

The Harbor at Ostia

From *Claudius the God* by Robert Graves, 1935

Chapter 8 pg. 150

... But I did not realize how beloved I was and how seemingly important to Rome the preservation of my life had become until one day a rumour ran through the City that I had been ambushed on my way to Ostia by a party of senators and their slaves and murdered. The whole City began lamenting in the most dismal fashion, wringing their hands and mopping their eyes and sitting groaning on their doorsteps; but those whose indignation prevailed over their grief ran to the Market Place, crying out that the Guards were traitors and the Senate a parcel of parricides. There were loud threats of vengeance and even talk of burning down the Senate House. The rumour had not the faintest foundation except that I was indeed on my way to the Ostia docks that afternoon to inspect the facilities for unloading corn. (I had been informed that in bad weather a great deal of corn was always lost between ship and land, and wanted to see whether this could be avoided. Few great cities were cursed with so awkward a harbour as Rome with Ostia: when the wind blew strongly from the west and heavy tides swept up the estuary the corn-ships had to ride at anchor for weeks on end, unable to discharge their cargoes.) The rumour had been put about, I suspect, by the bankers, though I could get no proof of this: it was a trick to create a sudden demand for cash.

... But the panic was not checked until I had received news at Ostia of what was happening in the City and had sent four or five of my staff--honest men, whose word the citizens would trust--at full speed back to the Market Place, to appear on the Oration Platform as witnesses that the whole story was a fabrication, put about by some enemy of the State for his own crooked ends.

The facilities for discharging corn at Ostia I found most inadequate. Indeed, the whole corn-supply question was a very difficult one. Caligula had left the public granaries as empty as the Public Treasury. It was only by persuading the corn-factors to endanger the vessels that they owned by running cargoes even in bad weather, that I succeeded in tiding over the season. I had, of course, to compensate them heavily for their losses in vessels, crew and corn. I determined to solve the matter once and for all by making Ostia a safe port even in the worst weather and sent for engineers to survey the place and draw up a scheme.

Chapter 11 pg. 186

By this time my engineers had finished the report which I had told them to make on the possibility of converting Ostia into a safe winter harbour. The report was at first sight a most discouraging one. Ten years and ten million gold pieces seemed to be needed. But I reminded myself that the work once carried out would last forever and that the danger of a corn famine would never arise again, or at least not so long as we held Egypt and Africa. It seemed to me an undertaking worthy of the dignity and greatness of Rome. In the first place, a considerable tract of land would have to be excavated and strong retaining walls of concrete built on every side of the excavation, before the sea could be let into it to form the inner harbour. This harbour in turn must be protected by two huge moles built out into deep water, on either side of the

harbour entrance, with an island between their extremities to act as a break-water when the wind blew from the west and big seas came rushing up the mouth of the Tiber. On this island it was proposed to build a lighthouse like the famous one at Alexandria, to guide shipping safely in, however dark and stormy the night. The island and the moles would form the outer harbour.

When the engineers brought me their plans they said: "We have done as you told us, Caesar, but of course the cost will be prohibitive."

I answered rather sharply: "I asked for a plan and an estimate and you have been good enough to provide both, for which many thanks; but I do not employ you as my financial advisers and I shall thank you not to take that upon yourselves."

"But Callistus, your Public Treasurer--" one of them began.

I cut him short: "Yes, of course, Callistus has been speaking to you. He is very careful with public money, and it is right that he should be. But economy can be carried too far. This is a matter of the utmost importance. Besides, I should not be surprised to learn that it is the corn-factors who have persuaded you to send in this discouraging report. The scarcer corn becomes, the richer they grow. They pray for bad weather and thrive on the miseries of the poor."

"Oh, Caesar," they chorused virtuously, "can you believe that we would take bribes from corn-factors?"

But I could see that my shot had gone home. "Persuaded, not bribed, was my word. Don't accuse yourselves unnecessarily. Now listen to me. I am determined to carry this plan out whatever it is going to cost; get that into your heads. And I'll tell you another thing: it is not going to take nearly so long a time or cost nearly so much money as you seem to think. Three days from now you and I are going to go into the question thoroughly."

On a hint given me by my secretary Polybius I consulted the Palace archives, and there, sure enough, I found a detailed scheme that had been prepared by Julius Caesar's engineers some ninety years before for the very same work. The scheme was almost identical with the one that had just been made, but the estimated time and cost were, I was delighted to find, only four years and four millions of gold. Allowing for a slight increase in the cost of materials and labour it should be possible to carry the task out for only half what my own engineers had estimated, and in four years instead of ten. In certain respects the old plan (abandoned as too costly!) was an improvement on the new, though it left out the island. I studied both plans closely, comparing their points of difference; and then visited Ostia myself, in company with Vitellius, who knew a great deal about engineering, to make sure that no important physical changes had occurred on the site of the proposed harbour since Julius's day. When the conference met I was so primed with information that the engineers found it impossible to deceive me--by underestimating, for instance, the amount of earth that a hundred men could shift from this point to that in a single day, or by suggesting that the excavations would entail the cutting away of many thousands of square feet of living rock. I now knew almost as much about the business as they did. I did not tell them how I came to know: I let it appear that I had taught myself engineering in the course of my historical studies, and that a couple of visits to Ostia had sufficed me for mastering the whole problem and drawing my own conclusions. I profited from the great impression that I thus made on them by saying that if there was any attempt to slow down the work once it started, or any lack of enthusiasm, I would send them all down to the Underworld to build Charon a new jetty on the River Styx. Work on the harbour

must begin at once. They should have as many workmen as they needed, up to the number of thirty thousand, and a thousand military foremen, with the necessary material, tools and transport; but begin they must.

Then I called Callistus and told him what I had decided. When he threw up his hands and turned up his eyes in a despairing gesture I told him to stop play-acting.

"But, Caesar, where's the money to come from?" he bleated like a sheep.

"From the corn-factors, fool," I answered. "Give me the names of principal members of the Corn Ring and I'll see that we get as much as we need."

Within an hour I had the six richest corn-factors in the City before me. I frightened them.

"My engineers report that you gentlemen have been bribing them to send in an unfavourable report on the Ostia scheme. I take a very serious view of the matter. It amounts to conspiracy against the lives of your fellow-citizens. You deserve to be thrown to the wild beasts."

They denied the charge with tears and oaths and begged me to let them know in what way they could prove their loyalty.

That was easy: I wanted an immediate loan of a million gold pieces for the Ostia scheme, which I would pay back as soon as the financial situation justified it.

They pretended that their combined fortunes did not amount to half that sum. I knew better. I gave them a month to raise the money and I warned them that if they did not do so they would all be banished to the Black Sea. Or farther. "And remember," I said, "that when this harbour is built it will be *my* harbour--if you want to use it you will have to come to me for permission. I advise you to keep on the right side of me."

The money was paid over within five days, and the work at Ostia began at once with the erection of shelters for the workmen and the pegging out of tasks. On occasions of this sort it was, I must admit, very pleasurable to be a monarch: to be able to get important things done by smothering stupid opposition with a single authoritative word. But I had to be constantly reminding myself of the danger of exercising my Imperial prerogatives in such a way as to retard the eventual restoration of a Republic.

pg. 194

The harbour at Ostia was by no means my only great public work. The verse that the Sibyl of Cumae recited when I visited her once, in disguise, ten years before I became Emperor, prophesied that I should "give Rome water and winter bread." The winter bread was a reference to Ostia, but the water meant the two great aqueducts I built. It is very curious about prophecies. A prophecy is made, perhaps, when one is a boy and one pays great attention to it at the time, but then a mist descends: one forgets about it altogether until suddenly the mist clears and the prophecy is fulfilled. It was not until my aqueducts were completed and consecrated, and the harbour completed too, that I recalled the Sibyl's verse. Yet I suppose that it had been at the back of my mind all the time as it were the God's whisper to me to undertake these great projects.

My aqueducts were most necessary: the existing water supply was by no means sufficient for the City's needs, though greater than that of any other city in the world. We Romans love fresh water. Rome is a town of baths and fish-pools and fountains. The fact was

that, though Rome was now served by no less than seven aqueducts, the rich men had managed to draw away most of the public water for their own use, getting permission to connect private reservoirs with the mains--their swimming-baths had to have fresh water every day, and their great gardens had to be watered--so that many of the poorer citizens were reduced in the summer to drinking and cooking with Tiber water, which was most unhealthy. Cocceius Nerva, that virtuous old man, whom my Uncle Tiberius kept by him as his good genius, and who eventually committed suicide--this Nerva, then, whom Tiberius had made his Inspector of Aqueducts advised him to show his magnanimity by giving the City a water-supply worthy of its greatness; and reminded him that his ancestor Appius Claudius the Blind had won eternal fame for bringing the Appian Water into Rome, from eight miles away, by the City's first aqueduct. Tiberius undertook to do as Nerva advised, but put the project off, and put it off again and again, as his way was, until Nerva's death. Then he felt remorse and sent his engineers out to discover suitable springs, according to the rules laid down by the famous Vitruvius. Such springs must run strongly all the year round, and run clean and sweet, and not fur the pipes, and must have such an elevation that, allowing for the fall necessary to give the channel of the aqueduct its proper inclination, the water will enter the final reservoir at a height sufficient to allow of its distribution, by pipes, to the highest houses in Rome. The engineers had to go far afield before they came on water that answered their purpose: they found it eventually in the hills to the south-east of the City. Two copious and excellent springs called the Blue Spring and the Curtain Spring broke out near the thirty-eighth milestone on the Sublacentian Road: they could be run together as one. Then there was the New Anio stream which could be drawn upon at the forty-second milestone on the same road, but on the other side: that would have to be carried by a second aqueduct and would pick up another stream, the Herculanean, opposite the Blue Spring. They reported that the water from these sources fulfilled all the necessary conditions, and that there was no nearer supply that did so. Tiberius had plans for two aqueducts drawn out and called for estimates; but decided at once that he could not afford the work, and shortly afterwards died.

Caligula, immediately on his accession, to show that he was of a more generous and public-spirited nature than Tiberius, began work on Tiberius's plans, which were very detailed and good ones. He started well, but as his Treasury grew empty he could not keep it up and, taking his workmen from the most difficult parts (the great arched bridges, arch over arch in tiers, which carried the water across valleys and low ground), he put them to work on the easier levels where the channel ran round the slopes of hills or directly across the plain. He still could boast of rapid progress in terms of miles, and the expense was negligible. Some of the arches which he thus shirked building needed to be over a hundred feet high. The first aqueduct, afterwards called the Claudian Water, was to be over forty-six miles long, of which ten miles were to run on arches. The second, called the New Anio, was to be nearly fifty-nine miles long, and fifteen miles or so were to run on arches. When Caligula quarreled with the people of Rome, the time they made the disturbance in the amphitheatre and sent him running in fright out of the City, he made his quarrel an excuse for abandoning all work on the aqueducts. He took the workmen away and put them on other tasks, such as building his temple and clearing sites at Antium (his birthplace) for the erection of a new capital city there.

So it fell to me to take up the work, which seemed to me one of first importance, where Caligula had abandoned it, though it meant having to concentrate on the more difficult

stretches. If you wonder why the New Anio, though picking up the Herculanean stream close to the beginning of the Claudian Water, had to make a great circuit, instead of being run along the same arches, the answer is that the New Anio started at a much higher level and would have had too swift a flow if it had been brought down immediately to the Claudian Water. Vitruvius recommends an inclination of half a foot in a hundred yards and the height of the New Anio did not allow it to join the Claudian Water, even on a higher tier of arches, until quite near the City, having travelled thirteen miles farther. In order to keep the water clean, there was a covered top to the channel with vent-holes at intervals to prevent bursts. There were also frequent large reservoirs through which the water passed, leaving its sediment behind. These reservoirs were also useful for purposes of irrigation, and amply paid for themselves by making it possible for the neighbouring land-owners to put land under cultivation which otherwise would have been waste.

The work took nine years to complete, but there were no set-backs; and when it was finished it was among the chief wonders of Rome. The two waters entered the City by the Praenestine Gate, the New Anio above, the Claudian below, where a huge double arch had to be built to cross two main roads. The terminus was a great tower from which the water was distributed to ninety-two smaller towers. There were already some one hundred and sixty of these small water-towers in existence at Rome, but my two aqueducts doubled the actual supply of water. My Inspector of Aqueducts now calculated the flow of water into Rome as equal to a stream thirty feet broad and six feet deep, flowing at the rate of twenty miles an hour. Experts and ordinary people agreed that mine was the best quality of water of any, except that brought by the Marcian Water, the most important of the existing aqueducts, which accounted for fifty-four of the towers and had been in existence for about a hundred and seventy years.

I was very strict about the thieving of water by irresponsible persons. The chief thieving in the old days before Agrippa undertook the work of overhauling the whole water-system--he built two new aqueducts himself, one chiefly underground on the left bank of the Tiber--was done by deliberately punching holes in the main, or bribing the persons in charge of the aqueducts to do so, and making the damage look accidental; for there was a law giving people the right to casual water from leaks. This practice had lately started again. I reorganized the corps of aqueduct workers and gave orders that all leakages were to be immediately repaired. But there was another kind of thieving going on too. There were pipes leading from the main to private water-towers built by the common subscriptions of wealthy families or clans. These pipes were made of lead and of a regulation size, so that no more water should be taken from the main than could flow through the pipe in its normal horizontal position; but by enlarging the pipe by pushing a stake through, lead being a very ductile metal, and furthermore inclining it from the horizontal, a much greater flow of water was obtained. Sometimes more impudent or powerful families substituted pipes of their own. I was determined to stop this. I had the pipes cast of bronze and officially stamped and so fixed to the main that they could not be declined without breaking them, and ordered my inspectors to visit the water-towers regularly to see that nothing was tampered with.

I might as well mention here the last of my three great engineering undertakings, the draining of the Fucine Lake. This lake, which lies some sixty miles due east of Rome under the Alban Hills, surrounded by marshes, is about twenty miles long and ten wide, though of no

great depth. The project for draining it had long been discussed. The inhabitants of that part of the country, who are called Marsians, once petitioned Augustus about it, but, after due consideration, he turned down their request on the ground that the task was too laborious and that the possible results could not justify it. Now the question was raised again and a group of rich land-owners came to me and volunteered to pay two-thirds of the expense of the drainage if I undertook to carry it out. They asked in return grants of the land that would be reclaimed from the marshes and from the lake itself when the water was drained off. I refused their offer, because it occurred to me that if they were willing to pay so much for the reclaimed land it was probably worth far more. The problem seemed a simple one. One had only to cut a channel three miles long through a hill at the south-west extremity of the lake, thus allowing the water to escape into the River Liris which ran on the opposite side of the hill. I decided to start at once.

The work began in the first year of my monarchy, but it was soon evident that Augustus had been right in not attempting it. The labour and expense of cutting through that hill was infinitely greater than my engineers had reckoned it would be. They came on huge masses of solid rock that had to be hacked away piece by piece, and the debris dragged off along the channel; and there were troubles with springs in the hill which kept bursting out and interfering with the work. In order to finish it at all I soon had to set thirty thousand men working constantly at it. But I refused to be beaten: I hate throwing up a task. The channel was completed only the other day, after thirteen years' labour. Soon I shall give the signal for opening the sluice-gates and letting out the lake-water.

Chapter 15 pg. 270

In my self-confident ignorance I did one particularly stupid thing: I listened to Messalina's advice on the subject of monopolies. You must remember how clever she was and how slow-witted I was, and how much I relied on her: she could persuade me to almost anything. She said to me one day: "Claudius, I have been thinking about something; and that is, that the nation would be much more prosperous if competition between rival merchants were to be suppressed by law."

"What do you mean, my dear?" I asked.

"Let me explain by an analogy. Suppose that in our governmental system we had no departments. Suppose that every secretary in this place were free to move from job to job just as he thought fit. Suppose that Callistus were to come rushing into your study one morning and say: 'I got here first and I want to do Narcissus's secretarial work this morning', and then Narcissus, arriving a moment later and finding his stool occupied by Callistus, were to dash into Felix's room, just in time to anticipate Felix, and begin work on some foreign-affairs document that Felix had not quite finished drawing up the night before. That would be ridiculous, wouldn't it?"

"Very ridiculous. But I don't see what this has to do with merchants."

"I'll show you. The trouble with merchants is that they won't stick to a single task or let their rivals stick to one. None of them is interested in serving the community, but merely in finding the easiest way of making money. A merchant may start with an inherited business as a wine-importer, and manage that soberly for a while and then suddenly break into the oil-business, underselling some old established firm in his neighbourhood; perhaps he will force

this firm out of business or buy it up, and then perhaps dabble in the fig-trade or slave-trade and either crush competitors or get crushed himself. Trade is constant fighting, and the mass of the population suffers from it, just like non-combatants in a war."

"Do you really think so? Often they get things surprisingly cheap when one merchant is underselling another merchant or when he goes bankrupt."

"You might as well say that sometimes non-combatants can get quite good pickings from a battle-field--scrap-metal, the hides and shoes of dead horses, enough sound parts of broken chariots to build one good one with. Those windfalls aren't to be reckoned against the burning of their farms and the trampling down of their crops."

"Are merchants as bad as all that? They never struck me as being anything but useful servants of the State."

"They could be and ought to be useful. But they do great harm by their lack of co-operation and their insane jealous competition. The word goes round, for example, that there's to be a demand for coloured marble from Phrygia, or Syrian silk, or ivory from Africa or Indian pepper; and for fear of missing a chance they scramble for the market like mad dogs. Instead of persisting with their ordinary lines of commerce, they rush their ships to the new centre of excitement, with orders to their captains to bring as much marble, pepper, silk or ivory as possible at whatever cost, and then of course the foreigners raise the prices. Two hundred shiploads of pepper or silk are brought home at great expense when there is really only a demand for twenty, and the hundred and eighty ships could have been far better employed in importing other things for which there would have been a demand and for which a fair price could have been got. Obviously trade ought to be centrally controlled in the same way as armies and law-courts and religion and everything else is controlled."

I asked her how she would control trade if I gave her the chance. "Why, that's simple enough," she answered. "I would grant monopolies."

"Caligula granted monopolies," I said, "and sent prices up with a rush."

"He *sold* monopolies to the highest bidder, and of course prices went up. I wouldn't do that. And my monopolies wouldn't be so huge as Caligula's. He sold one man the world's trading rights in figs! I'd simply calculate a normal year's demand for any given commodity and then freely allocate that trade for the next two years to one firm or more of traders. I would, for instance, grant the sole right to import and sell Cyprian wines to such-and-such a firm; and the sole right to import and sell Egyptian glass to such-and-such a firm; and Baltic amber and Tyrian purple and British enamel would go to other firms. Control trade like this and there is no competition, so the foreign manufacturer or dealer in raw materials can't put up the price; 'take it or leave it,' says the trader, as he fixes the price himself. The traders who have not sufficient standing to be granted monopolies must either come to terms with monopoly holders, if the latter think that they have more trade than they can manage themselves, or must discover new industries or trades. If I had my way everything would be thoroughly orderly, and we should be well supplied, and the State would get bigger harbor-dues than ever."

I agreed that it sounded a very sensible plan; and one good effect would be to release a large number of ships and merchants for the corn trade. I immediately empowered her to grant a large number of monopolies, never suspecting that the clever woman had talked me over to her scheme merely with an eye to the enormous bribes that she would get from the

merchants. Six months later the removal of competition in the monopoly trades, which included necessaries as well as luxuries, had sent prices up to a most ridiculous height—the merchants were recovering from the consumers what they had paid in bribes to Messalina—and the City became more restless than at any time since the famine-winter.

Chapter 25 pg. 432

The harbour at Ostia was not nearly completed yet and had already cost six million gold pieces. The greatest technical difficulty now lay in forming the island between the extremities of the two great moles; and you may not credit it, but I solved it myself. You remember Caligula's great obelisk-ship which had taken the elephants and camels to Britain, and brought them safely back too? She was a Ostia again and had been used twice since for voyages ID Egypt to fetch coloured marble for Venus's temple in Sicily. But the captain told me that she was becoming unseaworthy and he would not -care to risk another voyage in her. So one night, as I lay awake, it occurred to me that it would be a good idea to fill her with stones and sink her as a foundation for the island. But I rejected that, because we could only be able to fill her about a quarter full of stones before the water rose over the gunwale, and when she rotted they would just fall out in a loose heap. So I thought, "If we only had a Gorgon's head handy to turn her into a big solid rock!" And that foolish fancy, the sort that often flies into my mind when I am over-tired, gave birth to a really brilliant idea: why not fill her as full as possible with cement powder, which is comparatively light, and then batten down her hatches, sink her, and let the cement set under the water?

It was about two o'clock in the morning when this idea came to me and I clapped my hands for a freedman and sent him off at once to bring my chief engineer to me. About an hour later the engineer turned up from the other side of the City in a great hurry and trembling violently; expecting to be executed, perhaps, for some negligence or other. I asked him excitedly whether my idea was practicable, and was greatly disappointed to hear that cement would not set satisfactorily in sea-water. However, I gave him ten days to find some means of making it set. "Ten "I repeated solemnly, "or else ... "

He thought that "or else" was a threat, but if he had I would have explained my little joke which was simply, "or else we shall have to abandon the idea." Fear improved his wits, and after eight days' frantic experimenting he invented a cement powder that set like a rock when it came into contact with sea-water. It was a mixture of ordinary cement powder from the cement works at Cumae with a peculiar sort of dust from the hills in the neighbourhood of Puteoli, and the shape of that obelisk-ship is now eternized in the hardest stone imaginable at the mouth of Ostia harbor. We have built an island over it, using large stones and more of the same cement; and there is a tall lighthouse on the island, with a beacon fire fed with turpentine shining every night from its summit. There are polished steel reflectors in the beacon chamber which double the light of the fire and send it out in a steady stream down the estuary. The harbor took ten years to complete and cost twelve million in gold; and there are still men at work improving the channel. But it is a great gift to the City and so long as we command the seas we can never starve.