ADRIAN BOOT: A DUTCH ENGINEER IN COLONIAL SPAIN (1614-1637)

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Mexico City lies at the lowest point of a large basin of land called the Valley of Anáhuac, surrounded on all sides by extensive mountain ranges that are dotted with extinct volcanoes. The valley itself is in the very heart of the lush central highlands of the modern Republic of Mexico, an area of fertile soils irrigated by a generous annual rainfall. Because of the contours in this landscape, the water which falls in the Valley of Anáhuac flows in towards Mexico City and accumulates there, forming several large lakes.

In the days of the Aztecs, their capital city of Tenochtitlan was completely surrounded by water. This highly advanced nation lived in perfect harmony with these lakes, building floating gardens called **chinampas** on top of them, fishing them, and travelling everywhere on them in swift, small canoes. "A city greater than Venice," was the considered opinion of the first **conquistadores**. Moreover, the Aztecs had developed a complex, cleverly-contrived system of dykes operating the length and breadth of the valley, so as to control the levels of the different lakes and divert water for purposes of agricultural irrigation.

But less than a century after Tenochtitlan fell to the Spaniards, this finely tuned system of dykes was no longer functional. The Aztec leaders who had supervised its operation had died out, taking their knowledge with them, and the vast pool of Indian labour which had manned it had been reduced to a small fraction of their previous numbers by the terrible plagues which decimated the native populace. And the new city built on European lines by the Spanish in place of Tenochtitlan, which they had razed, proved to be nowhere near as amenable to the waters surrounding it as the Aztec one had been. Even slight rises in the water level caused extensive damage, flooding buildings and leaving the streets impassable. In addition to which the lake's waters, now stagnant, posed a constant health hazard.

By the second half of the Sixteenth Century, the Spanish authorities finally despaired of their attempts to keep the old Aztec system working and began looking instead for a new solution to the problem. This task was entrusted to one Enrico Martínez, a German-born printer, mathematician, cosmographer and translator for the Holy Inquisition who had lived in New Spain for many years. Martínez began by making a study of the valley's hydrography and arrived at what was basically the correct solution: a cut would have to be made running out of the lowest of the lakes below Mexico City, so that any excess water over a certain level would be diffused in the valley beyond.

However, what at first appeared to be a fairly simple concept proved exceedingly difficult to implement in actual practice. After several years of hard digging by Indian work-gangs had produced no noticeable improvement in the situation, the authorities began to realize that the matter lay beyond Martínez's scope. Someone else would have to be brought in, but where was such a person to be found? Martínez had been selected as the ablest man for the job in New Spain; therefore it would appear that somebody would have to be sent out from Europe in order to complete the task. Consequently, the viceroyal authorities wrote to King Philip III of Spain, requesting that such a specialist be found and contracted to come to the New World.

The King approved this request, and passed the matter on to his ministers so that such a person might be found. It soon became apparent that such a man was not to be found in Spain either, and the Spanish ambassador in Paris was instructed to look for somebody there. He soon wrote back saying that he had retained a Dutch engineer named Adrian Boot for this purpose, who would shortly be travelling into Spain. Unfortunately, we know nothing about this man Boot prior to this point – his birthplace, studies, early career, religion, marital status, etc. – nor even how it was that he came to be in Paris at this time. All we do know is that he was Dutch, and that through a highly unusual series of circumstances he was ordered sometime early in the year 1614 to travel to the Port of Seville and sail halfway around the world in the great annual plate fleet as the King's Engineer for New Spain.

The fleet straggled out of Sanlúcar de Barrameda, the port of Seville, between the 13th and 20th of June, 1614, menaced by a squadron of Barbary pirates who roamed about in the distance in the hopes of snapping up a prize. Heading southward down the coast, the fleet was joined by seven more galleons at Cadiz, bringing their total number to 43. By the 8th of July, all were under way to the New World. Five more vessels joined them at the Canaries, and the great mass of shipping sailed patiently westward across the Atlantic Ocean.

Once in the Caribbean the fleet split up, different ships separating themselves in order to proceed directly to their individual destinations in Spanish America. The bulk of the fleet, however, continued on for the Port of Veracruz

in New Spain. This portion of the fleet, in which Boot travelled as a passenger, suffered terribly through several violent storms, and a number of galleons were lost. (We cannot say whether Boot's ship was one of these ships that were lost, although he was later to state that he arrived in New Spain penniless and "with nothing.") The remaining ships, badly ravaged, struggled into Veracruz between the 19th of September and the 3rd of October of this same year, thus ending a voyage of some four months' duration.

Once the ships had tied up at the fortress of San Juan de Ulúa, which guarded the roadstead at the port, Boot would have disembarked and headed inland. Leaving the torrid, marshy flatlands of the Gulf coast behind, he would have travelled by mule train high up into the great mountain ranges until at last he gazed down upon a large city surrounded on all sides by water ... a trait he had travelled several thousand miles to alter.

Immediately after reporting to the Viceroy he started in on his work, reconnoitering the area and consluting with Martínez and other officials involved in the project as to what should be done next in order to rectify the dig. Early in the following year of 1615, Boot presented his findings to the Viceroy and to the members of the city government, who were pleased to approve his suggested improvements. Once again the Indian labourers were set to work on the project, patiently implementing the new designs. As might be expected in this pre-Industrial age, such tasks could only be carried out very slowly.

In the meantime, though, there was also much else to claim Boot's time besides this one project. On October 12, 1615, a Dutch naval expedition under the command of Joris van Speilbergen captured the port-city of Acapulco on Mexico's Pacific coast. Although the invaders sailed away again shortly thereafter, the viceroyal government was badly shaken. Spanish resources had already been stretched thin by the constant depredations of her enemies, and her ports on the Pacific Ocean were all largely unprotected; it had been felt that their very remoteness would be their best defense. Van Speilbergen and his men had now shattered this belief, and the Spanish authorities feared for their immensely wealthy Manila trade.

Within a month of the attack, Boot had arrived in Acapulco with orders from the Viceroy to replace the single redoubt there with a proper fortress. It is ironic to think of a Dutch engineer being dispatched to improve the defense of a Spanish port raided by his countrymen on the far side of the globe, but this is in fact what transpired, and it makes for an unusual footnote to the history of Van Speilbergen's circumnavigation. Boot quickly got on with this new project, and by April of 1617 he had supervised the completion of Fort San Diego, overlooking the harbour at Acapulco. He then returned to Mexico City to continue work on the drainage of the Valley of Mexico.

But just a few years later his work was interrupted once again, this time on account of the poor condition of the fortress of San Juan de Ulúa, at Veracruz. In 1619, the Count of Gelve arrived at this port on his way to Mexico City to assume the office of viceroy. While in Veracruz, he inspected its fortress and was most alarmed by its dilapidated condition and poor siting, which he duly reported to the King. Two years later, after having corresponded back and forth with King Philip on the matter, the Viceroy despatched Boot to the Port of Veracruz to make a study of the fortress and propose some improvements. This Boot did, but his proposed repairs and alterations would have proved to be much too expensive for the impoverished Spanish exchequer, so that by the year 1623 the project had to be dropped. Once again, Boot returned to his drainage work.

It was just a few years after this that Boot's fortunes took a decided turn for the worse. To begin with, in the year 1627, Mexico City suffered a devastating flood, its first in twenty years. Naturally, the local government and citizenry were incensed. After a dozen years of expensive, protracted labour under Boot's direct personal supervision, the drainage system still did not do what it was supposed to do. Then the very next year, a Dutch seaman named Piet Hein captured the entire Mexican plata fleet homeward bound for Spain while it was approaching Havana. In Mexico City itself, there was widespread anger and mourning; many businesses were forced into bankruptcy, and the government itself was hard hit. And as might be expected, anti-Dutch feelings also ran high. As if this were not enough already, in 1629 Mexico City was once again inundated by a major flood.

Even before this swift series of calamities struck, it would seem that Boot had not been too popular. He had apparently been quite peremptory in his dealings with people, and consequently had few close friends amongst the suave Spanish officials. This combined with the aforementioned events to place Boot – rightly or wrongly – in considerable disfavour with both the Spanish authorities and populace. In such a superstitious, intolerant age, and with public passions inflamed, it is quite likely that only his royal appointment saved Boot from a worse fate ... for the time being.

The first priority was to clean up the debris from the last two floods and take whatever steps were necessary to prevent a recurrence, and for a space this occupied everyone's attention. However, it soon became apparent that Boot's influence had waned most alarmingly. Whereas before his professional opinions and pronouncements had been unhesitantly accepted, they were now subjected to a careful scrutiny and often received a vocal opposition. The King of Spain himself (now Philip IV, son of Philip III) wrote continually to the Viceroy expressing his concern as to "the precarious state" of the drainage system in the Valley of Mexico. In 1631, a Carmelite monk called Andrés de San Miguel prepared a study showing how the Valley might better be drained, which he submitted to the Viceroy and to the King. New, Spanish-born officials began to play more and more of a role in the drainage project, and at long last - mercifully, perhaps - Boot's long fall from grace came to its inevitable end.

On July 16, 1636, the Viceroy wrote to King Philip telling him that he had been officially notified by the Prosecutor for the Holy Office of the Inquisition for New Spain that Adrian Boot, the King's Engineer, had been denounced before that body. In essence, the denunciation consisted of the fact that no credence was any longer being given to Boot's professional competence and that his past failures could clearly be discerned in the abysmal state of his works at Acapulco, Veracruz and in the Valley of Anáhuac. These charges only served to corroborate complaints the Viceroy himself had made in the past to the King, questioning Boot's capabilities. Obviously Boot's stock had sunk very low by this time, as even the royal patronage no longer served to protect him.

Not that the King had any intention of doing any such thing; in fact, his reaction was quite the contrary. A general meeting was to be held in Mexico City in order to discuss the drainage question, and Boot's fate was quite obviously already decided. In his reply to the Viceroy's letter above, King Philip suggested that:

> "...for the time being the most appropriate course of action would seen to be to lay hold of his person, at least until after the general meeting has been held, after which further charges calling for more severe measures might well be brought against him. In any event, it would appear he is now so old and crippled as to be of no real use anyway..."

With this callous dismissal, dated at Madrid on December 1, 1636, Boot would most certainly be done for. Given his past difficulties with his peers in Mexico and the heightened feelings of the times, the removal of the King's protection alone would have been enough to place him in a very awkward position.

But the King was not acting reluctantly, in any case; in fact, he wanted Boot to be safely locked up. "I would suggest that in future instances of this nature, you regard even the slightest suspicions as sufficient grounds for applying effective remedies," the King continued in this very same letter. This was especially true in the case of Boot, he added, because his intimate knowledge of New Spain's coastal defenses and his travels to these locales made him a dangerous man "... what with our enemies' attentions being so great as they are at present ..." The King of Spain, it would appear, wanted his royal engineer silenced.

The following year, 1637, Adrian Boot was arrested by the Inquisition. His case was definitely an anomaly, for he had not been accused of any religious crimes; rather, the Crown wished to take advantage of the fact that Boot had been denounced before that body so as to quietly remove him from public life. Boot was arrested and held **incommunicado** in one of the Inquisition's "secret jails," actually a cell in a monastery. His imprisonment does not appear to have been onerous; he was given books from his library to read. The Church, of course, had nothing on Boot, and although his possessions were confiscated and Protestant books were found amongst them, there is no evidence of any formal proceedings ever having been brought against him by the Inquisition.

In the meantime, work continued apace on the drainage project; on August 17, 1637, the Viceroy named Reverend Luis Flores, a Franciscan monk, as General Superintendent of the drainage system, and by 1640 a new Royal Engineer had also been appointed, one Juan Lozano de Balbuena ... all to no avail. The solution to the drainage problem continued to elude the Spanish authorities just as it had Boot, and despite two and a half centuries of hard work and effort, the Valley of Mexico was not properly drained until late in the Nineteenth Century.

There were to be other foreign engineers brought to New Spain by the Crown, too, just as it had brought Boot, and many of them met with a similar fate. Next after Boot was Marcus Lucius, a Flemish engineer. He served in New Spain in the mid-Seventeenth Century, working on the fortifications at Veracruz and other military projects until he was returned to Europe in chains early in the 1670's suspected of treason. He was followed by James Frank, a German engineer who took up where Lucius

left off; twenty years later he committed suicide while working on the fortress at Campeche. While as for Adrien Boot, their precursor, we would like to know more: his birthplace, studies, early career ... and the exact circumstances of his death.