through whose soil my Canal was being cut. The Ulemahs (Mohammedan priests) invoked their God, Allah, at the top of their voices, and read out the fatwa, a religious testimony to the greatness of this achievement, which later will be repeated throughout the Mosques of Egypt. . . .

For the man whose brain-child this was, the moment must surely have been one of the most exciting, the most moving, the most memorable in his whole life up to that point; though there was a much greater and more memorable moment yet to come.

At the point at which the Mediterranean water had been allowed to flow into Lake Timsah there was already a humble township of the same name. At that time it was little more than a huddle of makeshift dwellings housing the workmen engaged on that section of the Canal and the men who had worked on the Freshwater Canal. But it was
destined to grow surprisingly. By the time the Canal was completed, seven years later, it had a population of over 6,000. It had, as a visitor was to report back, 'two hotels, four or five cafés, a theatre where vaudevilles are performed with spirit, a pretty Catholic chapel, a mosque for Arab workmen, a hospital and a telegraph-office, a long, well-built street with numerous well-stocked shops, a large square, and a public garden planned in French taste, and a fountain supplied with Nile water from fifty miles distant.'

All this, of course, was thanks to Ferdinand de Lesseps, who, as always, contrived to find time to give his personal attention to the smallest detail. The township was, a year or so later, re-named Ismailia. This was in honour of Ismail Pasha, who succeeded de Lesseps' old friend and original sponsor, Mohammed-Saïd, on his death in 1863. Today this desert town has a population of 116,000, more than half that of Suez even if less than half that of Port Said itself. It is an important base of the Suez Canal Company, conveniently placed almost exactly half way between the two ports on the Mediterranean and the Red Sea.

From Ismailia, at the northern end of Lake Timsah, the Maritime Canal was continued southwards, closer to the western side than to the other, curving slightly as though loath to come to grips with the next real obstacle, the dual ridges of Toussoum and Serapeum. These, de Lesseps knew, were likely to prove no less formidable than El Guisr had done. But his engineers had succeeded in chiselling a route through El Guisr, and what they had done once, they assured him confidently, they could do a second time, and a third time, and a fourth time, when they came to the Chalouf Ridge, shown on the atlas as El
Shallufa. And they would take in their stride the Great and Lesser Bitter Lakes that filled most of the terrain between Serapeum and Chalouf. De Lesseps' innate confidence had long been transmitted to the men who worked immediately under him.

His planning was skilled and far-seeing. Not only had he organised the construction of the all-important Fresh-water Canal at the same time as the excavating of the *rigole de service* and the Maritime Canal; he had consistently widened and deepened successive lengths of these so that bigger and more capacious vessels could make use of it, carrying heavier and bulkier machinery and equipment generally. It was a policy which, as he had believed from the start, was to pay handsome dividends.

He and his engineers devoted an immense amount of time and thought and imagination to the problems involved in piercing the Serapeum Ridge. Bore-holes were drilled into it, to ascertain the type of soil—whether loose sand, gravel, marl, true rock or gypsum—they would encounter at each successive level. On these preliminary investigations would be decided what methods must be employed to force this next cutting.

The Serapeum Ridge was exactly fifty miles from Port Said—fractionally more than half way along the route of the Canal. It separated the Bitter Lakes from Lake Timsah, as the El Guisr plateau had separated Lakes Mensaleh and Ballah from Lake Timsah. It spanned the line of the projected Canal and was between five and six miles in width. Clearly it would not be possible to excavate it by the use of pick and shovel and basket, even if he could multiply his army of hand-labourers many times over. It is probably true to say that at no point in the entire length
of the Maritime Canal was more ingenuity displayed than when the engineers approached the first slopes of the Serapeum Ridge. And once again, it was the non-professional, the amateur engineer, Ferdinand de Lesseps, who devised the means of conquering it.

The Canal had now come to within a furlong or so of the Serapeum Ridge, running along the western edge of Lake Timsah. Now that its banks had been so much widened and raised, it contained a very considerable quantity of Mediterranean water, and de Lesseps knew that water with a 'head' on it such as would be supplied by the Mediterranean could be not only a useful servant in the form of a waterway for vessels but a danger if it was not kept under control. Water, like fire, he told himself, is a good servant but a bad master.

He therefore had it sealed off at the southern end of Lake Timsah and turned his attention to the Freshwater Canal, which had been excavated not only as far as the lake, in the region of Toussoum, but also southwards, skirting the ridge in the general direction of Suez, some forty miles and more to the south-east. This fine body of water, he decided, could be put to an additional use, over and above the supplying of drinking-water: it could bring up reinforcements for his army.

He installed a system of locks, so that there was controlled access from the Maritime Canal into the Freshwater Canal. While this major task was being tackled, an army of hand-labourers began excavating pilot-channels on both the north and the south side of the ridge. Gauging his levels with extreme care, he saw to it that these channels were so disposed that, when the time came, they could be flooded with water from the Freshwater Canal. On this
water he could then float in a number of dredgers which the distinguished French engineering firm of Borel & Lavallely had been developing in readiness for the time when they could profitably be called into use.

De Lesseps’ timing was always remarkable; and never more so than on the eve of his assault on the Serapeum Ridge. Almost simultaneously, the two hand-excavated canal-beds were made ready; the big locks that were to link the Maritime and the Freshwater Canals were completed and tested for efficiency; and the battery of newly designed dredgers were towed down the Maritime Canal from the Port Said workshops where Borel & Lavallely had designed, built and assembled them.

Rumour of this new stage in an enterprise which by now had caught the attention and fired the imagination of thinking men—particularly engineers—in many countries reached an Englishman, Captain Clerk, who made it his business to go and see this development for himself, and to report back what he had seen. He was evidently most impressed by what he saw:

The dredgers were forwarded by means of the Maritime Canal from Port Said to Ismailia, [he wrote]. There they were passed through the locks into the Freshwater Canal, which raised them seventeen feet above sea level. A cross-cutting was then made from the Freshwater Canal to the line of the works on the Maritime Canal, by which these machines were floated to their respective positions at this superior elevation. They were towed into artificial lakes formed for this very purpose and containing upwards of 135,000,000 cubic feet of water, and are capable of receiving 80,000,000 cubic feet of dredged material....

It will be noted that, like most engineers, Captain Clerk was fascinated by statistics.
De Lesseps’ scheme for the reduction of the Serapeum Ridge became clear. As soon as his new dredgers had been towed into position, they would be set to work. They would deepen and widen the hand-excavated channel, operating immeasurably faster than even the most willing labour gangs could do, and steadily lowering the level of the canal bed until it corresponded with that of the existing length of the Maritime Canal nearest to it. When that objective had been achieved, the Freshwater Canal would be dammed-off from the other, and the new length would be united with the old by the removal of the intervening ground. It was a plan at once simple and effective, characteristic of a man who had natural insight into problems that could baffle the professional and expert.

Though from this point onwards the main work was to be tackled by the machines designed and built by Borel & Lavalley, there was still a considerable army of hand-labourers, mainly natives of the desert but including also tough individuals from various European countries, notably Italy and France and Belgium, and some even from England. Captain Clerk noted certain odd aspects of their mode of life which he put on record, interspersed among his detailed accounts of the dredgers and methods of dredging which he admitted were entirely new to him.

For the most part, he said, the work-gangs consisted of men all from the same country. A keen spirit of competition was generated among them. Their supervisors estimated the quantity of earth and rock to be shifted and named a price that would be paid to the gang when their allotted stint was completed. This very often led to disputes, but on the whole it worked well enough. The foremen had learned from the example of de Lesseps that
they would obtain better results from persuasion and bribe than from bullying.

Every man in every gang knew that if he worked well he would earn, in addition to his keep, the princely sum of one shilling and sixpence—wealth, in those days, for such as he. And he knew that if he and the rest of his gang really worked flat-out they could earn as much as half-a-crown per head! This seems a miserly sum to us in these days when an unskilled labourer can earn thirty and forty and more pounds in a week of no more than forty hours; but to those seekers-for-work in the arid and hitherto empty desert it was wealth undreamed of.

They worked largely on a piece-work basis, and within each gang there was rigid discipline. 'The indolence of any one member of the gang', says Captain Clerk, 'would cause confusion and delay in the regular circulation of the wagons and carts; the men therefore take good care that all the members of the gang perform their fair share of the allotted task.' He goes on to comment, with some amusement, that when the overseers tried to induce some of the native gangs to make use of wheelbarrows specially introduced for the convenience, so accustomed were they to load-carrying in the old tradition that they were occasionally seen to fill a barrow and then lift it on to their heads to carry it away!

As for their nightly accommodation, [he goes on to report], these indigènes [natives] are easily satisfied. They produce two planks, which they place on edge on the ground in the form of the letter V. Wrapped in a single blanket, they creep into this triangular space and thus make out the night entirely to their satisfaction. The French give these primitive abodes the name, Bonnets de Police—an appropriate name enough.
More interesting to Captain Clerk by far, however, than the curious habits of the natives were the monster dredging units devised by Borel & Lavalley, and they do indeed merit the term ‘monsters’. And not just monsters in the sense that an elephant is a monstrously large animal. There was something of the prehistoric monster about these extraordinary machines, designed and constructed expressly for the job. Journalists approaching the line of the Canal from the west, across the desert by camel, or, less enterprisingly, from the north along the rigole de service by boat, could be forgiven if at first sight they imagined they were ‘seeing double’, and were entering a world where the mastodon, the plesiosaurus, still reigned, though experts declared that those prehistoric creatures had been defunct for hundreds of thousands of years.

They were basically of two types, known by their French names (they were, after all, designed and built by French engineers) as Elévateurs, and Dragues à Long Couloir; they were specifically designed for working in two different sets of conditions. Both types, however, were designed to accelerate enormously the rate of progress in excavating so far carried out by the pick-and-shovel brigade. Not surprisingly, M. de Lesseps was immensely enthusiastic about these machines, built by his own countrymen to answer a challenge he had thrown at their feet. And of course he wrote about them, both in his Journal and in letters to his friends and relations. He was a man of great enthusiasms and took an almost childlike pleasure in describing his ‘toys’...

Our dredging machines, he wrote, of which the ducts are one and a half times as long as the column in the Place Vendôme, Paris,
carried off from 2,000 to 3,000 cubic metres a day. As we had sixty of these in all, working along the length of my Canal, we succeeded in extracting monthly as much as 2,750,000 cubic metres. This of course is a quantity of which no one can hope to form an exact impression. So, let us attempt to appreciate this by a process of comparison. 2,750,000 cubic metres of sand and soil would cover the whole of the huge Place de Vendôme to a depth equal to the total height of five houses placed one on top of the other!

He may have allowed his imagination to run away with him a little, in working out this parallel, and he does not say on what principle exactly he calculated the cubic yardage of material dredged from the bed of his Maritime Canal as it was progressively deepened and widened along the many miles of its growing length. But de Lesseps was not a man given to deliberate exaggeration, and we may take it that he had calculated these remarkable figures within pretty close limits. Anyway, when you are talking in millions—whether of astronomical distances or of fish in the sea or money in the world’s banks—what are a few hundred thousand, plus or minus, here or there?

Before we come to examine the two new machines designed for the Canal, a quick glance at the actual dredgers in use is necessary. They were of the endless-chain bucket type such as may be seen in harbour and river-mouth works today in every part of the world. Each consisted of a massively constructed barge-type hull with a steel superstructure capable of supporting the upper end of the endless bucket-chain which passed over a heavy roller-drum mounted at right angles to the axis of the craft. The lower end of the bucket-chain passed round a drum set below the level of the keel and was capable of being raised
or lowered in relation to the keel according the depth at which excavating was designed to take place.

The buckets attached to the chain scooped out the sand and soil beneath the dredger and carried it upwards to the other drum, over which it tipped the contents of each successive bucket. The whole was operated by an engine installed in the hull, and it is the horse-power of these engines that points the main difference between those of a century ago and those in use today. Dredgers today have engines running into many hundreds of horse-power, some of them—in use by the Dutch, for example—into thousands. De Lesseps’ dredger engines ranged between a mere 15 h.p. and—the giants, by his standards—75 h.p.

They must have been very low-geared, for a mechanically-minded reporter noted that they were capable of raising the bucket-chain to a height of forty-eight feet above the water-line (and therefore very much further above the actual level of dredging on the canal bed). He was impressed by the sheer bulk of these dredgers: over a hundred feet in length, of 27-foot beam, and costing no less than £20,000 apiece.

Attendant upon each dredger was a barge especially designed for its all-important duties, which were to receive the material discharged from the endless-chain buckets. Each barge contained seven large iron boxes, known as caissons. These were massively constructed, held four cubic yards, or approximately four tons, each, and had one side hinged and fitted with an escapement-bolt. One after another they were filled to capacity from the dredger’s buckets until the barge-load of seven full caissons was complete. It was then towed away from the dredger, its place being immediately taken by an empty barge so that
not a moment need be lost in the continuous process of dredging, and tied up alongside the *Elévateur*, which at last came into its own.

Let us take a closer look at these monstrous machines whose capacity for work so astonished not only the humble workers with pick and shovel and basket but the visitors who gravitated towards the Isthmus of Suez from many countries simply to see for themselves the progress that was exciting engineers and others all over Europe. Nothing, it must be remembered, had ever before been attempted along these lines and on so vast a scale, even by the Romans in their heyday.

First, the *Elévateur*. This consisted primarily of a huge raft, or float, on which was mounted a strong crane, or hoist, capable of lifting out of the barge the seven caissons, one at a time. The crane hook was lowered to make contact with a chain lying loose across the caisson, engaged it and then lifted the caisson from the barge. It then swung round through 180 degrees and lowered the four-ton caisson on to the lower end of a ramp fixed to the deck of the raft. It was this that gave the machine its name, *Elévateur*.

The ramp was firmly anchored to the deck and pointed upwards at an angle of about 25 degrees, or one-in-four; and outwards from the centre of the Canal towards one bank or the other. Along the bank a set of rails had been laid, running parallel with the Canal. On this, a trolley supported the ramp some distance short of its upper end, which projected outwards well beyond the set of rails. The ramp itself was fitted with a set of tracks. Up these each successive caisson was conveyed until it came to the top of the ramp. Then, the hinged door was released by the
escapement-bolt and the contents were spilled outwards and downwards.

Because the ramp projected so far beyond the actual canal bank, with the set of rails on it, the contents of the caissons, four tons each at a time, could be projected wherever they were needed. The ramps on the bigger machines were constructed on so huge a scale that the contents of the caissons could be discharged as much as sixty feet beyond the actual bank. An elaborate system of cantilever supports and tension-cables was employed to ensure that the ramp would carry the heavy caissons to the very limit of its capacity.

Not all the material dredged from the canal bed was required to reinforce the banks; vast quantities were taken away entirely. For this purpose immense barges were designed and equipped with their own motive power, so that it would not be necessary to employ tugs. They were some 140 feet in length and 23 feet in beam, and fitted with twin screws and engines powerful enough to take them back not merely along the length of the Canal but several miles out to sea beyond the growing town of Port Said and its harbour.

The material could not be dropped close inshore because the water anyway was so shallow that continuous dredging was necessary to maintain sufficient depth for vessels seeking entry to the quays. There was always silt coming from the mouths of the Nile and drifting in the coastwise currents eastwards from Damietta. So, these great barges, fitted with massive trapdoors in their bottoms, twelve of them spaced out along their length, conveyed millions of tons of unwanted sand and soil from the working-sites, to dump their cargoes well out into the Mediter-
ranean, where they would not interfere with shipping.

The *Drague à Long Couloir* was a more complicated piece of machinery than the *Elévateur*. It too was used in conjunction with dredger and attendant barge; but it was called into operation in conditions somewhat different from those with which the other machine could cope. The *Elévateur’s* ramp tilted upwards, so that the excavated material could be elevated and discharged well beyond the bank itself. It was used when the dredger was working at a low level, in shallow water, deepening a stretch of the canal bed into which water had already been permitted to flow. The other type of machine, the ‘long duct’—which is as near as it can be translated—was called into operation when there was already a good level of water in the canal and it could take over, as it were, from its opposite number.

Again, it consisted of a substantially-built float, or raft, and again with a sturdily-constructed steel superstructure. But the method of handling the material brought to its side by the busy dredger barges was quite different.

Its superstructure supported, not an upward-sloping ramp with a set of tramlines on it, but a curiously shaped duct, or channel, tilted from a high level above the deck outwards and downwards. This was the actual *couloir*, or duct. It was a sort of gutter, or spout, or trough, semi-elliptical in section and, in the case of the largest models, anything up to seventy-five or a hundred feet in length. Its upper end was supported by an immensely strong steel framework built in the centre of the raft, which itself was a hundred feet in length and nearly thirty feet in beam, to give it the necessary stability. It drew no more than a bare fathom of water, even when fully loaded and in operation handling the four-ton caissons one after another.
The upper end of the duct was sufficiently high above deck level for there to be a ‘fall’ of some feet between it and the far end, which might be anything up to a hundred feet distant on the far side of the canal bank. The reason for this ‘fall’ becomes apparent as soon as the mode of operation is seen. Like so many successful designs, this long couloir type of machine was at once simple and highly efficient.

From the barges, the caissons loaded with dredged material were hoisted by the crane, considerably higher, of course, than on the Elévateurs, to the upper end of the duct, the inboard end. There the hinged door was released by the escapement-bolt and the contents discharged into the duct. Along the duct there ran a steady stream of water, pumped into it from the Canal by the machine’s own engines. Because the duct tipped downwards to its farther end, beyond the canal bank, the flow of water assisted the material to travel the length of the duct to its output end on or beyond the bank, as required. In this it resembled the conveyor-belts used today in modernised coal-mines to carry the hewn coal from the coal-face to the foot of the lift that carries it to the top of the mine shaft. But the ‘motive power’, here, was simply—the force of gravity and the need of water to find its own level.

MM. Borel and Lavalley had, however, thought of every possible contingency. They realised that there might well be stretches of the Canal where something more solid than soil and sand would be encountered; where small pieces of rock, for instance, or a form of material solidified by contact with water, might tend to block the free passage along the duct between its upper, inboard end and the end where it had to be discharged. So, they devised and installed their balayeur.
This was a most ingenious device. It consisted of an endless chain that ran the full length of the duct, passing outwards along its centre and returning underneath. Spaced along it were a number of scrapers, rather like small versions of the paddles on a mill-wheel or paddle-steamer. When it became necessary, this endless chain was set in motion through gearing operated by an auxiliary engine on board the raft, and very soon the long duct would be cleared of any obstruction.

This installation was especially useful when, owing to the fact that the level of the water was not great enough, or the outlying bank was unusually high, it was difficult to obtain sufficient 'fall' on the duct between its upper and lower end. If the material was not too heavy or bulky it was found that it could be successfully shifted from the raft to the point of discharge on or beyond the bank even when the duct itself was almost horizontal, thanks to the water pressure on it. So, between them, this battery of 'mastodons' worked wonders for de Lesseps.
Facts and Figures

With these giant machines at work, construction of the Maritime Canal and the complementary Freshwater, or Sweetwater, Canal went on at an ever-increasing pace. De Lesseps and his engineers and their vast labour force had now certainly got the bit between their teeth. They embarked on various ancillary works, designed to speed up operations on the main task, and also to be called into service later for other purposes.

On one of these tasks, twenty-one dredgers, assisted by an enormous force of labourers when they were temporarily held up, shifted no less than 21,000,000 cubic feet of soil and sand. A 3,000-foot length of auxiliary canal was excavated, to link part of Lake Mensaleh with the port of Damietta, to ensure an additional channel for the delivery of supplies to the working-sites. Another length of canal was cut in the Serapeum region, involving the excavation of nearly 8,000,000 cubic feet of material. An ancient canal, and an ancient stone quarry were also linked up with the main working site. South of Lake Timsah, two transverse auxiliary canals, totalling almost 4,000,000 cubic feet of earth and sand, were excavated. Two reser-
voirs were constructed, to hold no less than a quarter of a million gallons of fresh water. And at the southern end of the Canal, between the port of Suez and the Chalouf Ridge, an army of native labourers excavated some 48,000,000 cubic feet of sand and soil.

More and more railway-track was laid along the canal banks, both where it had already been excavated and along the projected route southwards. More and more equipment was introduced, adapted to the conditions varying with the sites, and proved effective in operation. Where water had not yet been permitted to enter the new lengths of cutting, for one reason or another, so that the dredgers and their accompanying Élévéateurs and Dragues à Long Couloir could not be utilised, the battalions of pick- and-shovel men were increased to the size of an army and slowly, painstakingly trained to work with simple machinery.

At the bottom of deep cuttings, these men loaded what they had dug into baskets and other containers, loaded these into wagons drawn by mules along tramways or, where this was not practicable, into panniers carried by dromedaries, and eventually unloaded at the foot of endless-belt installations which carried the excavated material up steep banks to be discharged where required. Often it had to be well away from the working-site, for in cuttings such as these there was the permanent risk that banks might collapse under their own weight before the material of which they were formed should have sufficiently compacted. It was a permanent headache for the engineer-in-charge. In one stretch of the Canal alone, no less than 10,000,000 cubic feet of earth and sand was excavated in this fashion and carried away by a small fleet of tip-trucks
and diminutive locomotives over a rail network of some four miles in all.

Six years after the first spadeful of soil had been dug out by de Lesseps on the site which was to witness the birth and growth of the town of Port Said, the harbour itself had been extended to a capacity of 100,000 tons of shipping. Two mile-long moles, or harbour walls, had been thrown out from the shore, wide apart at the shore end, closing in towards their extremities, with a lighthouse at the tip of each to ensure the safety of incoming and outgoing vessels.

Forty miles of the northern end of the Canal, from Port Said to Lake Timsah, had been drastically widened from its first experimental width to no less than 325 feet at surface level, and deepened to 26 feet over a width on the canal bed of 72 feet. The difference between the width of the Canal at the surface and on its bed is due, of course, to the necessity for having a very gradual slope to each bank. Part-way down each bank there was a 60-foot-wide terrace, or 'bench', as an additional guarantee against collapse.

By now the Canal had become something more than a mere waterway a hundred or so yards wide and more than four fathoms deep for most of its completed length. Because it was intended for the safe passage of vessels between sea and sea it was essential that there should be convenient and adequate stopping-places at intervals along the whole route. De Lesseps had borne this in mind from the beginning, and as his Canal progressed there were units of men engaged on establishing these stopping-places, at intervals of approximately every four or five miles. He called them gares—stations. They were in fact sort of sidings, substantially constructed wharves at which vessels could tie up
for the night, or longer or shorter periods according to circumstances. Some of them were marked by small lighthouses; in any case there would be unmistakable beacons.

Where the Canal ran into wide waters—as in Lake Timsah and in the Great and Lesser Bitter Lakes—there were massive iron beacons installed at regular intervals of 250 yards, indicating clearly the actual channel a vessel should adhere to from its entry into the lake to the point at which, northwards or southwards, it left its waters. Additionally, there was a lighthouse at each end of each of the lakes. One of the first tasks de Lesseps saw to was the installation of a telegraph-system the full length of the route of his projected Maritime Canal. To this, every one of the gares was linked, so that at every point along the Canal men and ships could be in immediate communication with one another and with the Canal Company’s agents.

A group of inspectors was despatched in the latter stages of the construction of the Canal—oddly enough by the British Government—‘to inquire to what extent the Canal may be expected to be available for the purpose of Her Majesty’s Naval Service’. Among the many points raised in their report when they returned to England, after an exhaustive inspection of the Canal as far as it was completed at the time (it was nearly a year before the actual opening ceremony), they said:

The best stopping-place for ships after nightfall and during sand drifts or high winds, when the passage of the Canal would be attended with risk of grounding, are the Qantara gare, Lake Timsah, and the Great Bitter Lake, which are respectively 24 miles, 42 miles and 56 miles from Port Said. Lake Timsah at present has not more than 22 feet of water; with a long vessel,
some difficulty may be experienced in entering the actual channel of the Canal on emerging from these lakes; but this is to be improved. . . .

The report also makes mention of the pilots who, even in those earliest years, were being trained to navigate in the Canal though it was not yet completed. 'They are', the report went on, 'well acquainted with the position of the gares, and there is, or is to be, a telegraph-station established at each of them, with a competent nautical official who is to regulate the movements of passing vessels according to directions which will be communicated from Port Said or Suez.'

De Lesseps, as we have seen, had a genius for attending to detail; no detail, however small, was too insignificant to escape his attention. In addition to the lighthouses scattered along the length of his Canal, and the marker-beacons indicating the true channel where the waters between the banks were wider than usual, he planned to install bollards at intervals of every tenth of a mile capable of holding the mooring-ropes of a vessel if she should get into difficulties from, perhaps, the sudden rising of a strong desert cross-wind. As well as these, for the benefit of ships' masters he proposed to establish a line of buoys at intervals of every 400 yards. Each buoy would have a chain and anchor, so that it would remain in position as a guide to shipping.

To make doubly sure, the buoys would also be linked by chains at the bottom of the Canal to bollards driven into the nearer bank. These buoys were intended primarily as guides to the steersmen of the larger vessels passing up and down the Canal, those which had deep draughts and had
therefore to keep as near as possible to the middle line of the Canal, where the water attained its maximum depth. The vessels of lighter draught could take a course nearer to the bank, where the water above the 'bench' was shallower but still sufficient.

The safe width on the narrower portions of the Canal obviously varied a good deal, and it was recognised from quite early on that precautions would have to be taken, when shipping became busy, to ensure against collisions. If two ships were unfortunate enough to fall foul of one another the results would be much more widespread than mere damage to one or other or both; the Canal itself might be blocked, so that the passage of other vessels became impossible, or at the least dangerous, until the obstacle could be removed. It was in this connection that the Canal Telegraph System assumed a major importance.

It was used, much as it is on many railways today, to produce what is technically known as the 'block system'. This is a system that, so long as it is operating perfectly, makes it impossible for two trains to enter the same section of line. Similarly, it was intended to keep two vessels from meeting in restricted lengths of the Canal. The offices of the Transit Superintendents at Port Said and Suez, and also at the midway township of Ismailia, were each equipped with a scale model of the Canal over its full length between sea and sea. Included with the scale-model were a number of miniature vessels somewhat resembling the 'matchbox' models of today. With these, the officials could exactly parallel the movements of the shipping throughout the entire length of the Canal.

A vessel would enter the Canal at Port Said, or at Suez
(or simultaneously, it might be at each of the two ports). As soon as a vessel entered the Canal, its counterpart, appropriately labelled, would be placed by the Transit Superintendent at each of the three offices. From that point onwards each vessel’s progress could be ‘watched’ by means of the telegraph-system, along which messages would be sent to all the officials as each vessel approached each successive *gare*.

For much of the duration of the vessel’s passage along the Canal, and in the early days even for the whole of the transit, no problem would arise, simply because there was no other vessel making the passage. But as the weight and frequency of traffic built up, the movement of the miniature vessels on the scale model became more complex. The Superintendents knew, of course, where the potential danger-spots were, and kept a wary eye on the movement of the miniature vessels that represented the movement of the actual vessels between *gare* and *gare*.

The general rule laid down that no vessel was to attempt to pass another except when it was stationary, moored temporarily to a bollard provided for the purpose. It was the duty of the Superintendent to decide which of the two vessels should be permitted to continue on her way and which must remain stationary. The decision might be based on the distance at which each of two moving vessels found herself from the nearest *gare*; or it might depend on the nationality of the vessels in question; or again on the relative importance of the freight each was carrying. All these details, of course, would already be known to the officials concerned, communicated to them by the ships’ masters on entry into the Canal at either end. The system was to work well, though there had to be alterations over
the years as traffic became heavier and other factors had to be taken into consideration.

Records were scrupulously kept to ensure that everything possible was done to guarantee the safety of every ship passing through the Canal. Among these records is a remarkable one, of which the authorities had every reason to be proud. A number of British troop-ships, vessels of 4,400 tons, 400 feet in length and 52 feet beam, and drawing only 4 feet less than the maximum depth of the Canal, passed over its whole length in an average over-all time of less than forty hours, including the time compulsorily spent during the hours of darkness tied up at one or other of the sidings. The only shipping that was permitted to travel during the night was the mail vessels, which rightly had priority over all other vessels using the Canal, even including troop-ships of no matter what nationality.

But this is to look somewhat ahead of the point already reached in the construction of the Suez Canal. Work, as we have seen, had been carried out not only southward from Port Said by way of Lake Mensaleh, Lake Ballah, the El Guisr Ridge, Lake Timsah, the Serapeum Ridge and the Great and Lesser Bitter Lakes; it had been going on northwards from Suez itself. There remained one major obstacle: the third and last great ridge, that of Chalouf, some ten or twelve miles north of Suez. It offered the last great challenge to de Lesseps' drive and pertinacity.

This elevated sill consisted not so much of friable soil and sand as of rock, often hard and intractable rock inter-mixed with tough, resistant clay. It was about four miles across. And it is one of the features of this desert which convince geologists that the whole region was originally a sea bed, for in the clay they have found fossil remains of
both animals and fish. The level at which these fossils were
dug up was well below that of either the Mediterranean or
the Red Sea today.

The rock of which the Chalouf Ridge consists is mainly
what is known as conglomerate: not solid rock such as
granite, or the carboniferous limestone and grit-stone of
our own Pennines, but a rock that gives the impression
that it has been crudely mixed by giant hands. It was
found by de Lesseps that it broke down fairly easily, and
into relatively small lumps; but it was sufficiently hard
and resistant to make it necessary for the pick-and-shovel
men to move in. Until they had dug down deep enough for
water to be introduced into it, it would not be possible for
the Élévateurs and Dragues à Long Couloir to operate.

The engineers, like de Lesseps, chafed at the inevitable
slow rate of progress. It was one thing to see a barge
rapidly loaded with seven caissons, each containing four
tons of soil to be carried away and discharged in the desert;
it was a very different thing to watch an army of individual
labourers pecking away with their small picks, a handful
of earth and rock at a time, no more. True, mechanical
means could be utilised to convey the debris from the
working-faces; but it had all to be loosened and loaded
first.

The army of labourers at Chalouf swelled into many
thousands, and they were by no means all native fellaheen,
though there were thousands of these, attracted by the
promise of good money, food and regular work. But there
were also Negroes from Nubia, peasants from Dalmatia,
and Croatia, Greeks, Turks and Italians. It was the
Italians—1,500 men, chiefly from Piedmont—who were
given the task of shifting the hardest rock, for they had had
experience of this specialised work at home, and won something of a reputation for their skill and strength. De Lesseps estimated that they alone, or with the assistance of the more practised fellaheen, shifted no less than 1,000,000 cubic feet of stone. Others working alongside them, interlocked with them as the various strata of clay and soil were laid bare by the removal of the rock, shifted well over 3,000,000 cubic feet of the more friable material. In this fashion an over-all length of more than 1,000 feet of trial canal was excavated.

Though for the time being the dredgers could not be brought into use, there was plenty of mechanical equipment available, for de Lesseps' men had recognised for a long time past what a difference a railway-track and horse- or mule- or steam-hauled wagons made to the distribution of excavated material. In addition to the tramway laid out along the banks of the Canal, whose level was now being lowered almost visibly by the army of labourers on the site, there were any number of makeshift devices for expediting progress. Winches were installed at intervals along the tops of the banks on either side of the cutting. Steel cables ran over pulley-wheels, carrying hooks attached to small wagons on rollers, or wheels where the bank was hard enough, so that these could be filled at the working-face and then hauled up to be discharged into larger wagons and hauled away for disposal where needed. Ramps were built, with rails spiked on to them, like those of the Élévateurs, and gangs of men organised so that not a moment was wasted, not a bucketful of earth or rock left lying about for want of someone to deal with it.

The gangs here were employed on a piecework basis, for this had proved to be the best method of obtaining
efficient service from them on certain other stretches of the Canal. They were quoted a price for so many cubic yards of rock and soil excavated, and promised a bonus for every cubic yard shifted over and above the basic figure. There was keen rivalry among these gangs, and much jostling for position so as to be nearest to the road-haulage points, the ramps and hoists and other equipment that might enable them to achieve the much-desired bonus.

Waste material was scientifically used. Illustrations published at the time in various European newspapers show on what a scale de Lesseps' men organised their work. At one point, where it had been clear from the start that there would be immense quantities of raw material to remove, a spur cutting was made, on a rising slope, and a stationary-engine and engine-house installed at the end of the run. Sets of rails led up the slope between working-face and the summit. Wagons were loaded either at the working-face or from smaller wagons filled there and transferred to the lower end of the rail-tracks. Cables were attached to the larger wagons, and the stationary-engine set in motion.

A huge drum, like that of the winding-gear at a pit-head, revolved and, as the steel cable was wound round it, the wagons were drawn up to the summit. Thence they were hauled away over the level, either by camels or mules or by light engines, so that their contents could be discharged where they could be used. Such haulage, of course, was impossible between working-site and the top of the cutting as an engine's wheels would not obtain sufficient adhesion on such a gradient. In their haste to shift these wagons, very often a gang of men would put their shoulders to them and man-handle them out of the
way so that they could get on with their main task without hindrance. The spirit of competitiveness, often amounting to bitter rivalry, pervaded the whole of the working sites; it was as though something of de Lesseps' own fanaticism had brushed off on the common labourers.

He had set his sights on completing his Canal within ten years. Now he was within a year or so of his target. He gave no hint of anxiety as to whether he was going to succeed in his task by the self-appointed date, but something of his inner urgency communicated itself to all those in his employ. In the last year or two of the construction period there seems to have been a general stepping-up of endeavour.

There were some 80,000 labourers at work on the Freshwater Canal section south of Serapeum to its terminus at Suez. Between them, those men excavated an estimated total of 240,000,000 cubic feet of material, taking the Canal down to a depth which guaranteed that fresh water would flow continuously from the Nile, fifty miles to the west, eastwards and southwards to the thirsty growing town, but supplying the vast army of labourers on the way.

At the northern end, at Port Said, the two giant moles were further extended out to sea, the western one to a length of 2,350 yards—a mile-and-a-third in all, or roughly the length of Southend pier. The eastern mole was extended to 1,830 yards—well over a mile. The firm of Dussaud Frères had been busy, and estimated that they had by now manufactured and placed in position several hundred thousand of their giant concrete blocks, calculated to check the sideways drift of the currents and maintain the two moles and the other harbour works in position against all pressure. More than 123,000,000 cubic
feet of earth had been dredged from the ship basins and approaches.

There were now forty dredger units of one type or the other at work on the northern end of the Canal, deepening and widening the channel to the prescribed dimensions, and de Lesseps' men estimated that they had dredged out a further total of more than 300,000,000 cubic feet. South of Lake Timsah, a dredger-force of less than a dozen units had, with the help of a gigantic hand-labour force, shifted a total of 160,000,000 cubic feet. And in the harbour of Suez itself, now preparing for a huge increase in shipping between Orient and Occident, in addition to necessary dredging and the establishment of canal banks and moles reaching out into open water, no less than 2,000,000 cubic feet of concrete blocks had been manufactured and set in position, as at Port Said, to reinforce the natural soil and rock.

De Lesseps now reckoned that, with all his men and machines in full blast in the final year or so, the average excavation-figure came to over 70,000,000 cubic feet. Such gigantic figures, of course, mean little to the layman, unused to astronomical statistics; but they made sweet music in the ears of that dynamo of a man, Ferdinand de Lesseps: music that also told a story he was more than glad to hear. With every month that passed, he came that much nearer to the great moment when the waters of the Mediterranean would pass along the hundred-mile length of his beloved Canal, and spill out into the Red Sea.
A Dam is Breached

The year 1869—exactly a century ago—was to be Ferdinand de Lesseps’ *Annus Mirabilis*, his Wonderful Year.

Just thirty-seven years before, when he was a young, newly-appointed Vice-Consul in Alexandria, likely at any moment to be struck down by the dreaded cholera, he had conceived the idea of constructing a canal that would link the Red Sea with the Mediterranean. He had kept this dream of his a jealously guarded secret for many years, but had never allowed it to fade out of his consciousness. The opportunity had come to resign from the Diplomatic Service. Then, and only then, could he devote his unbounded energies to the fulfilment of his cherished dream.

For many long, tedious and frustrating years he had worked on it, behind the scenes, as it were, seeking financial and other support for the ambitious project, persuading the half-hearted, converting or placating the sceptics, gathering about himself a band of loyal and energetic associates in many capacities, men who could be relied upon, under his glowing inspiration, to see the project through. For ten years, now, they had been at
work, in the open desert, in the salt-swamps, on the stony plateaux of El Guisr and the others, on the arid stretches of wind-blown sand that had had to be tamed to de Lesseps' inflexible will.

In the spring of 1869 he was to enjoy the first of a succession of Great Occasions. The British Government intimated to him that his Royal Highness the Prince of Wales—who in due course was to become Edward VII of England—and Her Royal Highness the Princess of Wales had expressed a desire to see for themselves the work in progress in the Isthmus of Suez. They would of course be accompanied by a considerable retinue: not only the Prince's Aides and the Princess's Ladies-in-Waiting and other Palace staff, but a number of distinguished gentlemen of the Prince's choice.

De Lesseps was quick to make use of the unexpected but very welcome opportunity this request from the British Government offered him. He would invite His Royal Highness to perform the ceremony of admitting the waters of the Mediterranean, so far penned up in the northern half of his Canal, into the Bitter Lakes between the Serapeum Ridge and the Chalouf Ridge. They could not flow farther south, for at that date Chalouf had not been completely penetrated; it would have to be a later Great Occasion when the waters finally flowed through the whole hundred miles from sea to sea.

The Prince and Princess of Wales went first to Cairo, where they paid a formal visit to the Viceroy of Egypt and spent a few days at his Court. Then they left for the Canal. But not, as might have been expected, to its northern end, at Port Said; instead, by way of the Cairo–Suez railway-line to the port of Suez, at its southern end. The journey of
some ninety miles took over five hours, and they arrived at the station promptly at six-thirty on the evening of 24th March.

They were received by the British Consul, by the Commanding Officer of a battalion of British troops who happened to have arrived earlier in Suez, in transit between East and West, and who were hastily formed into a monumental guard of honour, and by as many other dignitaries of one capacity or another as could be assembled there for the purpose. Every vessel in Suez Harbour was dressed overall, and such men-of-war as happened to be there fired salutes in honour of the Royal Couple. The English National Anthem was played continuously as the party made their way from the station to the hotel which had been specially re-decorated for them (at de Lesseps’ bidding and expense) and where he himself and his two chief engineering contractors, MM. Borel and Lavalley, were waiting to receive their distinguished guests.

It was a brilliant evening. When dinner was served, the Princess of Wales particularly asked that M. de Lesseps should sit at table on her left hand. The sumptuous banquet, prepared by French chefs specially imported for the occasion, lasted the whole of the evening. Through the spacious windows the party could watch the vivid display of fireworks laid on by the Company for their delectation. It was very late when they retired for the night, at the end of a day which had begun with the ceremonial farewells at the Viceroy’s Palace in Cairo, had continued with a trans-desert railway journey, and ended with this splendid banquet and illuminations over the harbour. And all this was merely the preliminary to what would be a momentous day to follow.
Next morning the party was shown round the new docks, designed and constructed by the Suez Canal Company's architects and contractors. It was a larger party than ever, swollen now by Egyptian naval and military officers as well as the Europeans. But it was aboard an English naval vessel, H.M.S. *Prompt*, that the party was taken to inspect at close quarters the new and all-important feature of the harbour works at Suez: the point at which the southern end of the Canal Maritime ran out into the roadstead. De Lesseps may possibly have been annoyed at this, feeling, with some reason, that it should have been a French vessel, manned by French naval officers, who took charge of the guests at this point. But if he did feel this, he gave no sign of it; with a Frenchman's logic he may well have realised that British Royalty should be looked after by officers of their own nationality.

They inspected first the great dam across the lower end of the Canal, which would be removed when the Chalouf Ridge was finally pierced to the required depth so that water could flow unimpeded from one end of the Canal to the other. They were shown the newly installed pumping machinery and the dredgers at work in sections of the basin just inland from the port of Suez. This was something of an occasion, for the little naval vessel, H.M.S. *Prompt*, of only 120 tons burden, made history that March morning by being the first vessel to steam into the southern end of the Canal, even if only for a very short distance indeed, from the open water of the Red Sea, the Gulf of Suez.

All this took place in the early hours of 25th March. The whole party then returned to the hotel for breakfast at ten-thirty. Royalty must have been tough in those days: it
is not easy to imagine our own Royals starting proceedings at so early an hour, especially after so late a night before! But there was a good reason for this early start: a heavy programme had been arranged for the day. The party was to travel inland as far as Ismailia, at the northern end of Lake Timsah, half way along the length of the Canal, stopping en route many times to see for themselves work in progress at various points.

They left Suez amid a barrage of salutes from the vessels in the harbour and the vigorous music from the military bands and the cheers of the Suez population in its entirety ringing out behind them as their small train set off northwards to their first halt, at Chalouf. M. de Lesseps and his chief engineers accompanied them, of course. They had been seen off by the British Consul, representatives of the Peninsular and Oriental Company (which we know today as the P. & O. Line), and by the Governor of Suez himself, wearing his full regalia for the occasion.

At Chalouf the party had to alight from the train and mount a number of saddle-horses provided by The Company. Her Royal Highness, however, was not required to mount. M. de Lesseps had thoughtfully provided a small carriage-and-pair for her, and into this she and her Lady-in-Waiting stepped, to be driven decorously from point to point, surrounded by the rest of the party on horseback. The Prince of Wales rode a magnificent Arab steed such as de Lesseps himself had always loved to ride in the desert.

At the Chalouf Ridge the men of the party at least were keenly interested in the work going on. The cutting was already nearly 100 feet deep and there were various
elaborate devices installed for the conveying of excavated material from the bottom of the cutting to the bank tops for distribution. Stationary steam-engines puffed away, their drums winding steel cables to which small wagons were attached; busy little locomotives trundled larger wagons in all directions from the working sites, to discharge them where required.

Then the horses were abandoned and the party boarded a small train provided for their convenience on the track that ran alongside this length of the Canal. So, they covered the next stage rather more briskly, and in greater comfort, to reach the next designated halting-place, thirty miles or so north of Chalouf, where they arrived at half-past two. And here, after a look round, they went aboard a small vessel on which they travelled a few miles along the Freshwater Canal, as far as Serapeum, between the Bitter Lakes and Lake Timsah.

What had once been no more than a challenging ridge-plateau between two dried-up lake beds was now, thanks to the Maritime Canal and, still more, to the Freshwater Canal, a flourishing little township. A newspaperman who accompanied the party on this memorable excursion described it as 'a small town of wooden houses, neatly built and painted, with gardens full of fruit trees, and flowers here and there, and with restaurants, cafés, a hotel, stores and shops'. What a contrast to the bleak and arid plateau which had lain astride the route of the Canal when de Lesseps and his surveyors first came to it, ten years and more before that date!

The whole of the township was in a high state of excitement that day. Not merely on account of the advent of the Royal Visitors, but because this was the day when the
waters of the Mediterranean, hitherto banked up behind a
dam, or barrage, were to be ceremoniously released into
the near-empty dried-up bed of the Bitter Lakes. The
population turned out in force. Shops were closed for the
day. Cafés and restaurants remained open, but though
customers dodged in from time to time for a quick snack
or a drink, for the most part they remained empty, since
everyone was out in the streets determined not to miss a
single minute of the day’s exciting programme.

There had been something of an invasion, too, from
Ismailia, the growing town at the northern end of Lake
Timsah. Everyone who was anyone had made a point of
travelling south to Serapeum to be present at the cere-
monial releasing of the waters. On arrival at the little
station, the Royal Party was received by a distinguished
gathering of notabilities, among whom was every senior
official of The Company who could be spared from his
post. As may be imagined, there were very few that day
who did not feel able to delegate their work to some
underling so as to be able to say that they had been
present on this all-important occasion.

Three weeks earlier the dam at Toussoum, a few miles
to the north of Serapeum, had been opened to allow the
Mediterranean waters to flow a little farther to the south.
It was just as well that this minor operation had been
carried out, for from it the engineers had learned some
important lessons. It was the first time they had had to
manipulate such a vast quantity of water, water with a
‘head’ on it. Their inexperience had led to the unexpected;
there had nearly been a disaster; what was worse: it had
taken place in the presence of the Viceroy of Egypt him-
self, who had been there to officiate at the ceremony.
Banked up behind the Toussoum dam there had been the full weight of water contained in some fifty miles of the Canal. On 1st March—just over three weeks before the visit of the Prince and Princess of Wales—the Toussoum dam was breached. The Freshwater Canal had been temporarily sealed off. It was estimated that in the first twelve hours after the breaching of the dam no less than 4,500,000 cubic yards of water had flowed through it. It had flowed so tempestuously in the early stages that it swept bodily away much of the heavy machinery, including the dredgers, which somersaulted down the Canal and were badly damaged under the sheer weight of water hurling them against the banks.

There were a number of casualties by drowning, too, which cast a cloud of gloom over the whole place, and the memory of which doubtless caused apprehension in the minds of many who were now gathering for this more important occasion. A minor aspect of the disaster was that vast numbers of freshwater fish died as a result of the influx of salt water overflowing into the Freshwater Canal. But in the near ten years during which the Canal had been under construction this was the only real disaster the engineers had experienced; they were resolved that there should not be a repetition, especially in the presence of their distinguished guests.

So they had taken the most elaborate precautions in advance of the ceremonial breaching of this second dam, the one at Serapeum. It spanned the Canal close to the northern end of the Bitter Lakes. There, a reservoir, or artificial lake, had been prepared to cope with the influx of water if it should give signs of getting out of control. In this Serapeum dam a considerable number of small sluice-
gates had been set, instead of using just one or two large ones. By this means it would, they believed, prove easier to control the flow of water, for it would be spread over a wider area and admitted in smaller quantities.

From the bottom of the dam a sloping timber ledge, or apron, had been constructed. It was designed to lead the incoming water in the desired direction, and at a controlled rate. In due course the water would flood the dried-up bed of the Bitter Lakes, into which for some time past a limited quantity of water had been permitted to seep so that the impact of the main flow would to some extent be checked. But as an additional check, an artificial rock mound had been laid in its path, rather as a breakwater may be composed of loosely piled boulders and lumps of rock.

At the appointed hour Their Royal Highnesses were conducted to a vantage-point on the dam. A bridge of stout timber trestle-work had been constructed in advance, rather like a staging from which some V.I.P. officially launches a ship. From this, they would obtain a perfect, and perfectly safe, view of the breaching of the Serapeum dam. M. de Lesseps accompanied them. He had personally supervised the construction of this trestle bridge, bearing in mind the catastrophe that had marked the breaching of the Toussoum dam, three weeks before, almost to the day. He had full confidence that his engineers had foreseen all possible trouble, and forestalled it; nevertheless, he would be close alongside his Royal Guests, and, should anything go wrong....

Nothing did go wrong. The Prince of Wales was invited to give the signal. He raised his hand in an imperious gesture—a gesture that was to become well known to his
subjects, and to the subjects of other countries, during his reign as King Edward VII. Two experienced and highly skilled workmen were already in position at each of the sluice-gates, and had been carefully rehearsed in the role they were to play. Indeed, the whole complex operation had been worked out in advance, as the commander of a military force plans the successive stages of a campaign at a table in his headquarters, with his senior officers gathered about him.

First one sluice-gate was opened, then another; a third, a fourth, and a fifth. The engineers in charge watched keenly for any weakening of the dam in the immediate vicinity of the sluice-gates. There was none. There was, in fact, a complete lack of the most unwelcome drama that had characterised the breaching of the Toussoum dam a few miles farther up the Canal—to de Lesseps’ intense relief. Perhaps the newspaper reporter present felt a sense of disappointment. His account ends quietly with the words: ‘The salt water spurted forth in a milk-white gush from the dozen or so freshly opened sluice-gates, and then flowed quietly away to its appointed bed.’ His prose was as orderly and unemotional as the progress of the Mediterranean water now steadily but relentlessly filling the vast area of the Great Bitter Lakes. De Lesseps had calculated that some 440,000,000,000 gallons of water would be required to fill them, an operation that would last for many months.

What a sigh of relief de Lesseps must have uttered! There had been no repetition of the disaster that had occurred at Toussoum, no hint that any such disaster could possibly occur at Serapeum. Though he was not a professional engineer, he was much better pleased by the orderly and controlled progress he had witnessed than he
would have been by anything approaching high drama.

The Prince and Princess of Wales, however, were excited as well as fascinated by what they had seen, and could hardly tear themselves away from the dam, through which vast quantities of sea-water were now pouring under strict control. But for them the day was by no means at an end. De Lesseps conducted them to one of the Company’s steamers, which they now boarded for the next stage of their Canal journey.

They travelled the full length of Lake Timsah and came to the flourishing town of Ismailia. Four miles farther on, just short of El Guisr, they stopped for the night, which they spent in state in the great pavilion provided for their comfort by the Viceroy of Egypt himself. Next day they continued their journey, inspecting with great interest the huge cutting through the ridge-plateau. After this they went on board ship again and steamed the last twenty-five miles or so to Port Said, where they arrived at tea-time. There the Viceroy’s own yacht, romantically named Mahroussieh, awaited them. Aboard the yacht they sailed away westwards along the coast to Alexandria, from which on the following day they were conveyed aboard H.M.S. Ariadne to the Turkish capital, then called Constantinople, though today it is Istanbul.

They had been enormously impressed with what they had been shown, as had all their retinue. They had expected to see nothing but arid desert, with a waterway of some sort laboriously carved through it from Suez to Port Said. Instead, they had seen a succession of thriving villages and townships, gay with fruit trees and flowers—bunches of which had been picked and presented to Her Royal Highness at every stopping-place.
They had seen steamboats and launches as well as sailing-boats and dinghies and the native feluccas all along the Freshwater Canal and also on some sections of the Maritime Canal. They had caught glimpses of workshops and engine-houses, locomotives busy on tramways alongside the Canal and reaching far out into the desert on either side. They had watched gangs of men of many nationalities all hard at work, and cheerfully, too, under European supervision. They had had every smallest detail explained to them, either by de Lesseps himself, bursting with enthusiasm tempered by the respect due to Royalty, or by one or other of his chief engineers, equally informative and respectful.

Truly the desert had ‘blossomed’, as de Lesseps had from the outset determined that it should. Having lived and worked there for almost exactly ten years, perhaps he was not so struck as his royal visitors were by the astonishing contrast between what had once been and what was now revealed to them. Yet a comment from the Prince of Wales was to remind him of the fundamental change that had been wrought in the Isthmus of Suez—and wrought simply as a result of his own vision and drive.

Looking about him at the civilisation that, in no more than a decade, he had brought to a wide stretch of Egyptian desert, he was reminded of what he had written in his Journal after one of his preliminary reconnaissances:

Our caravan in crossing the desert carried our water, our victuals, sheep and poultry. Apart from these sheep and poultry, and our mounts, there was not so much as a fly to be seen in the desert. At night we opened the cages of our fowls in perfect confidence, knowing that the next morning they would all have remained close to us,
instinctively aware that to be abandoned in so desolate a place would be fatal to them, for here solitude results in certain death. When we struck camp in the mornings, if at the moment of departure a hen had lurked behind, pecking at the foot of a tamarisk shrub, quick she would jump up, frightened, on to the back of a camel, to regain the safety of her cage...
Fate Attends the Gathering

If drama was lacking from the ceremony of breaching the Serapeum dam to admit the waters of the Mediterranean into the Bitter Lakes, it was certainly present on the eve of the culminating ceremony—the Official Opening of the new waterway linking sea and sea.

Work had gone on steadily throughout the late spring and summer and early autumn months following the ceremony performed by the Prince of Wales. Widening and deepening of the Canal had been vigorously continued, with armies of labourers on the job and batteries of dredgers, *Elèveateurs* and *Dragues à Long Couloir* continuously at work. The Chalouf Ridge, however—that final sand and rock barrier north of the port of Suez—continued to present its stiff challenge. Until it was pierced through, and to a sufficient depth, the Mediterranean waters could not be finally united with those of the Red Sea.

De Lesseps aimed at completion in November, 1869: the month that would see his sixty-fourth birthday. He had advertised the date well in advance, knowing that for the Official Opening there would be distinguished representatives from most of the interested nations; these would have
10. The arrival of the Empress of the French for the opening ceremony
to know well in advance when their presence would be required. Also, the most extensive and elaborate preparations would have to be put in hand for their accommodation and entertainment. Even his vast energy and gift for attention to detail were taxed to the utmost in the months immediately prior to this great occasion.

Only a fortnight before the actual date decided upon, at the very beginning of November, he was to receive his first shock. His engineer-in-charge reported that a massive boulder had been encountered in the bed of the Canal, which they found impossible either to remove or to break up. Every piece of equipment brought to bear upon it had been damaged, and the boulder was still there, an absolute threat to the passage of vessels bearing the distinguished company that would be the first to traverse the entire length of the Canal at its inauguration.

_I hastened to the spot_, de Lesseps recorded. _And there, it was true_: a boulder rose fifteen feet above the bottom of my Canal, leaving only nine or ten feet of water clear. The engineers declared that they could do nothing more; they had tried everything in their power. 'Go and fetch gunpowder from Cairo,' I cried. 'Powder in great quantities. Then, if we cannot blow the rock to pieces, why—we will blow ourselves to bits in the attempt!'

It was almost a counsel of despair, unlike de Lesseps' usual reaction to a challenge. In fairness perhaps it should be urged that his nerves were on edge, now that the great moment of the inauguration of his Canal was so near. Probably it was said simply as a throw-away gesture and did not represent what he believed. Ever an optimist, he must have been confident, deep down, that his engineers would succeed in removing this unexpected barrier.
His confidence was justified. The gunpowder arrived. Sealed canisters were set in position, with waterproof fuses attached. The fuses were ignited: the charges went off; the boulder disintegrated beneath the water; the Canal bed was strewn with fragments. A dredger was brought to the spot and set to work; in a matter of hours the last of the rock fragments had been removed; the crisis was over.

But not with over-much time to spare. De Lesseps had told very few people of the unforeseen crisis. One of these, naturally, was the Egyptian Viceroy, who, as the most important representative of the host country, was responsible for the invitations. Enormous numbers of these had already been sent out. There was to be a whole flotilla of vessels making the transit of the Canal; their free passage simply must not be impeded in any way. Certainly the Viceroy heaved a sigh of relief when de Lesseps was able to report to him that the final obstacle had been cleared, for he had made himself responsible for a fantastic programme of entertainment. De Lesseps has left us the details of this, in his Journal and elsewhere:

_I was asked to make the arrangements necessary for receiving the foreign monarchs and their retinues, to the number of 6,000, and to arrange for their accommodation. I caused to be constructed, in a remarkably brief space, buildings each capable of accommodating 600 persons for the meals that were to be served to them. The Viceroy had imported no fewer than 500 chefs and twice that number of servants, from Genoa, from Leghorn, from Marseille and from Trieste. In addition to the buildings I caused to be erected, there was, not far from the Sweetwater Canal at Lake Timsah, a complete Arab village of no fewer than 25,000 inhabitants, in whose tents hospitality for others was promised me._
In these, the humbler visitors would be accommodated for the occasion.

Preparations went on apace. As the great day approached, de Lesseps may perhaps be forgiven for believing that everything would run smoothly: had he not given his personal attention to every smallest detail? But Fate was once more to step in and administer a shock. On 15th November, barely a fortnight after the scare involving the submerged boulder, a ridiculous and completely improbable event took place.

He was actually on his way from near Ismailia to Port Said, to prepare for the sailing of the flotilla of vessels the following day when to his horror he heard the clamour of fireworks being let off. He had given no orders for any firework display, for this was not to be before the evening of the inauguration of his Canal; clearly, therefore, something had gone amiss. He interrupted his journey, and hastened to the scene.

Fire, he found, had broken out in a timber-yard in the heart of Ismailia. This was bad enough. But unhappily, through some misunderstanding, the whole consignment of rockets and petards intended for the official display had been dumped, not on the site prepared for them among the sandhills well clear of the town but—in that very timber-yard.

No one was able to tell him whether the fire had broken out as the result of someone inexpertly letting off a rocket, or whether it was simply the result of a stack of timber becoming ignited by natural combustion. Not that this was important: the main thing was to douse the flames before the whole timber-yard, and the houses immediately surrounding it, went up in one catastrophic explosion. 'By the
greatest good fortune’, de Lesseps recorded in his Journal, ‘2,000 troops most opportunely arrived. The town was saved—thanks to them, and thanks also to the system I understand is always employed in Constantinople, which consists in unceasingly pouring water on the walls and roofs of houses neighbouring the fire.’

But there was a still greater hazard than mere fireworks and inflammable timber in that Ismailia yard. De Lesseps learned that beneath the ground in a corner of the timber-yard a large quantity of gunpowder lay buried! Who had been foolish enough to bury so inflammable a commodity as gunpowder in such a place was never revealed. In any case, there was no time, then, to seek out a scapegoat: all efforts must be directed towards controlling and quelling the fire. ‘The surrounding walls became heated,’ de Lesseps wrote, ‘to such an extraordinary temperature that the fire must inevitably be spread. I myself directed all the pumps into that quarter. Mercifully, the wind dropped and the flames ceased to spread. Ismailia was saved.’

Such an incident, coming so close to the all-important day, would have reduced many men to a quivering bundle of nerves. Not so Ferdinand de Lesseps, however: he was made of sterner stuff. The past ten years had demonstrated this—to say nothing of those occasions in his early career as a diplomat when he had had to contend with the panic brought about by the epidemic of cholera in Alexandria.

Tuesday, 16th November 1869 dawned clear and bright. In the past few days and hours notabilities from, it seemed, half the countries in the world had been converging on Port Said. The Viceroy of Egypt had left his Palace in
Cairo to be there to meet and greet them in person. The Emperor of Austria had arrived with his retinue aboard his private steam yacht, *Greif*. The Crown Prince of Prussia had arrived. The Empress Eugénie, wife of Napoleon III, had arrived.

In her special capacity she was to play a very important part in the inaugural ceremony. To her encouragement her countryman, M. de Lesseps, owed an enormous debt, as he had owed an earlier debt of gratitude to Mohammed-Saïd when his project was not even under way. She had come from Cairo to Alexandria by train and then embarked on the French imperial yacht, *Aigle*, which had been commissioned to convey her to Port Said. Having lain off the port for the last hour or two before dawn on the 16th, she entered the passage between the moles and steamed towards the Canal entrance between the lavishly decorated quays and wharves at exactly eight o'clock that morning. She had been saluted, as she entered the seaway between the moles, by two Austrian battleships, dressed overall, their yards manned by their crews.

These battleships—they were called ironclads in those distant days of the mid-nineteenth century—were by no means the only ones to be present to lend distinction and a hint of impressive might to the occasion. Britain had sent five ironclads for the occasion, and these were ranged in line-astern just clear of the entrance to the Canal. Not far from them was a despatch-boat, H.M.S. *Rapid*, and just beyond her a Russian sloop-of-war. A furlong or so nearer to Port Said there were some craft flying the Italian flag; and in the harbour there were no fewer than 160 vessels large and small, flying the flags of Sweden and Prussia, France, Austria and Italy.
It is true that there were no American vessels; but the Stars and Stripes floated bravely above the roof of the American Consulate in Port Said itself. And, of course, every square inch of vantage-point—along the quays, breakwaters and wharves, on walls and rooftops and telegraph-poles—was occupied by as many people as could cram themselves together, at infinite risk of falling into the water or breaking their legs as they were squeezed by the stronger fellow-watchers.

*Aigle* slowly approached the fleet of vessels massed opposite the town, [wrote a newspaperman who was reporting the historic event for an English paper]. There was no attempt at regularity; vessels of war and merchant steamers were crowded together; all were decorated with lines of flags, and the yards of the men-of-war were manned, the merchantmen crowded with sightseers. As *Aigle* entered the harbour the salutes began, and so many were the vessels of war that for a time the cannonade was heavy and the vessels’ hulls completely hidden by the volumes of smoke. *Aigle* paused a while to let it clear off. Then, as she steamed along between the two lines of vessels, the cheering broke out. From the yards of the men-of-war and from the crowds ashore, it was heard in every language under the sun. ....

With the Empress Eugénie aboard, *Aigle* was of course the most important of all the vessels; the salutes she received were only her due. When she had dropped anchor in the harbour other vessels began taking up their appointed stations, according to their respective ranks.

First to come up alongside her was *Mahroussieh*, the Viceroy of Egypt’s state yacht; on board was the British Ambassador to Turkey. He followed the Viceroy as he temporarily left the yacht to go aboard *Aigle* to pay his
respects to the Empress. Soon afterwards the Emperor of Austria, followed by the Prince of Prussia, also went aboard from their own yachts to pay their respects. This was the signal for a renewed outburst of ships' salutes and, as the newspaperman duly reported to his editor, 'The various men-of-war now began to pay the compliments to one another's flags which the British had commenced. For a whole hour there was almost incessant cannonading, to which the guns of the fleet served as an occasional echo as they concluded their round of friendly compliments.'

De Lesseps, naturally, was in the thick of it all. But as he was enjoying the compliments that flew around him, even though he did not know it at the time, yet another potential disaster was building up not far south along his Canal. He gives his own account of this:

After receiving the Empress and the foreign visitors, I was making final arrangements with the Harbour Master. We had settled the last detail between us when grave news was brought to us. An Egyptian frigate had run aground in the Canal twenty miles south of Port Said. Having run her bows aground, she had swung outwards and, according to my informant, now completely blocked the Canal, along which the whole of this distinguished flotilla was next day due to sail.

It was now midnight (on the night before), so there was not a moment to lose, and I at once set about redeeming the situation. I sent a steamer with men and appliances to deal with the matter. Two hours later they returned with information that they had found it impossible to move the frigate. Now, one must have confidence in this world. Without confidence, nothing can be done. [This declaration of faith had been typical of de Lesseps ever since he was a young man; in fact, even when
he was a child: remember his swimming of the Seine.] I was resolved that the day's programme—due to begin within a few hours—should not be changed in any detail.

It was then half-past two in the morning, an hour when most people's energies are at their lowest ebb. The Viceroy of Egypt had been informed of the situation and at once sent a courier to ask de Lesseps to visit him aboard Mahroussieh, despite the unconventional hour. De Lesseps found him in an acute state of agitation. The prestige of Egypt was at stake; here were half the Sovereign Heads of Europe, or their most distinguished representatives, actually afloat on the Canal, expecting in a few hours' time to pass in state from Port Said to Suez, as they had been officially invited to do; and now, it seemed, some ridiculous small craft was offering a complete obstacle to their passage. 'What, M. de Lesseps, do you propose to do about this?' he asked, with more petulance than dignity; 'we have only a few hours in hand.'

'With your permission, sir,' de Lesseps replied, 'I will take Draconian measures to clear the obstacle out of our way.'

The Viceroy may or may not have understood what the word meant. But he certainly grasped, from the tone of the reply, that de Lesseps proposed to be absolutely ruthless in the method he employed to move the wretched frigate from the path of the flotilla due to steam along the Canal within a comparatively few hours. 'Take as many men as you require,' he said. 'I leave it to you with perfect confidence.'

De Lesseps collected several hundred men and set off hot-foot for the spot where the trouble lay. As he hurried
12. The Empress on board the *Aigle*
13. Procession of ships along the Canal
there, he turned over in his agile mind the various possible methods of disposing of the obstacle. Either the frigate must be hauled off the sandbank on which she had rammed her stem, and then sent swiftly on her way; or her stern must be swung sideways so that the whole vessel was aground, as close to the bank as possible, to leave sufficient room for vessels to pass her in safety; or—she must simply be destroyed where she lay aground.

De Lesseps was thinking aloud. Alongside him was one of his chief engineers. He had worked with de Lesseps long enough to be completely in his confidence, to be able even to anticipate his moods and his decisions. The two men exchanged a meaningful glance. ‘If necessary,’ said one of them, ‘we will simply....’

‘...Blow the frigate up,’ said the other.

Fortunately such drastic tactics did not prove necessary. The party reached the site, twenty miles south along the Canal. There lay the offending frigate, tilted slightly to one side, her stem higher than her stern, which had swung well out into the waterway. Hawsers were attached to her, the other ends attached to a number of winches brought for the purpose and anchored well back from the nearer bank. The winch-handles were manned by dozens of willing hands. They were low-geared and powerful, their tractive power well-nigh irresistible. Other men laid hold of long ropes made fast to cleats and bollards aboard ship, dug their heels into the firm sand of the canal bank, and lay back to take the strain as in a tug-of-war.

The frigate began slowly to yield to the strain. The men on the winches, the men on the ropes, redoubled their efforts, cheered on by de Lesseps with promises of a handsome bonus on their week’s wages for this tremendous
effort. In any case they had been fired with enthusiasm by
the sense of occasion: what they were doing now would
make possible the ceremonial passage of the vessels, with
their royal and other passengers on board, down the Canal
on which so many of them had been working for ten
arduous years.

A cheer went up: the frigate’s stem had budged. Now
the frigate was being eased, slowly but surely, astern from
the sand-bank on which she had lodged. There was
sufficient water astern of her for her to be hauled close in to
the canal side. And there she was made fast to two of the
bollards installed for just such a purpose, though at the
time of their installation no one had thought that they
would be associated with an emergency such as this. De
Lesseps and his engineers could breathe again.

Though dawn was now just beginning to give a hint of
its approach far across the desert to the east, it was still
dark as the party returned to their base at Port Said, their
task accomplished. De Lesseps duly reported their success
to the Viceroy. But he and the Viceroy kept their secret to
themselves; hardly anyone else, at least among the great
gathering of distinguished visitors from all over Europe,
had any inkling that disaster had in fact come so close
during the hours of darkness preceding the Great Day.

It was now Wednesday, 17th November, the day of the
ceremonial inauguration of the newly completed Maritime
Canal. The first stage of the inauguration was a religious
one, for the Egyptians were a devout people, the French no
less, and the blessing of both the Mohammedan Allah and
the Christians’ God must be invoked upon this achieve-
ment, which had been designed to benefit both Moham-
medans and Christians alike.
The main ceremony of course was staged at Port Said, the base from which the Canal had been started, and then, as now, the largest town on the Canal. Three pavilions had been erected along the main quay, appropriately named, in honour of the Empress of France, Quai Eugénie. It was lined from end to end with soldiers of an Egyptian infantry brigade. To the rear of these was assembled an array of field artillery for saluting purposes when the moment arrived. The visitors were greatly impressed by the thought that had gone into the design and construction of the pavilions—just one example of the close attention to detail that had characterised the preparations for the ceremonial opening, as well as the actual planning and construction, of the Canal.

One of the pavilions was for the exclusive use of the Viceroy of Egypt and his imperial and royal guests and their closest attendants, aides and ladies-in-waiting. Another pavilion contained an altar and other features necessary for the rites demanded by the Catholic Church. The third was similarly equipped for the Moslem Ulemah, the highest-ranking dignitary of that Faith.

All, it was noted with appreciative comments, were built of timber, beautifully carved and further beautified with plants and flowers and topped by the flags of all the nations represented there. Two of the pavilions had flag-staffs surmounted with the Crescent; the third was surmounted with a shield bearing the Cross of Jerusalem set among four smaller crosses. In the Moslem pavilion there was an ornate pulpit placed to look towards Mecca; the other two pavilions confronted it.

Few small towns anywhere in the world can ever have been the setting for so distinguished a procession as that
which streamed towards the pavilions from the yachts and other craft anchored in the harbour. The procession was on foot, headed by the Heir Apparent of Egypt, with the Princess of the Netherlands on his arm. Immediately behind him was Empress Eugénie of France, who had taken the arm of the Emperor of Austria. She was, an observant and knowledgeable visitor later reported,

very simply attired in a lavender-silk walking-dress, with a wide kerchief—not a ruffle—of white point-lace round her neck. She wore a black hat, not very high, with a black feather in it, a black-spotted veil hanging down her face and behind her neck. I noticed that she had no jewellery on, not even a pair of ear-rings, except a locket tied round her neck by a piece of black ribbon.

The Emperor of Austria was wearing a uniform consisting of white tunic, scarlet pantaloons and cocked hat, with a bright green feather in it. The Viceroy of Egypt and the Prince of Prussia, who were escorting them on either hand, were similarly gorgeously attired. The Prince was wearing the impressive uniform of the Prussian Guard, and the Viceroy a uniform of blue, with gold lace and a broad green ribbon and, as the same reporter noticed, 'the hilt of his scimitar blazing with jewels'.

Behind them walked the Grand Duke Michael of Russia and the young Prince of the Netherlands, followed by a brilliantly uniformed group of French, Prussian, Austrian, Russian and Egyptian army officers, all wearing a blaze of decorations.

Cheers filled the air as this distinguished procession approached the three pavilions, and rose to a climax as the Empress of France took her throne in her pavilion, with the Emperor of Austria on her right and the Viceroy of
Egypt on her left. The rest of the pavilion was filled with other notabilities, among whom, most appropriately, M. de Lesseps had been specially invited by Empress Eugénie to take his deserved place.

As soon as everyone was seated, the religious ceremonies began. First, as was right and proper in a Moslem country, the Ulemah, 'a venerable personage with a flowing white beard, read from his scroll of parchment a prayer to Allah to bestow a blessing on the multitude and on the enterprise they were now assembled to dedicate to the service of Moslems and Europeans alike.'

Next, the Archbishop of Jerusalem, in full robes, ascended the steps of the High Altar in the Christians' pavilion and, with priests in attendance, said a solemn mass. He was followed by Empress Eugénie's private confessor, who, 'standing a few steps below the altar, proceeded to deliver an eloquent eulogy on the Suez Canal, on its builder, M. de Lesseps, on the Empress, on the Viceroy, and on all the illustrious visitors present. When he compared M. de Lesseps to the explorer Columbus', this enthusiastic reporter concluded, 'there was a spontaneous burst of applause.'

It may seem to us an odd parallel to have drawn, and certainly de Lesseps himself would never have claimed to be in the same category as the man with whom he was compared; it must be put down to the high state of excitement prevailing that day in Port Said, and it will certainly have given the builder of the Canal pleasure.

The religious ceremony and the speeches came to an end. Now the illustrious visitors began to prepare to return to their respective vessels in the harbour. As Empress Eugénie left her throne, she was met at the foot of the daîs
by a delegation of small girls, who dutifully curtsied and presented her with a bouquet of flowers as beautiful as any she might have seen in France. They were symbolic of the fact that the Canal now being inaugurated had brought fertility to what since the dawn of time had been either sea bed or arid desert, alike devoid of all plant life.

The procession returned to the landing-stages, as they had arrived, on foot. The attendant barges and other small craft awaited them, and they were duly ferried to their yachts and other vessels, to await the next stage in the inaugural ceremony. This was to be an elaborate display of illuminations and fireworks—the fireworks being those that had been salvaged from the timber-yard fire at Ismailia which had so nearly ended in disaster. Their numbers had been made up by the despatch from Alexandria of a further large consignment.

Fireworks were considered essential, in those days, as they are in many parts of the world even today, for such historic occasions. They provided a visible demonstration of deep-felt joy, and acted as a safety-valve for pent-up emotions. The display organised that evening at Port Said was second to none in its variety and splendour. A visitor present at the great occasion wrote home enthusiastically about what he had seen:

All the streets of Port Said had been adorned with a double line of red flagstaffs, differently coloured banners and lines of coloured lanterns. Almost all the houses had hung out flags. As the deep glow faded from the sky and the forest of ships' masts became confused and indistinct, faint lines of light seemed to creep like golden gossamer threads across the sky. Long lines of lanterns marked out the streets, while far away to the right the Arab town and the tents of the troops were marked
out by long lines of light. The piers and breakwater were lighted up by tar-barrels placed at short intervals. Over all, the moon shone brightly, while the flashing electric light on the summit of the lofty lighthouses at one moment flashed out intensely bright and then faded into comparative darkness. In the background, behind the royal yachts, flights of rockets continued to ascend, lighting up the scene now with coloured stars, now with showers of falling gold.

Another writer, also impressed with the glitter and glamour of the notables from many lands, found time to write of the humbler folk who had flocked in to Port Said to take a modest share in the opening ceremony. They had come he said, from far afield:

People from Asia Minor, Ukrainians, men from Bokhara, Turks and Tartars, men in kaftans, sheikhs with green turbans, women and children and old men—even the sick, even those largely paralysed. There were bashi-bazouks with their tall hats and cummerbunds, swathed every one of them from chin to crutch, their weapons hidden within the folds of their garments but ever ready for use, their leggings partly covering their down-at-heel shoes. Among them were a few veiled and white-robed womenfolk, whose bold eyes suggest the Turk rather than the Egyptian. Some of the men with them wear helmets, with a flap falling over the back of their necks in the fashion of the ancient Saracens, and with a double visor; or again, wearing caps of unbleached cloth with flaps designed to protect cheeks and neck. I saw Syrian couffiehs, and Panamas with enormous brims.

There is no exact record of the number of visitors, notable and humble alike, who flocked to Port Said and other points along the hundred-mile length of the Canal for its ceremonial opening in November, 1869, but it must have been vast.
At Last: Sea to Sea!

Now came the longed-for moment when the cavalcade of vessels was to begin its ceremonial voyage from Port Said southwards along de Lesseps' Maritime Canal. It was another bright morning, a golden morning beneath a brilliant blue sky, the hot air tempered by a gentle off-sea breeze. The clock on The Suez Canal Company's headquarters near the Quai Eugénie showed that it was exactly eight.

In the previous day's processions the Empress of France had been at the head. Now it was her yacht, Aigle, that fittingly took the lead, dressed over all, as befitted such an occasion, such an assembly.

Immediately astern of her was the Austrian Imperial yacht, Greif. Then came the Prussian frigate, with the Crown Prince and his retinue and guests on board, followed closely by the Swedish Royal yacht, with Prince Oscar of Sweden and his party on board; and next in order, a small Russian naval vessel with the Grand Duke Michael on board and a Russian admiral in attendance. After these came a Dutch gunboat, with the Prince and Princess of the Netherlands on board her; a British
despatch-boat, the *Psyche*, with the Ambassador from Constantinople on board; another Swedish vessel, and the *Peluse*, a steamer belonging to the fleet operated by the French Messageries Impériales.

It was an immensely long convoy, since it consisted of the representatives of as many international interests as possible. After the chief and leading vessels, the Royal and Imperial yachts and naval vessels, there came the meteor's-tail of lesser boats. These were *Rapid*, *Vulcan*, *Forbin*, *Cambria*, *Dido*, *Tonareg* and *Thabor*, owned by British, Austrian, French and Swedish companies or individuals; *Pluto* and *Hawk*, the first belonging to the firm of Austrian-Lloyd, the second a British steamer engaged in the British-Indian telegraph service; among these were four Italian vessels, an Egyptian Government vessel with a French-sounding name, *Chabin*, and another, more appropriately named *Fayoum*. It was a brave display indeed as it formed up in line astern to begin the epoch-making voyage the length of the Suez Canal.

The actual entrance to the Canal at Port Said was marked by two huge obelisks, temporarily of timber and plaster painted dull red to imitate the red granite from which the permanent obelisks would be hewn when the Company erected them. It was between these that the flotilla passed, with *Aigle* at its head.

There were one or two minor mishaps: some of the vessels, whose pilots were less skilled than the others, became involved with one another or ran too close to one of the banks. But nothing serious befell any of them. Slowly, steadily, with becoming dignity, the flotilla made its way along the initial stretch of the Canal, carved out of the vast lagoon of Mensaleh, and so to the first of the lakes,
Ballah, through which, likewise, the Canal passed in its proper channel.

It entered the first of the three major cuttings that had been so laboriously carved out of treacherous soil, sand and gravel and loose rock, El Guisr. It came to El Qantara, the transit-point on the ancient camel-caravan route between West and East. Some idea of the dignified leisureliness of the flotilla's progress may be found in the fact that it was nearly twelve hours after leaving Port Said that the leading vessel came within sight of Ismailia, at the northern end of Lake Timsah, only half way along the total length of the Canal. And there a reception awaited it:

The motley population of the town [wrote the newspaperman], had been awaiting her arrival for many hours. She came on slowly but surely, and when at last her hull came into full view as she glided into the broader waters of Lake Timsah there was one loud, enthusiastic cheer, which was soon drowned by the roar of cannon. From the batteries on the banks, the sound of the heavy guns came booming across the water; the sharp, quick rattle of platoon-firing followed, and the troops shouted aloud as the first sea-going vessel which had ever crossed the isthmus steamed into the inland lake, having aboard her the Empress of the French, wife of the Sovereign, Napoleon III, who had been so staunch in his support of the enterprise that now stood proved and accomplished. The last rays of the setting sun shone brightly on the low sand-hills, upon the wide expanse of the desert stretching away into the far distance.

It was a moving occasion, an occasion in which the least imaginative person, the most materially-minded individual, would have been hard put to it not to feel stirred in his heart. De Lesseps was not only the prime mover of the whole great enterprise, but he was a Frenchman, and like
most of his countrymen, inclined to be emotional. So he well understood what the Empress Eugénie said personally to him that evening on their arrival at Ismailia in the vanguard of the flotilla. And he duly recorded it in his Journal:

_The Empress told me that during the whole of the voyage down my Canal she had felt as though a circle of fire were round her head, because every moment Aigle slowed down or seemed to be coming to a halt during the day’s long transit—for what reason she might not know—she saw the honour of the French flag compromised, and the fruit of our labours lost. Suffocated by emotion, she was obliged to leave the table. We overheard her sobs—sobs which do her honour, for it was true French patriotism overflowing from her heart._

Ismailia, of course, was in festive attire for the occasion. A palace had been built there for the Viceroy, and there he entertained, at the end of that long day, his royal and imperial guests. They went from the landing-stage in a fleet of carriages-and-four. The procession passed along a road lined by two regiments of cavalry, one of them on white horses and armed with lances, the others mounted on bays and armed with carbines. They were taken beneath a magnificent triumphal arch to the palace, and, after the formal reception by the Viceroy, conducted on a tour of Ismailia. Everyone agreed that the town was much more beautiful than Port Said. Nor was this surprising, for Port Said was built between a shallow lagoon and a great wasteland of mud-flats, with the shallow sea to the immediate north. And also, it was full of workshops and warehouses and harbour installations, the headquarters of
the Suez Canal Company responsible for every detail of its organisation.

They were shown the Freshwater Canal running along-side the western fringe of Lake Timsah. Here was the attractive villa which M. de Lesseps had had built for his private use; not far away were the villas occupied by MM. Borel and Lavallely and their families, the two men responsible for the major engineering works that had enabled de Lesseps to conquer the desert and the three ridge-plateaux.

Empress Eugénie particularly asked to be invited into M. de Lesseps' villa, overlooking the sparkling waters of the Freshwater Canal. He had anticipated this, and had seen to it that his garden should be looking at its best. The Empress admired the flowers growing in profusion all round the house, the creepers on the walls, the arches of greenery, the beauty of the planted trees and shrubs that made so strong a contrast to the arid waste of desert from which, thanks to the Freshwater Canal, Ismailia had blossomed.

While she was being entertained inside de Lesseps' villa, glad, perhaps, of the contrast between the coolness within the great heat outside, a crowd gathered to watch her come out and see where she would be taken next. But her host was crafty, anticipating the sort of crowd-excitement which his royal guest would not appreciate, and saw to it that she left his villa by a side entrance. There she mounted a camel and rode away, accompanied by her host on a white pony, to have a look at the Arab encampment which she had expressed a desire to see for herself.

The Bedouin were beside themselves with excitement at her arrival, and immediately leapt into their saddles and gave an impromptu performance of riding and—rather to
her alarm at first—firing their long-barrelled muskets. Empress Eugénie must have been a woman of courage to have stood up to the long day’s journey of a few hours before, following her voyage from France, and then the events of that morning, culminating in this hectic display of galloping steeds and the wild firing of muskets, even though she had the gallant M. de Lesseps at her side to reassure her. Perhaps secretly she was trying to make up for her display of feminine weakness and emotion on her arrival at Ismailia the night before, when she had wept and rushed from the table.

That night, the Viceroy entertained the Empress of France, the Emperor of Austria, the Grand Duke Michael of Russia, the Prince and Princess of the Netherlands, Prince Oscar of Sweden, the Crown Prince of Prussia and all the other notabilities who had been on board the ships that composed the flotilla: in all, several thousand people attended a magnificent ball staged at his palace in Ismailia. There was feasting, there was music; dancing lasted throughout most of the night; few people, whether guests in the palace or humbler folk elsewhere in Ismailia, slept a wink between sundown and sunrise.

And now, Friday, 19th November, Ferdinand de Lesseps’ sixty-fourth birthday, dawned: he had timed things well. The final stage of the transit of his Canal was at hand. At midday precisely, the flotilla set off once more on its journey south. It passed through the length of Lake Timsah and entered the great cutting through the Serapeum Ridge. It passed into the northern end of the Bitter Lakes, now filled to the brim with water, first from the Mediterranean and soon afterwards, once the Chalouf Ridge had been finally pierced, from the Red Sea.
Hardly had the flotilla emerged from the last deep cutting than the port of Suez came in sight. Soon they were sailing leisurely out of the southern end of the Canal, to drop anchor in Suez harbour, their historic voyage at an end. It was as memorable a birthday-party as M. Ferdinand de Lesseps could possibly have wished for.
Postscript

Ferdinand de Lesseps died in his ninetieth year. In the quarter-century between the ceremonial inauguration of his Maritime Canal and the day of his death, ships were to pass in ever-increasing numbers southwards and northwards between Port Said and Suez, linking—as he had promised he would make it possible for them to do—Orient with Occident. But the traffic during those twenty-five years, and for many years afterwards, was as nothing compared with the traffic that, a century later, his Canal has been enabled to carry.

Over the years that have passed it has been progressively widened where necessary, and deepened too. In de Lesseps’ day no vessel drawing more than about twenty feet could make the passage; today, giant vessels drawing up to forty feet still have water beneath their keels. In de Lesseps’ day the passage took forty-eight hours—two whole days and nights; today it can be completed in some fifteen hours. But the permitted speed has to be a modest eight knots or so, otherwise the wash of these modern giants could weaken the banks on which de Lesseps’ men laboured so long and so hard.
He would have been astonished if he could have visited the scene of their labours recently, just before, a year or two ago, the Egyptians closed the Suez Canal to all shipping. He would have seen enormous numbers of vessels, flying the flags of almost every nation on earth, making use of his Canal. A century after its inauguration, some 20,000 ships were making the passage annually—that is almost sixty ships in every twenty-four hours. Their size, compared with that of those he knew in his day, would have astonished him perhaps even more than their number, for they were averaging approximately 10,000 tons deadweight apiece; and they were carrying an astronomical total of no less than 200,000,000 tons of freight, of every kind imaginable.

Such figures, though, might well mean something to him, for he had a passion for huge figures. He was to place on record, when his beloved Canal was completed, that his army of labourers had shifted no less than 2,650,000,000 cubic feet of sand and soil and rock from the Isthmus of Suez, to make the desert blossom and bring new life and hope to the men and women who would at last be able to abandon their ancient nomadic ways and settle in the towns and villages he built for them along the hundred-mile length of his Maritime Canal. So, he would probably have been able to appreciate the enormous increase in tonnage of today's shipping—especially the new giant tankers that displace 200,000 tons and more, tankers so enormous that even if the Egyptian authorities do decide in due course to re-open his Canal, they will anyway be too deep in draught and broad in beam to make the passage from Suez to Port Said or Port Said to Suez as their smaller brethren have hitherto been able to do. For ship-
ping such as this, the long haul round the Cape of Good Hope, which his Canal was designed to obviate, has once again become necessary. It is a sign of the times: today everything is conceived on a vaster, more ambitious, scale; a scale which even such a practical visionary as Ferdinand de Lesseps might not have been able to comprehend.
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