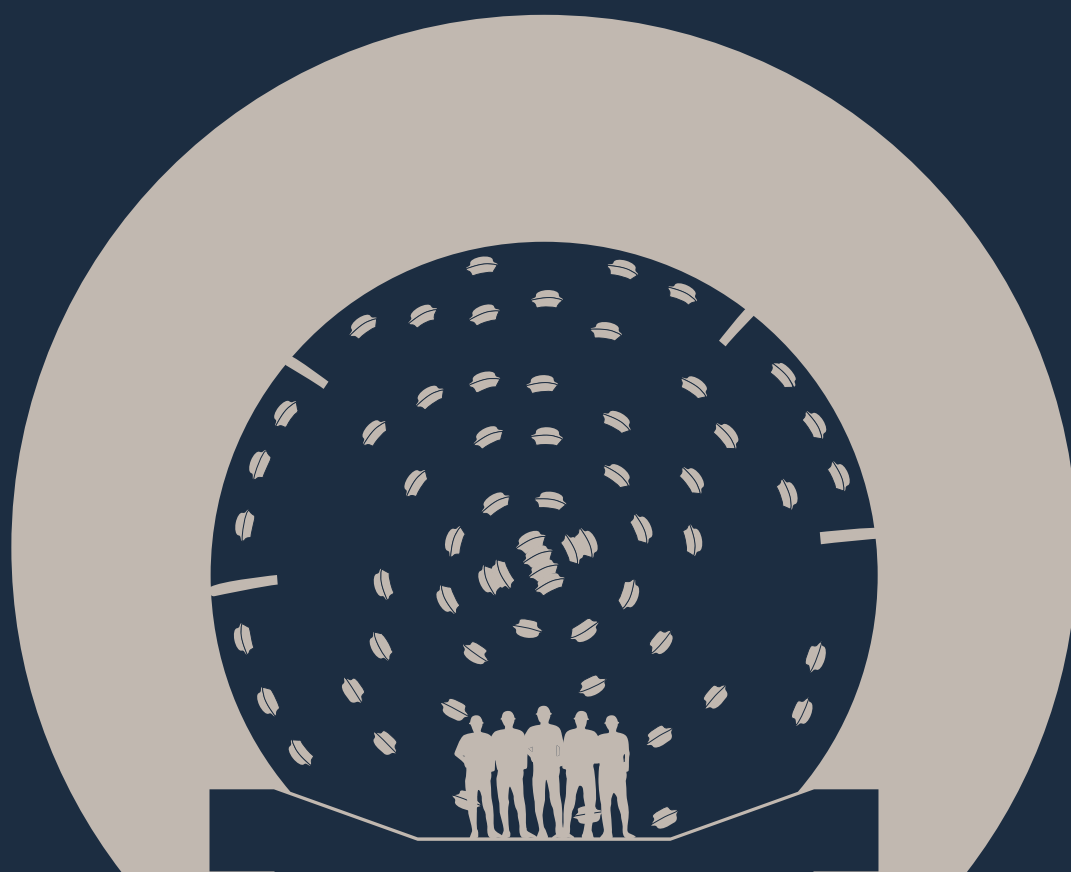


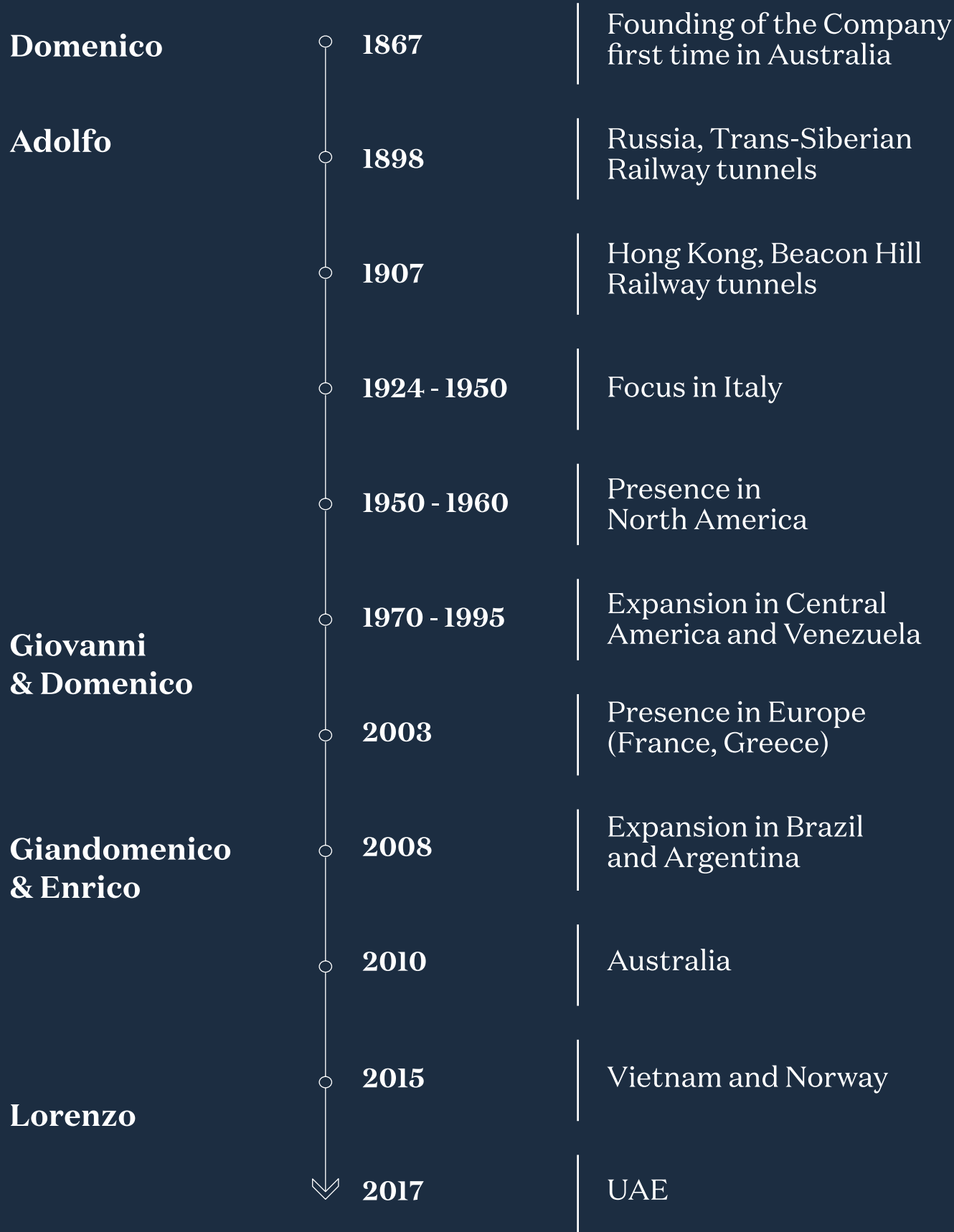
# GHELLA

FIVE GENERATIONS  
OF EXPLORERS AND DREAMERS



*Eugenio Occorsio*

*in collaboration with Salvatore Giuffrida*



1837

**DOMENICO GHELLA**

The forefather

Milan, June 1837.

At the head of the city there is a new mayor, Gabrio Casati.

He was appointed on 2 January, the same day that Alessandro Manzoni married his second wife Teresa Borri, following the death of Enrichetta Blondel. The cholera epidemic of one year ago, which caused more than 1,500 deaths, is over and the city is getting back onto its feet. In February, Emperor Ferdinand I of Austria gives the go-ahead to build a railway linking Milan with Venice, while in the city everyone is busy talking about the arrival of Honoré de Balzac. He is moving into the Milanese capital following an inheritance and apparently, to also escape debts accumulated in Paris.

In the meantime, the long wave of tumultuous uprisings from 1830 is making itself felt. Milan's new military commander is Marshal Radetzky, who leads with an iron fist, quashing any revolutionary uprising that lies in his wake, also the Milanese wing of Giovine Italia, the Insurrectionary Movement formed by Giuseppe Mazzini in Marseille, with investigations by Trentino magistrate Paride Zajotti: the Milanese leader Luigi Tinelli is exiled to the US, and even Garibaldi, who had dealings with the Mazzinians, is forced to flee to South America.

They are difficult months in Milan. Two hundred kilometres to the south is the port of Genoa. From here there is a relentless departure of steamers full of revolutionaries on the run, convicts and adventurers: their destination, the Americas and Australia.

At that time around 500,000 people live in Milan, including the suburbs in the peripheral belt. One of these is Noviglio, a rural hamlet in the south of the city.

It is here, that on June 26 1837 Domenico Ghella is born. Far away from the centre, from political life and the salon culture of the aristocracy, Noviglio is known for farmsteads, rice weeders, and storks which come to nest on the church steeples from May to July. A rural snapshot of a few hundred souls, living on the margins of a great city. Here Domenico spends his childhood years, then at the age of 13 he goes to France, to Marseille, where he will spend ten long years working as a miner. It won't be easy for a young boy from Noviglio: it is the years following the Paris and Marseilles Commune experiments, social tensions are brewing on the French coastline, becoming ever more acute with the industrial development in the region. Marseilles is a destination for Italian immigrants looking for work in the mines and the oil industry, where the first socialist ideas and class struggle are emerging and growing in strength. But it also gives birth to the first feelings of chauvinism and xenophobia which, a few years later, will lead to disruptions and demonstrations against the Italians, such as the "Marseillan Vespers" of 1881: there will be three deaths, and at least fifteen injured.



Domenico learns in advance that the events are about to take place and bids his farewell to the French "caldera" before it happens. He has learned the language, he knows his way round the environment of Marseilles, and learns that in Egypt the Compagnie du Canal Maritime, headed by Ambassador Ferdinand De Lesseps, is working on a construction that would change history: the Suez Canal. He too must take part. He knows it could well change the course of his life. But he needs to hurry: in February 1867, the sections to the north and south of Lake Amaro have been opened to navigation, and the help of external companies is only required to finalise the work and render it secure. **It's an opportunity to be seized with both hands.**

ABOVE 1867 - First jobsite  
of the Ghella family

Domenico boards the first available steamboat in Marseilles and, on landing at Port Said, immediately offers his help to the moustached French diplomatic. Domenico is thirty years old, with experience to sell and the confidence of one who knows how to handle himself in any situation, even the most difficult, such as the tough mines of Marseilles; and an infancy spent with the "Great French" in Florence, where Ferdinand's father, Count Mathieu de Lesseps, served as consul-general also smooths the way.

**Domenico** gets the job and **works at the Suez Canal until 1871**, for three intense years: it will give a strong international focus to the rest of his life; one that he will pass on to his children. Meanwhile, the world is changing: Europe welcomes two new nations, Italy and Germany, while Britain closes itself in splendid isolation, and the Austro-Hungarian empires, Ottoman and Russian begin their rapid decline.

*In Istanbul, in the meantime  
the Sultan is building an underground  
funicular railway.*

The Industrial Revolution brings science, accelerates change and shortens distance: where once you went on foot, you now go by car or train. There are more explorations and opportunities are growing, but also latent social conflicts and the great mass ideologies that will be at the root of twentieth-century tragedies are escalating: Charles Darwin publishes "The Origin of Man" in 1871, in 1873 Michail Bakunin writes "Statism and Anarchy", and Jules Verne publishes "Around the World in Eighty Days".

A "new man" has been born who must find a balance and his role within the new industrial society where everything is called into question. Domenico becomes someone who is half way between entrepreneur, technician and adventurer: in 1871 he leaves Port Said, but remains in the Ottoman Empire. **He learns that on the European side of Istanbul, the Sultan is building an underground funicular railway** line to link the two central districts of Beyoglu and Karakoy, medieval Galata, the historic nucleus of the city. Located on the northern shore of the Golden Horn, the Tünel, as it is called today in Turkey, goes up along the hills of Eyüp for 573 metres. Only the London Underground, which opened in 1863, exceeded it in size for a work of this kind.

Domenico begins its excavation in 1871, to create what is still today the second oldest urban underground line in the world: a single brick tunnel, 554 metres long, 6.7 wide and almost 5 metres high, which arrives at 61 metres above sea level, and has an angle ranging from 2% to 15%. At that time, two sets of steam-driven carriages journeyed through the Tünel, one for goods and animals, and one for the passengers: every day at least 40 thousand people travelled on it.

The work carried out in Istanbul provides Domenico with experience and a certain notoriety in an environment that really matters. And after five years at the Sultan's Court, Domenico returns to Italy: he has landed a new assignment, in Piedmont, on the Novi-Ovada-Acqui link, in a land of cyclists, where he is to build some wells and systems. It is here in Piedmont, in Collettero Castelnuovo, that his eldest son Adolfo Ghella will be born, on 17 August 1877.

The crucial year, however, **will be 1894: Domenico founds the Ghella Company.** In that very same year, he passes away at the age of 57.

To drive the company forward and establish the road ahead for the Ghella family will be Adolfo himself, he too half way between entrepreneur, engineer and adventurer. **Also he, just like his father, leaves his homeland at the age of 13, not only for work, but also for adventure:** his work: he will follow his father into the construction business and, **before long he will acquire an experience and vision that will take him to the four corners of the earth, from Australia to Russia.**

# 1877 - 1908

## ADOLFO GHELLA

### The second generation



**Adolfo is born on 17 August, 1877 in Colleretto Castelnuovo**, a town of a few hundred souls, alongside a wood of ash and birch trees that dominates the Canavese countryside and the plains of Turin.

It is here that the industrial revolution begins to produce its first results here in Italy: in a few years, in 1899, Giovanni Agnelli will found Fiat in Turin and just a few dozen kilometres away in Ivrea, in 1903 Camillo Olivetti will set up his typewriter factory, following the management and organisation models learnt in the USA by Thomas Edison.

A new generation of visionary entrepreneurs has been born, of which Adolfo is an integral part: at the age of 13 he follows his father into the construction yard and learns on the job, learning how to devise and construct wells, galleries and bridges.

But it's no longer enough. Times have changed, and to keep pace with new technological discoveries, one needs to study and combine practice with theory. On the death of his father, Adolfo inherits two thousand lire. He already knows exactly how to invest the sum; He returns home to complete his studies at the Institute of Pinerolo where, in 1896, he obtains a degree in Surveying. It is the starting point for Adolfo, who leaves for Egypt that same year. He wants to visit the most famous works built by his father: the Suez Canal and the Tünel of Galata in Istanbul. But the "Sublime Porte" is no longer the dynamic and profitable city that had greeted his father Domenico twenty-five years earlier.

*He wants to visit the most famous works built by his father: the Suez Canal and the Tünel of Galata in Istanbul*

The Ottoman Empire is in the midst of a crisis: the Tanzimat, the reform agenda established by the sultans to modernise the Empire and invest in new technologies and infrastructure such as the Tünel built by Domenico, is essentially at a standstill, and even the new liberal measures introduced by Sultan Abdul Hamid II, who ascended the throne in 1876, are unable to revive the Empire. The consequences of the disastrous Ottoman-Russian wars in 1878 are still being felt and, following the Sultan's efforts to involve Muslims against Moscow, talk of Ummah is beginning to be heard on everyone's lips, the great Islamic nation: Istanbul is now considered the beacon of Islam and Abdul Hamid wants to unite the Arabs, Albanians and Turks in a single identity with a clear religious matrix.



The governor of East India issues a direct warning to the Foreign Office: the risk of a holy war is real and taking control of the Sublime Porte becomes a strategic goal for the Foreign Office. Events soon deteriorate. In Istanbul an ill wind is blowing: in 1896, when Adolfo arrives in the city, the Sultan is in the middle of declaring war against Greece in an attempt to maintain control over Crete, which he is destined to lose just a few months on. In the same year, riots and fighting are increasing between the Ottoman police and Armenian community, who are demanding the reforms and guarantees as promised in 1878 by the Berlin peace agreement following the war against Russia.

ABOVE 1914 - Back to Russia

But there is nothing to be done for the two million Catholic Armenians who, for centuries, have been living in Anatolia: the situation in Istanbul is rapidly degenerating. On 26 August 1896, a group of Armenian revolutionaries break into the Ottoman Bank headquarters in Istanbul to raise international awareness of the community's demands.

The guards are killed and more than 120 employees are taken hostage. Abdul Hamid's response is so severe that the Sultan earns the nickname "the Red" due to his blood-thirsty disposition. Thousands of people in Istanbul and the Empire are massacred in an endless pogrom: according to the French historian Pierre Renouvin, at least 250 thousand Armenians are killed in the space of a few days. With bloodshed all around him, there is little that Adolfo can do, and in 1898, just two years after leaving Collettero Castelnuovo, he heads back to Italy.

*Adolfo, just two years after,  
heads back to Italy.*

It is not long before he finds a new opportunity: a job as intern at the surveying office of Maddio, one of the most important in Castellamonte, a municipality of ten thousand inhabitants not far from Turin. **We are at the end of the century and they are crucial years for Italy.**

Large scale industrial capitalism is beginning to emerge also in new sectors such as steel, energy and textiles. Between Milan, Turin and Genoa a triangle is formed that will become the heart of the nation's industry. Lombardy, Piedmont and Liguria are putting advanced infrastructures in place: the Gottardo railway connects Northern Italy with Switzerland and Germany, Moncenisio with France and Brenner with Austria. Milan becomes the financial hub of the country, Genoa is the main port in Italy and Turin is the heart of the manufacturing industry.

Against this background, **Adolfo who, at the age of 23, could already boast experience abroad and a good knowledge of French and English**, is soon to become one of the most important employees at Studio Maddio.

He is often sent on missions to Genoa. The city is abuzz. Adolfo eats at the harbour, lives the magical atmosphere of the narrow alleys, soaking up all the stories that the city has to tell, the emigrants and their tales of faraway countries: it is from this very port where, in twenty years, Mario Bergoglio and his wife, Maria Sivori, the parents of our future Pope Francis, will leave for Buenos Aires.

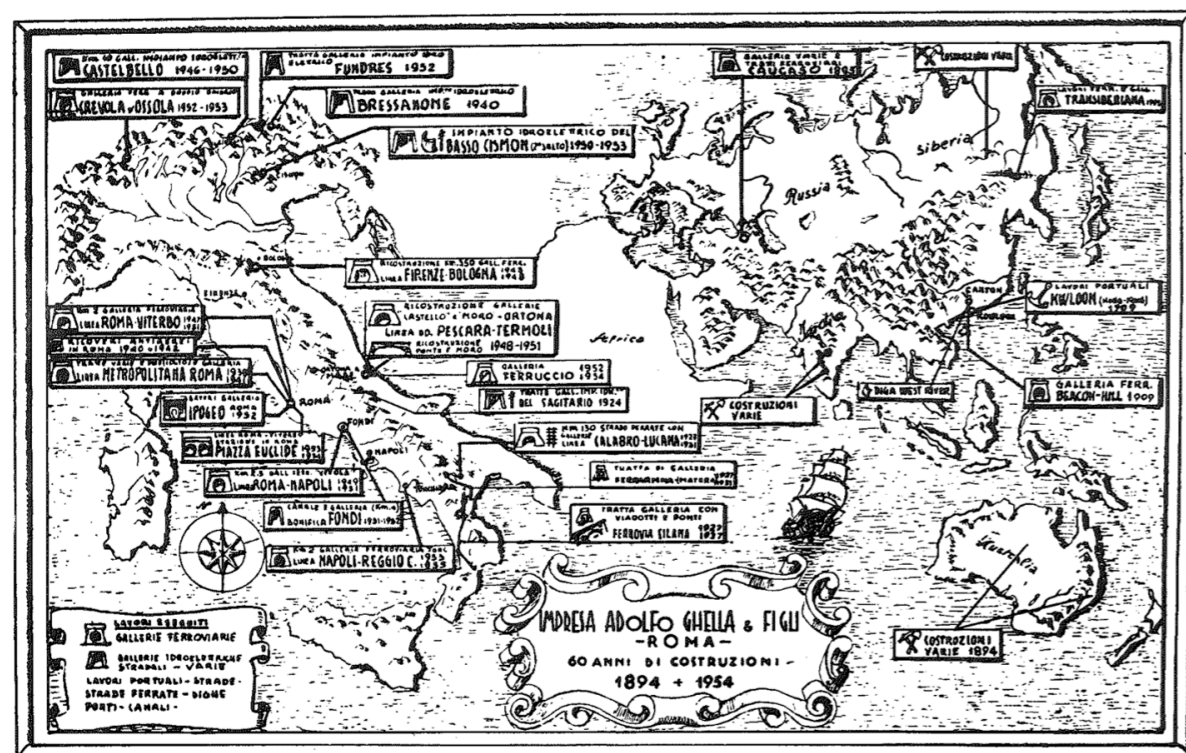
*Pioneers in search of fortune:  
it is the gold rush and diamond trade boom.  
Adolfo is one of them.*

Every day, steamers depart for the Americas and Australia, ever growing in their numbers, mornings and evenings. **Adolfo** watches them moving off into the distance full of hope, nostalgia and mystery: **he is an entrepreneur, but also an adventurer and dreamer**. Beyond the pier there is a world waiting to be discovered, and he cannot resist it. He leaves Studio Maddio and in 1901, **at the age of 25, he sets off for Australia**. At that time it was still the destination of British colonists and prisoners, but it was in those very years that many Chinese, Italian, Irish and Greek emigrants began to arrive. And many pioneers in search of fortune too: it is the time of the gold rush and diamond trade boom. Adolfo is one of these.



Once in Australia, he turns his hand to woodcutting, then shepherding, crossing the country far and wide before stopping at Victoria, to look for gold in the mineral deposits at Beechworth, Ballarat, and Kalgoorlie, a bustling village that owes its name to the kalgoorluh, a climbing plant known as the Silky Pear capable of surviving in the desert: the Aborigines eat the fruit and the flower nectar.





But Kalgoorlie and its silky pear are not the reason the colonists go there. It is in Kalgoorlie that the "golden mile" can be found, with the richest gold-bearing vein on the earth. But the life of the gold hunter is a hard one, one of wild frontiers. After the shacks, there lies nothing but emptiness: Highway 94 runs straight for thousands of kilometres across the Nullarbor Plain, a region of 200,000 square kilometres, taking its name from Latin, "nullus (nothing) arbor (tree)": not even a tree on this vast desert plain, eight times the size of the Italy, stretching its way right across the central and southern part of Australia. By day they dig underground under the dim light of an oil lamp, in the evening it's time for the pub, to pass the time over a drink, pints of beer and the odd brawl: miners are not ones for splitting hairs, long-bearded, few words and easy knives.

ABOVE 1901 - Departure for Australia

Many camps are in fact open-air prisons, where apart from pioneers like Adolfo, lost souls can be found hailing from all over the world: deported convicts, revolutionaries on the run, charlatans, and prostitutes. And many a Chinese looking to find his fortune: exploited, unpopular and often persecuted, unjustly singled out in order to stir up some trouble and violence. It is perhaps because, compared to Western miners, they are more hard-working, diligent and disciplined.

Adolfo comes into contact with their culture and learns his first words in Mandarin. He knows how to manoeuvre himself, he knows how to handle every situation, even the most delicate. But he realises that Australia is a country that has yet to take shape. In 1901, the very year he arrives in Oceania, the British Commonwealth comes into being: Australia is a dominion of His Majesty, but outside Sydney and Melbourne, where there are the first communities of Italians, Irish and Greeks, there is vast emptiness. It is still too early to be thinking of building highways, bridges, tunnels and galleries. Europe is still the centre of the world and, after three years, Adolfo returns to Italy.

Back in his homeland, there is no shortage of opportunities and, **in 1904 Adolfo starts work on the construction of the Simplon tunnel between Italy and Switzerland.** But not for long.

His experiences on the international scene give him an edge and, in no time at all, his name starts making its way round the big construction companies. One of these, the French company, CFI (Chemins de Fer de l'Indochine) is building a main railway line in the region of Tonkin, in today's Vietnam, at that time the most northern region of French Indochina. And Adolfo is asked to supervise the works. Needless to say, he immediately accepts and, **in 1905 arrives in Hanoi:** in two years Adolfo has gone from Nullarbor Plain to the Swiss valleys and to Indochina. But it's not going to be easy.

Vietnam at the beginning of the century is not the one we know today. Life moves slowly in the villages, each with its own laws, traditions and customs. The controlling power is the oldest person in the Council, who presides over the *Dihn*, the common house, where legal disputes are resolved and settled, and the most important matters concerning the community are decided. The temple is the centre of spiritual life. Essentially, it is the main point of reference for the villagers, who foster the cult of their forefathers and spirits, in a particular fusion of Buddhism, Confucianism and Taoism.

The pace of life is set by work in the rice fields: some have a five-month production cycle, others ten. **The most commonly used transport is the elephant**, also useful for warding off attacks from tigers. Also Hanoi, which became the French capital of Indochina for a few years, is very different from today.

The city is an important commercial centre, the districts are divided by trade and with each road you come to the scene changes: glass-blowers, blacksmiths, mat makers, tailors, shops full of colourful silks destined for export, ancient herbalists oozing with the smell of herbs and spices. Even today, the street names in the Old Quarter start with the word 'hang' (merchandise).

From the street the buildings look small but, in reality, inside they form long corridors and passages that can even stretch for over fifty metres in length, leading into large, interlinking, open courtyards where the best part of family life takes place. The kitchen is on the ground floor. The rooms on the first floor serve only for sleeping. Light filters into the courtyards and is amplified by the typical yellow colouring of the old houses of Hanoi. It's an ideal setting for conspiracies, secrets and popular myths.

Adolfo finds himself in a fascinating, picturesque city, but at the same time mysterious and ambiguous. In every alley, practically hidden behind little doors that almost escape the observer's eye, opium dens appear with their baggage of perdition and conspiracy. It is not easy to go from the rough miners Nullarbor Plain to the sticky, honeyed charm of Hanoi. But Adolfo throws himself head first into his new venture and begins working the moment he arrives in the city.

The Chemins de Fer de l'Indochine is constructing a railway that will link all of Indochina, from Hanoi to Saigon, today's Ho Chi Minh City, a distance of over 1,700 km. The works had first begun back in 1899: at the point when Adolfo arrives the link as far as Vinh is still to be done, 300 km from Hanoi. Adolfo manages the construction yard 100 km away. It's completely out in the sticks, and hygiene and sanitation is poor. The work slowly progresses, but the main danger is tropical diseases. Dengue, Typhoid, Yellow Fever. And above all, Malaria.

They have lost count of the plagues and the coolies, migrants from poorer areas used to do jobs that no one else was willing to take on, are dropping like flies. To such an extent that, by 1907, the CFI is forced to put the work on hold. Quite simply, there are no longer enough workers

Adolfo goes back to Hanoi. His assistants head back to Italy, but he stays behind. In the Indochinese capital a new offer is already waiting for him, one that is more important and secure: Hong Kong, at that time a British colony, where Adolfo arrives unaccompanied, in 1908.

1908  
-  
1914

## ADOLFO GHELLA

From China to World War I

As of 1842, Hong Kong became a colony of the British Empire, the first to expand in China through its monopoly on the opium trade. Within a few years, the British East India Company and companies of the Crown had taken control of the Chinese economy, bringing Emperor Yongzheng's coffers to their knees and creating a serious problem of addiction that was especially rife in the big cities. But above all, they played havoc with the secular traditions and spiritual codes of Chinese society.

The anger against foreigners snowballed and when, in 1839, the Chinese police confiscated twenty thousand cases of drugs in the port of Canton, conflict with London became inevitable: and the Opium War broke out. It was not the first time in the world that commercial interests had led to a colonial war against the British Empire: already sixty-six years previously, in the New World, the "Sons of Liberty" had set fire to His Majesty's tea crates that were docked in Boston Harbour, paving the way for the American Revolution. The Chinese were not so fortunate.

The Opium War ended badly for Yongzheng, who was forced to hand over the Hong Kong peninsula to the British, literally a "perfumed port", at that time, an agglomeration of about one hundred fishermen who lived in stilt houses in Tai O Bay.

The British Empire had its bridgehead. In a few years the British took control of trade in Shanghai and other strategic ports, quickly strengthening their economic supremacy in China. Hong Kong became the base of their colonial empire in Asia and their borders immediately widened.

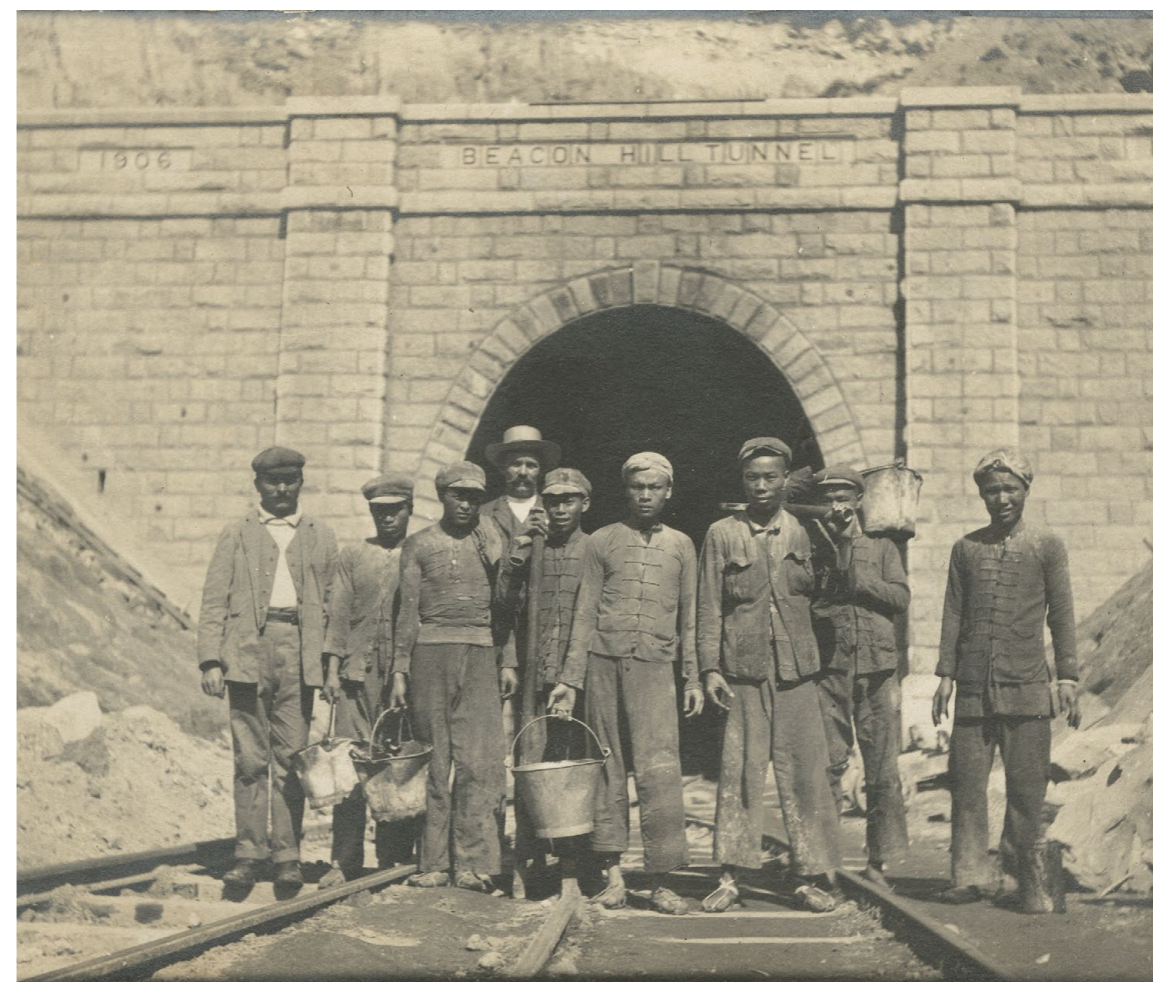
In 1860 the colony acquired the Kowloon Peninsula. In 1898, under the terms of the Convention for the Extension of Hong Kong Territory, Great Britain obtained a 99-year lease of Lantau Island and adjacent northern territory, which became known as the New Territories. Since then the borders of Hong Kong have remained the same.

From London, a torrent of English money arrived with thousands of entrepreneurs in search of fortune: in the early twentieth century Hong Kong became a modern city, fast growing and full of opportunities. So near and yet so far from the opium dens, the alleys and the mysteries of Hanoi. **Hong Kong will be the turning point for Adolfo**, called upon by the British to construct the new railways that Hong Kong's colonial administrator wished to build in southern China. His Majesty's government was concerned about the commercial interests of other European powers: the immense Chinese empire was above all, coveted by the French which, from Indochina was pushing to attain new markets and business throughout the Middle Kingdom.

The British, being pragmatic and fortified by economic supremacy, wasted no time, forcing Emperor Yongzheng to sign an agreement to build and operate several strategic railway lines to control the exchange of goods and passenger transport; in this way, the British and Chinese Corporation came into being, a business formed by Jardine Matheson & Co and the Hong Kong and Shanghai Bank. This is the company for which Adolfo works.

Construction sites for the first railway line between Hong Kong and Canton, the most important port in southern China, begin in 1907: it stretches 100 km and is still in operation today under the name of the East Rail Line. Part of the Kowloon station line in Hong Kong passes through the New Territories, going through a bamboo jungle for thirty kilometres and arriving in Lok Ma Chau Station, from where you can enter Shenzhen, in Chinese territory. **At its inauguration, in 1910, the train was steam powered but, just a few years later it was equipped with a diesel locomotive, the first in Asia.** It was state-of-the-art, but building it was by no means easy. Adolfo arrives on the site in 1907.

RIGHT 1907 - Chinese workers at the Beacon Hill tunnel, Hong Kong



Work has already begun in the southern part of Hong Kong, in the Tai Po Kau area. But very soon it comes to a standstill: the project involves constructing a two-kilometre tunnel under Beacon Hill, between the stations of Kowloon Tong and Tai Wai, close to the Chinese border. The work turns out to be more difficult than expected. But by 1905, a team of engineers have already come up with an alternative solution: to divert the railway line to Castle Peak Bay, but this would mean lengthening the route by many kilometres. And there would not be enough money to cover it. Adolfo does not lose heart.

He has years of experience on his side, gained by watching his father at work on the construction sites, building wells and tunnels on the Novi-Ovada line and Istanbul's Tünel. On speaking to the works manager, engineer Graves Eves, he proposes building a well at the end of the tunnel, so as to dig more easily under the rocky ground of Hong Kong.

Eves accepts. He is keen to see what this Italian chap, who speaks perfect Mandarin and a form of English typical of the Australian miners, is capable of doing. But the task is arduous, the earth in Hong Kong is particularly hard and, every day **Adolfo has to convince the workers to labour under the ground, contrary to the principles of Feng Shui**, the Taoist philosophy that still regulates the social life of millions of Chinese in Hong Kong.

Adolfo is convinced that the work can be done: he recruits other coolies among the Indian immigrants, who do not follow Feng Shui, he gets bonds issued by the bank for £ 300,000, he solves the problems of ventilation due to the slope of the land, and he succeeds in digging the tunnel and laying the tracks. **The bet is won, the railway is saved: it is the largest civil engineering work ever achieved in Asia at that time.** The year is 1910.

Meanwhile in China the climate is hotting up. Nine years earlier, in 1901, the Boxer Rebellion ended with full victory for the international military coalition consisting of Great Britain, Germany, Russia and Italy. But a might wave of anger is mounting and Chinese riots against the foreigners are on the agenda.

The Empire was essentially in the hands of Western and Japanese companies: the French had acquired Vietnam as early as 1885, Japan took over Korea and Taiwan in 1895, the British had control of the basin of Yangzhiang and Yunnan and the south of China in its entirety as far as Hong Kong.

The consequences were devastating, above all from a social point of view: a large part of Chinese traditions and rules of behaviour were turned upside down, and there was mounting anger, especially among students from the schools of martial arts, wrongly labelled by Westerners as "Boxers". They were the ones to start the first heavy protests against foreigners. The Boxers burned everything that was considered "Western": cars, companies, even violins, sabotaging ferries on the rivers and industrial spinning machinery. They attacked businessmen and traders, lynching their abhorrent English masters.

War was inevitable. Germany, Italy, Austria, Russia and Great Britain put together an expeditionary force of 20 thousand men and, in just a few months, had conquered Beijing, occupying it for several months, and ravaging the city.

And so ended the Boxer Rebellion. China effectively lost its independence and was divided into spheres of influence: Canton and the south of the Empire in the hands of the French and British, the regions north along the Amur River and Manchuria under the control of Moscow while the coast, Taiwan and Korea came under the iron fisted rule of the hated Japanese. Italy controlled the province of Tientsin, and Germany held Shandong.

Foreign products, no longer subject to customs duties, could freely travel to every part of the Empire. The small artisans and Chinese farmers were on their knees, China turned completely upside-down. The ports operated by Western companies numbered twenty with European colonial settlements over sixty: real enclaves administered by foreign governors with their own industries, banks and police forces.

But China was given infrastructures, ports and railways; in those years the Shanghai-Nanjing Railway was inaugurated and more than one hundred thousand schools were built.

In one of these, in SiangSiang, a fifteen-year-old student by the name of Mao Tse Tung, is starting out on his studies, fighting against fate and the will of his father, who envisaged his future on the family farm and in an arranged marriage. Also education saw improvements: in Hong Kong, Governor Frederick Lugard gives consent to the construction of a university, still one of the most prestigious in Asia; last but not least, an edict by the Emperor forbids the sale of slaves.

But China continues to be torn by strong social tensions and outbreaks of xenophobic violence. Under these conditions it is increasingly difficult to drive construction work forward. Adolfo leaves his work at the railroad which, on completion of the tunnel construction, would have carried on into Chinese territory. He stays behind to work in Hong Kong, on construction work run by the British to provide the city with new infrastructures.

His success in building the Beacon Hill tunnel has rendered him famous, and the governor puts him in charge of building a port at Victoria Harbour, between the Kowloon Peninsula and Lantau Island. Hong Kong is becoming the most modern city in Asia. Before the British had arrived, it was a small fishing village and the islands around it were the refuge of pirates who stalked the Yellow Sea: still today, the most famous buccaneers, Cheng Pao Tsai and Qian Cai hold a special place in Hong Kong's popular culture.

RIGHT 1907 - Beacon Hill



The English rid the city of its pirates and, at the end of the century, the little fishing village had become a sprawling city of more than 300 thousand inhabitants. Victoria Harbour was now the most important destination in the whole of South Asia for immigrants looking for work and business opportunities.

Adolfo is busy at work on the docks, expanding the wharfs and building new structures: Hong Kong will soon open new routes to Singapore, Malaysia, Indonesia and San Francisco. It is another professional milestone for Adolfo. But his life there begins to close in on him. Adolfo is not just an entrepreneur, he is also a pioneer and a child of the industrial revolution. But in Hong Kong he fails to find the spirit that had driven him on in Nullarbor Plain and Hanoi. **Adolfo speaks fluent English and Chinese**, appreciates Asian cuisine and has a good understanding of the culture and its local and religious traditions.

Compared to China, Hong Kong has become a social melting pot, a mash of traditions and cultures; a unique social experiment in Asia. Here a perfect blend of Buddhism, Confucianism and Taoism takes form, even though Hong Kong's inhabitants are fundamentally atheist. But what does not happen is the fusion of Chinese and Westerners, about two thousand of them throughout the city. Everyone goes his own way, in his own place, in his own practices, in the confines of his own circle.

Adolfo frequents the British Governor's Palace, parties and receptions, spending much of his free time in the park opposite the Governor's headquarters, where everything is cosy, separate from the rest of the city, away from the markets, the alleyways, and the Chinese quarters where Westerners are still treated as foreigners, not fellow citizens. After three years, incentives for staying on start to dwindle. The governor, Sir Frederick Lugard, who was born in Madras in India, a perfect son of His Majesty's colonial empire, recognises Adolfo's state of mind, and does not want to let him go. On completion of the Victoria Harbour Waterfront project, he tempts the Piedmontese with an important contract, the construction of a dam on the Great West River, the Xi River, a tributary of the legendary Pearl River. But the construction site is located in Canton, between Hong Kong and Macau. Outside British territory. Yet another challenge.

Adolfo accepts, but in China things are getting more and more difficult: resentment over defeat by the Boxers has transformed into nationalism. Already, there are signs which will lead to the revolution of Sun Yat Sen in a couple of years' time and successively, to the Civil War and Communist triumph in China: Mao will never make a mystery of having inherited Sun Yat Sen's legacy, the physician who, right here in Hong Kong, had taken refuge and formulated the first ideas of modern China.

Adolfo, however, goes ahead with the construction work. He gives it everything he's got: **he has faced the Australian Outback, the menacing "Barbudos" (the bearded ones) of Nullarbor Plain, the conspiracies and the opium smokers of Hanoi.**

He is not one to give up easily. The Xi Jiang River is the second in China after the Yiangtze, based on its water capacity and the strength of its current: it is not only the most important trade route in Southern China, it also serves as the water reservoir for the entire Canton population: Adolfo knows that the dam is essential work and there is no time to lose. As well as anger over the presence of foreigners, in addition there was also despair over the lack of jobs and taxes on rice. Riots and demonstrations were the order of the day. On April 12, a group of farmers storm into the banks, shops and Japanese and German consulates.

*Sir Lugard recognises Adolfo's state of mind and tempts him with an important contract.*

Anger flares up. In the space of a few hours it ignites. An angry crowd of thousands of Chinese join the farmers as they take to the streets of Changsha, in the province of Hunan. It is burned to the ground. The imperial guards look helplessly on.

In Canton, where Adolfo is working, the social tension is equally rife. An armed uprising comes to a bloody end, but a series of floods causes another wave of demonstrations and riots. Here too, it is the farmers who take up arms, but even the soldiers are living in conditions of extreme poverty, resulting in numerous clashes with police. Not only: the Chinese emperor orders the definitive abolition of the opium trade, and the black market in heroin and morphine immediately explodes in the hands of the country's first forms of organised crime, the Chinese Mafia.

In a China that is fading fast, it takes very little time before entire territories in the absence of the State are in their possession. The people are in need of everything, work and food first and foremost. Also on the political scene there is turmoil, and the first political steps are taken towards the revolution of 1912. The Emperor's provincial delegates gather in Shanghai to form the first parliament of Chinese Nationalists, Chang Kai-shek comes up against Sun Yat Sen in Tokyo and the army splits into two; only a small part stays with the Emperor, who announces the formation of a national assembly. But the pressures for a new constitution are getting stronger, and in the end the Emperor surrenders: by 1913 a new Charter will be approved.

Adolfo isn't going to wait around to see it happen. He finishes the dam project on the River Xi, but to continue working in China has become impossible. The country is in a phase of dizzying transition that will be long and bloody, and will lead to civil war between Chang Kai Scek's nationalists and the communists of Mao Zedong. What's more, **Adolfo has now been in the East for three long years**, without ever returning to his homeland. Homesickness for Italy and the family is weighing him down. All the more now that he can no longer trust his Chinese workers. Riots have become the the order of the day and erupt without warning. And the Boxer conspiracies, although overturned, are still dangerous and a force not to be reckoned with.

The riots are very fierce, there is a mad gush of blood: in the rioting by the students, farmers and Boxers, foreigners are lynched and their property burned to the ground. **Staying is no longer worth it and, in 1910, Adolfo makes his decision: to go back home, to Italy.**

Back in Piedmont, Adolfo settles back into life in the rolling Canavese countryside, surrounded on the east by Lake Viverone, and to the north by the mountainous expanse of Gran Paradiso. China is far away, the Boxers and the tensions between the coolies are now just a memory.

Once back in his home town, Adolfo marries Domenica Bertoglio. Born in 1895, endowed with great insight, and noted for her intelligence and frugal lifestyle, Domenica is the daughter of Ernesta and Giovanni Bertoglio who, in 1958 will run the Italian Alpine Club's National Library: it will come to hold more than ten thousand volumes, twenty Atlases and over 3500 geographical maps.

As early as 1910, immediately following his daughter's wedding, Giovanni begins to follow Adolfo and to document his work, his constructions and travels with diaries, postcards and photographs. The family is expanding. In 1912 Domenico is born, Domenica and Adolfo's first child. But at the beginning of 1913, Adolfo has to depart once more for China, arriving on 14 February. Two months later Giovanni is born, his second-born, and Adolfo decides make his return to Italy.



But travelling back over the Asian continent by land is now too dangerous. China had fallen prey to anarchy. The emperor was deposed in 1911 and, on 1 January 1912 Sun Yat Sen became president of the newly-formed provisional council of the Republic. Meanwhile Mongolia had become independent, Tibet and Xinjiang had broken away from Beijing and were now autonomous regions. Riots and conflicts between soldiers, peasants and police were spreading like wildfire. It was effectively the beginning of the Warlord period: the Guomintang, a nationalist party, was created, with Sun Yat Sen at the helm.

*In less than six months Adolfo and Giovanni have travelled round the world, starting out from Colletterto and arriving in New York.*

From here, Japan would soon begin expanding into China with "The Twenty-One Demands" in Beijing. In 1921 in Shanghai the Communist Party would come into being which, ten years later, with Mao Tse Tung, would proclaim a Chinese Soviet Republic, for the first time creating the concept of proletarian dictatorship. And in this way, while in 1910 China was heading toward its tragic modern history, Adolfo and Giovanni decided to make their way across the Pacific and to embark on the first ship from Shanghai heading for the United States. Their destination San Francisco.

Traces of their passage can be found in the newspaper **The San Francisco Call, from 29 March, 1910, which speaks of Adolfo Ghella as the one who had successfully constructed one of the most complex tunnels in Hong Kong**, that of Beacon Hill. He was in fact the only one to finish it, after five other companies, one after another, had been forced to abandon the work due to the enormous difficulties encountered.

Adolfo goes back to being the pioneer of Nullarbor Plain, back to immersing himself in the lives of miners, gold seekers and adventurers. Together with Giovanni, he heads across the Far West, at that time the home of bison, covered wagons, Indians and revolutionaries such as Pancho Villa, and bounty hunters and outlaws like Buffalo Bill. They arrive on the east coast in late summer, when the sun over the Maine and Connecticut is slowly melting into the orange sunsets and the leaves are turning brown and begin to fall.

Taking a steamer from New York to the Old Continent is a breeze; in less than six months Adolfo and Giovanni have travelled round the world, starting out from Colletterto and arriving in New York. Now Ellis Island lies before them. Leaving behind the Statue of Liberty, they follow the same route as the immigrants, who are arriving in their numbers every day from Italy, Germany, Ireland, Greece, and Poland.

Back in Europe times are difficult, uncertain and gloomy: 1913 comes to an end. The First World War is waiting just around the corner.

1913  
-  
1924

## ADOLFO GHELLA

### From World War I to Fascism

In 1913, Italy is no longer the country that Adolfo had left behind in 1901. **Over the last thirteen years he had lived in Australia, Vietnam, China and the US**, with a brief interlude, from 1910 to 1912, in Italy.

But things had changed. The Industrial Revolution had brought wealth and a new generation of business leaders, but also imbalances and social tensions, above all among the working classes in the north. Following the tumultuous years of colonialism and Francesco Crispi, a powerful political presence in the early twentieth century, and also the defeat of Adwa, Italy is a country trying to find itself. Europe is running headlong towards World War I, and the country finds itself divided between interventionists and pacifists, capitalists and socialists, irredentists and anarchists, republicans and monarchists.

There is an explosion of social violence and a growing number of anti-government strikes that more often than not end with casualties among the protesters: it is happening in Parma, Ancona, and Rome but also in Ragusa, in the agricultural south. And there are those who are busy fanning the flames: the new head of the Avanti (meaning "Forward!" in English), Benito Mussolini, hits the press with an editorial eloquently entitled "Assassinio di Stato!" (State Assassination), beginning a campaign against the government and the "proletarian massacres" caused by Giolitti's government and Antonio Salandra.

Salandra restores calm, but does not solve the social divisions which, ten years later, will bring Mussolini to power. Even Turin, Italy's industrial capital, was being rocked by demonstrations and riots, and against this background it is difficult for Adolfo to put the experience he gained in Hong Kong into practice, or to experiment with what he learnt in the United States. There was no place for engineering or for new construction sites. But a few months later, a call arrives for Adolfo from the Russian Tsar: **the project, to build the Transcaucasia railway.**

Adolfo immediately accepts and departs with his family: his destination Tbilisi, the capital of Georgia, occupied by tsarist Russia. The city, which was still known as Tiflis, was not only the largest centre of the Caucasus; over a few years it had also become the key point for trade between Europe and Asia, thanks to massive investment in St. Petersburg and the creation of infrastructures and transport networks.

Adolfo, entrepreneur and engineer, but also visionary and adventurer, **arrives in Tbilisi to build the Transcaucasian railway link between between Erzurum and Kars**, the first transit route for Caucasian oil, connecting the port of Poti on the Black Sea to Baku on the Caspian Sea, which was initiated by Tsar Alexander II "the Liberator" and completed in 1883 by Tsar Alexander III "the Pacifier". The rails were used to transport goods, carpets, supplies, and a lot of oil which, from Baku arrived at the Black Sea and from there, went on to Russia's homes and industries. But the railroad had a clear military objective: to control the unruly Caucasus, a land that never been tamed by the Warlords, and which encouraged wars with the Ottoman Empire.

It serves its purpose. Transcaucasia immediately becomes a strategic rear base to bring Russian soldiers to victory against the Ottoman troops in Kars in 1914, in full Turkish territory. For the Tsar it is an opportunity not to be missed, to launch a decisive blow at the already-dying Ottoman Empire: extending Transcaucasia is the only way to control the territory and to transport soldiers and trade quickly. Army and trade, but not only: the railway also plays a crucial role in creating the first ski slopes and summer residences in the Georgian region of Borjomi and Bakuriani.

After Kars, Russia also conquers the city of Erzurum, on the way to Ankara: its location is so strategic that forty years later, in the midst of the Cold War, it will be become known as "The Rock" in NATO military circles.

The importance of the city does not go unnoticed by Nicholas II, who immediately orders Transcaucasia to be extended from Kars to Erzurum. And once again, the project is put in the hands of Adolfo.

In the first half of 1914 the work begins but, as had already happened in China, Adolfo has to contend with the events that follow: in 1915 Italy goes to war against the Central Powers, Germany, Austria-Hungary and the Ottoman Empire. Erzurum is in the heart of Turkish territory and for the family, with Domenico being just three and little Giovanni not even 24 months old, it is no longer safe.



For Adolfo it becomes a life choice: the family must return home, but he will stay on to work for the tsar. He has little choice.

Adolfo is 45 years old. Going back to Italy would mean losing everything, and getting sent to the front line to fight a war in which a man such as he, engineer and adventurer, does not believe. Sending the family back across Europe during a war is no rash decision. The Great War is the last war to be fought on the front line in trenches, without involving civilians: it is still possible to travel in wagon trains or by rail across thousands of kilometres, thereby avoiding the front line and bands of vagabonds. **And so Adolfo secures his family and goes to Moscow to meet with the tsar.**

By now it is mid-1915. For the Russians, the war has been going on for more than a year and the consequences are beginning to be felt. All money goes to the war effort and Nicolas II puts construction on hold. But Adolfo does not lose heart. In addition to Chinese and French, he can speak Russian to perfection. He knows how to make his way round an international environment, he knows how to handle himself with the staff and diplomatic corps. He presents himself to the Italian ambassador, Andrea Carlotti of Riparbella and they immediately strike up a good rapport: Adolfo now speaks Russian well, undertakes some important work on behalf of the embassy and invests the profits in the wool and carpet trade.

*Adolfo speaks Russian and travels frequently, in a country increasingly affected by social tensions.*

He still has contact with the Caucasus and travels frequently from Moscow to St. Petersburg, in a country that is increasingly affected by disruption and social tensions. After a year and a half of war, everything is lacking: food, clothes, medicines. Not only among the civilian population, but also the soldiers. The war goes badly. In 1915 Russia loses Galicia and Poland during the Great Retreat. The following year Bulgaria and a large part of the Ukraine are lost. The tsar, busy on the front line with his troops, is increasingly isolated, and the Revolutionary Socialist Party is ready to take power.

In Zimmerwald, Switzerland, during the Socialist International meeting, Trotski introduces the idea of peace without victory and Lenin, who is more pragmatic, announces: "the time has come to turn imperialist war into civil war." But it is the common people, not the Bolsheviks, who rebel. The first official general strikes take place in February 1917 in St. Petersburg, where the army joins in the protests and demonstrations.

Taking to the streets for the first time, are the workers from the textile mills, then it's the turn of those from the Putilov workshops (renamed Kirov in 1934), finally, students and civil servants. Arriving last is the army: the Pavloski company comes out in support of the demonstrators, then the "Finlandese" company joins the revolt, followed the Baltic Fleet Marines. Soon after, it's Moscow's turn.

At this point the Bolsheviks take action. Lenin returns to Switzerland, Trotsky to the United States and Stalin escapes to St. Petersburg from Kureika in Siberia, where he had been held in exile since 1913. On 7 November (but 24 October according to the Julian calendar) the Red Revolution begins. Lenin and Trotsky's soldiers overthrow Kerensky's weak provisional government and take control in the name of the Soviet workers and peasants. But they have no plan: their presence is strong in St. Petersburg, but in the rest of the country they are struggling: before long armed resistance breaks out and the first worker demonstrations, protesting against Lenin and Trotsky over the confiscation of grain and other agricultural produce, Soviet suppression and the creation of the secret police.

The country is in chaos and immediately tumbles into the vortex of civil war. Adolfo is stuck in St. Petersburg. He realises that the wool trade is heading for trouble the moment the textile workers down tools, paving the way for the fall of the Tsar. Months of great chaos and uncertainty follow. Adolfo is safe, protected by the Embassy. Going outside St. Petersburg would be too dangerous. In the countryside the fighting is done with cold steel, and he would be prey to anarchists and uncontrolled armed gangs.

*Adolfo is stuck in St. Petersburg since months and decides to return to Italy: the journey won't be simple.*

With the start of the October revolution, Adolfo realises that his wager on the carpet business is lost: for the second time in three years, since his arrival in Russia, he has to go back to square one. Adolfo does not lose heart, he is a man of action, but he cannot get out of the city, and the months are passing. He hears the speeches by Stalin and Lenin, sees the Bolsheviks take the law into their own hands in St. Petersburg, killing the Tsar and his family in Ekaterinenburg and going on to conquer other cities. And he realises that the war to overcome the Menshevik troops will not be short.

Hence, at the end of 1919 Adolfo makes his decision: to return to Italy. He bids farewell to Ambassador Carlotti, knowing full well that the journey will not be easy: He has to make his way without an escort and is not even authorised to leave the city. The Bolshevik authorities do not control the rural areas and accompanying him would be too dangerous. Adolfo cannot go by land, he must return to Europe by sea, and to do so he must get to the port of Arkhangelsk, on the Baltic Sea: the city is resisting the Communists and has become the stronghold of the anti-Bolshevik White Army.

It is the only port where merchant ships still depart for London, and it is the only route to safety for Adolfo. He cannot go south, it is too dangerous: he could fall victim to the civil war, of the fighting between the Bolsheviks and Mensheviks or bands that are plundering Russia, which has since descended into anarchy. He cannot travel by train as the rail network has been abandoned and the soldiers have dug up the rails to make use of the iron. He cannot travel in the winter months, it's too cold. He cannot travel at night, it's too risky. **Adolfo goes by horseback or on foot, or with the few convoys he comes across on the roads that are still viable. It takes him two years to get to Arcangelo, where he embarks on the first merchant ship heading for England.**

In 1921 he arrives in London. From there he finally gets back to Colletterto Castelnuovo, to his Piedmont home. He has no money and must start again from scratch, just like twenty years ago when he first left Studio Maddio in Castellamonte and set off for Australia. Now Adolfo is 45 years old and, compared to those years, he has hardened somewhat, he can boast of an experience that is renowned and appreciated all over the world, and can count on an enviable network of contacts in every circle and economic sector; Most importantly, compared to twenty years ago, he now has a family and two children to think about. But even in Italy, times are not easy.

The postwar period brings chaos and unrest: social tension is surging, but not for the mutilated victory, the occupation of Fiume or South Tyrol, renamed Alto Adige. In reality, across the entire country, but above all in the industrialised region of Piedmont, there is a class struggle breaking out and in the factories a replay of the Bolshevik Revolution is taking place. Like the one that Adolfo had seen the beginnings of in Russia, and from which he had managed to escape. The first occupations, demonstrations and strikes begin: in Turin, Milan, Genoa, in the whole of the north, the "Red Subversives", as they were called by the bourgeoisie, are attempting to start a revolution. Chaos immediately follows.

The Italian economy, already under severe strain following four years of war, is on the brink of bankruptcy, the public debt rises by 300% in the space of a year and food prices go through the roof. Under such conditions, there is no work to speak of.

Adolfo is not keen on hanging around for someone to offer him a job and, in those tumultuous days at the end of 1921, he learns that a group of Biella fabric merchants are sending a shipment to Baku, in Azerbaijan. Adolfo knows the Caucasus. His network of contacts is still intact. He decides to put the fabric and animal skin trade he had set up in Moscow and St. Petersburg before the revolution back on its feet. He takes charge of the convoy and departs for Russia, his destination Baku. He arrives on the Caspian Sea as fascist gangs are marching on Rome back in Italy; but also in Caucasus he finds chaos and anarchy.

The Red Army had just invaded the Azerbaijan Democratic Republic, the first Islamic parliamentary republic in the world. If that isn't enough, there are Basmachi Islamic guerrillas throughout the entire region, ancestors of the mujahideen, who in 1980 will stand up against the Soviet army, continuing the guerilla warfare against Russian occupation and financing themselves by raiding merchant caravans and convoys. And the Bolsheviks are no different. First they block the cargo in the port of Baku, then authorise it to be held on the ship, putting on an armed squad to deliver it to the Russian Outback. But the load stays where it is. And the port is mined.

Adolfo does not trust the Bolsheviks and realises that the deal isn't going to work. One night during a storm, he gives the order to leave Baku, using a ploy to disarm the escort and heads towards Iran, from where he returns to Italy. It is 1924, and for the third time, Adolfo has to go back to square one.

1924  
-  
1951

## FROM ADOLFO TO GIOVANNI AND DOMENICO

The third generation,  
from fascism to post-war

1924 is a crucial year in Italy. Mussolini has been in government since 1922, but the unrest and violence do not subside: in August of 1923 Giovanni Minzoni is assassinated in Ferrara, in September Togliatti is arrested, in December journalist Giovanni Amendola is beaten senseless by the so-called Fascist "Ceka". The house of Francesco Nitti and the Milanese printing works of Enrico Zerboni, used by the Socialists, are looted and ravaged. There is no end to the violence that disrupts the political life of the country. In January, the King dissolves parliament and takes a decision: to go to the vote in April. Proportional with party lists and majority bonus; the fascist party gets 65%, De Gasperi and the People's Party 9%, Matteotti and the Socialist Party remaining at 6%.

It is a turning point for Italy. In June Matteotti, the main opponent to fascism, is kidnapped and murdered after revealing the election had been rigged and, just hours before allegations of the corruption of the regime in the Sinclair Oil Corporation concessions scandal; his lifeless body will be found in August in a wood in the municipality of Riano: Mussolini wavers but resists accusations, gaining the upper hand by withdrawing the Socialist Party from the Chamber of Deputies (known as the Aventine Secession) and instigating an increasingly authoritarian regime.

RIGHT 1946 - Hydraulic  
plant, Adige river



In the months that follow he will dissolve any parties and trade unions that are not fascist, and will abolish all freedom of the press, assemblies and the freedom of speech. He will reintroduce the death penalty and create a special Tribunal with the broadest powers, capable of sending those disliked by the regime into confinement, with a simple administrative measure. He blocks the free-trade policy of Treasury Secretary, Alberto De Stefani. He reinforces worker cooperatives and inaugurates Fascist economic policy, driven by autarky and heavy industry: the relationship between the political class and the big captains of industry, seeking to gain support from the State, reduce corporate risk, and find in the trade unions a strong middle man.

*Adolfo must not only start from scratch; he must put aside his pioneering spirit and turn to national tenders.*

"Corporatism is the cornerstone of the fascist State," says Mussolini in 1930. The climate is becoming more and more difficult, and the country's industrial revolution is losing its surge of innovation: the Milan-Genoa-Turin industrial triangle is now stable and consolidated, but trade, projects and commissions with foreign countries are collapsing. Without warning, there are no longer opportunities to work on major international projects for private entrepreneurs.

Adolfo must not only start from scratch; he must put aside his pioneering spirit and turn to national tenders. But from where he stands, he has a winning card to play: from Florence downwards, Italy is a rural country with everything to be built, it lacks roads, bridges, tunnels, railways. And in this field, Adolfo has an experience that few others in the country can boast of. Not much time passes before he has work.

Already in 1924 he has won the contract to build the tunnel for the Pettorano hydroelectric plant, designed by architect Eusebio Petetti, in the Sagittario Gorges in **Abruzzo**: work on the plant, over one thousand metres above sea level, begins in 1924 and ends in 1930, but Adolfo does not stop at Abruzzo. He takes part in creating the country's main infrastructure: **tunnels, roads and railways**. In 1926 he wins another contract, this time with the Italian Society for Mediterranean Rail Ways, the "Mediterranean", the glorious company founded in 1885 at the behest of the Bank of Rome and the State to build the country's railways, and with whom his father had also worked.

**Adolfo accepts a challenge that is as ambitious as it is arduous: to construct a rail network that would connect the main cities of the south; Bari, Potenza, Lagonegro and, going along the mountain range of Sila in Calabria, Cosenza and Catanzaro, before heading back down to the sea, to the port of Gioia Tauro.**

A difficult project and requiring a sophisticated level of engineering on many accounts: the particularly mountainous geological conformation in Basilicata and Calabria force the tracks to open out in difficult cross-sectional branches. The technologies and resources available were certainly not the most advanced and ultimately, cultural and social backwardness did not make the work any easier: it is 1926, just eight years later Carlo Levi would be exiled right in the heart of Lucania, in Eboli. Here, in his "*Christ Stopped at Eboli*", he would describe the inhuman conditions of southern Italy's peasants, forgotten by the State and still tied to ancestral traditions and customs: "*In this dark land, without sin and without redemption, where evil is not a moral, but an earthly pain, forever present in all things, Christ did not descend, Christ stopped at Eboli*", writes Carlo Levi.



LEFT 1927 -  
Calabro-Lucane railways



In these very lands, before the resigned and expressionless eyes of those peasants to whom "not even the word of Christ seems to have reached," **Adolfo creates his sophisticated engineering projects and, is accompanied by his sons Giovanni and Domenico, who ride through the construction sites on horseback.** He labours hard to create works that still form the basis of the railway network today, connecting the country's southern cities: on behalf of the **Ferrovie Calabro-Lucane** railways. On 24 May 1928, he completes the Ferrandina-Matera link and the Miglionico tunnels. On 16 June 1930 he completes the Crotone-Policastro link, over 40 km with a viaduct on the river of Tacina in Roccabernarda, which had collapsed following the flood in January 1973; In the same year he completes work on the tunnel in Ferrandina, in August 1931 he inaugurates the San Pietro link in Guarano-Camigliatello, in 1934 he connects Lucania and Puglia with the link between Acerenza, a municipality in the province of Potenza, almost one thousand metres above sea level, to the city of Altamura, on the outskirts of Bari.

Life is not easy. The work is often complicated by a shortage of resources, and environmental and technological difficulties, but they are prolific years leading to great satisfaction: in less than ten years Adolfo constructs more than 130 kilometres of railroad and helps many of the southern cities escape from the physical and cultural isolation they had been in.

His work does not go unnoticed. After completing the railway between Lucania and Puglia, Adolfo is called to Rome. These were the years of "constructive Fascism": the regime focussed on large infrastructures to unite the country and relaunch the economy and State Railways, following the process of reorganisation by Piedmontese engineer, Riccardo Bianchi at the beginning of the century, they had become a growing business.



**The Thirties were fundamental for expanding the Italian rail and road network:** new stations were built, new installations and tracks, more powerful traction vehicles. During these years, two of the country's main direct routes were built, **Rome-Naples and Florence-Bologna:** the first passed through Formia and reduced the distance between the capital and the Parthenon city by an hour and a half.

The second went through the Apennines mountain range with a tunnel that was, at that time, the second longest in the world after the Simplon Tunnel: in 1939, on the Florence-Milan route and, thanks to the precision in the section around Piacenza, it would hit a record of 203 km/hour.

It was the forerunner of high-speed trains. Alongside the railways, the first motorways were also being built, also thanks to the work of the Italian Touring Club: they were the years of the Turin-Milan, Florence-Mare, Padova-Mestre, Milan-Bergamo-Brescia lines, setting the basis for the other great period of infrastructural investment, the Sixties.

**Adolfo, who is working closely with the Ministry of Communications and Public Works, participates in the design of all the major works, including railways and tunnels.** But clouds are gathering over the future of the country and war looms. As early as 1936, there are sanctions by France and Britain against Italy, decided upon following the conflict in Ethiopia, drastically limiting the trade in petrol and leading the regime to impose new, steep taxes on trailers, fuel and the weight of transported goods.

*Adolfo's experience is like no other in the country, also in the construction of galleries and underground tunnels.*

There is talk of rearmament, and the age of investment in large constructions is slowly drawing to a close. **But Adolfo's experience is like no other in the country, also in the construction of galleries and underground tunnels,** a key sector in which there is a large construction about to be built, whose planning has been in the pipeline for some years: the Rome Metro. The underground line was needed quickly to provide a link between the Termini central train station and the new E42 district, the EUR, due to host the World's Fair in 1942. The works begins in 1938, and **Adolfo has to deal with the construction of the most difficult part of the work, excavation of the line between Via Cavour, St. Pietro in Vincolo and the Colosseum.**

In the space of two years he designs and completes the 1.6-kilometre tunnel between Termini and Arco di Constantino, a true masterpiece of technology and sophisticated engineering in a densely populated area, with many buildings on the surface and archaeological finds below. Meanwhile, Adolfo also manages to begin work on building the station of the Colosseum and is awaiting final approval of the project for the Giovanni Lanza train station. But it is 1940, in September of the previous year **Germany invaded Poland** and Mussolini reveals his true colours: in June Italy also goes to war against the Nazis. And everything comes to a standstill.

*After almost half a century of work in every part of the world, Adolfo has acquired an experience like no-one else in the country.*

**Adolfo creates fortifications on the border with France:** bunkers, tunnels and trenches, and then returns to Rome: his work is too precious, and the regime requires him to help secure the capital. **Starting in 1941, he designs and constructs a series of tunnels and anti-aircraft shelters** in every district of the city, capable of accommodating more than 50,000 people: when the first bombs begin to fall, in July 1943, they will prove invaluable, saving thousands of human lives.

Adolfo's contribution is valuable not only in Rome. In 1942 construction work opens on a pressure pipe for the hydroelectric plant in Bressanone, and it is right here that he will witness the fall of the fascist regime and Italian armistice of 8 September 1943: he will remain in Trentino with his family until 1944, the year in which he becomes a grandfather: on 25 January **Giandomenico is born, Giovanni's first child.** It will be **the fourth generation of the Ghella family to enter construction world.**

But the situation takes a turn for the worse. For Italy, 1944 is perhaps the toughest year of the war: the Allies go back to the peninsula, in the north partisans are fighting against Fascists and Nazi occupation. The government under Ivanoe Bonomi, created in June with the placet of the Americans, can do little and the few construction sites left open are suspended. There is a lack of money and above all, manpower; some go to the front-line with the government's army to fight against the Germans, some go up the mountains and join the ranks of partisans to fight against the fascists. Construction sites opened in the previous years are abandoned but remain open, and the Germans take advantage, raiding them for iron, raw materials and machinery: they take them back to Germany, to the factories run by the Minister of Armaments, Albert Speer, the 'strong man' in Hitler's administrative machinery. It does not last long.

In 1945 the Germans leave and the war ends. But Italy is a country that needs to be rebuilt. Many construction works from the thirties lie in ruins. In June, the dollars arrive from the Marshall Plan and Adolfo participates first-hand in the reconstruction: after almost half a century of work in every part of the world, he has acquired an experience like no-one else in the country, and De Gasperi's new government, with American supervision, isn't going to let him get away.

They call him **"the tunnel wizard"**. Adolfo works across all the regions of Italy and his sons **Dominico and Giovanni**, 33 and 32 years of age, go with him to learn on the job. Among the first works to be carried out, there is the reconstruction of the Apennine Base Tunnel on the direct Florence-Bologna railway line, which was destroyed during the war. Inaugurated in 1934, the tunnel was 18.5 kilometres long, only 1,300 metres shorter than the Simplon. It was the second largest in the world, and it still remains among the world's top twenty, surpassed only by more recent tunnels measuring over 50 kilometres.



Adolfo and his children also manage to bring the underground station at Precedenze back into operation, used for both freight and passenger transport: it had two 450-metre long rails excavated in galleries parallel to the main tunnel, connected to the outside by a tunnel with a 27-degree angle, and with no fewer than 1,836 steps. The work lasted three years, until 1948 - a true masterpiece of engineering and management, in a country devastated by five years of bloody war, devoid of raw materials and resources.

A surge in reconstruction has begun and Adolfo rushes from city to city opening up new construction sites. In 1946 he also takes over construction of Rome's underground line at the Giovanni Lanza station and, in the same year, builds the Alto Adige hydroelectric plant in Castelbello, a municipality of two thousand inhabitants in the province of Bolzano with a German majority.

ABOVE 1951 - Hydroelectric system, Fundres

Also this is a jewel of engineering: the work includes ten kilometres of tunnels built despite the geological difficulties of the terrain, with a "forced duct" made through the rock. A year later, in 1947, the construction site of the Rome-Civita-Viterbo railway line is inaugurated on behalf of the Società Romana per le Ferrovie del Nord (SRFN): the work will be completed in 1951 but, in the meantime, in 1948 another construction site opens, this time belonging to the Ferrovie dello Stato SpA, to build the railway link between Pescara and Termoli, which will be inaugurated in 1950.

In the meantime, he entirely re-designs and rebuilds the Castello tunnel at Ortona a Mare, destroyed by the Nazi anti-tank mines, as well as the Moro tunnel, completed with state-of-the-art technology involving covering the existing tunnel and incorporating railroad tracks into the new construction: in addition, he also builds the bridge over the Moro River, which had collapsed following the flood in 1949.

But these are just a sample of the works carried out between 1948 and 1951: Adolfo also builds the Vivola tunnel on the direct Rome-Naples line in Fondi, in the province of Latina. It consists of a tunnel in rock, 2.5 kilometres long, and slanted to allow rainwater drainage. But in 1950 he sets up the construction site to build the hydroelectric plant of Basso Cison, on behalf of the company, S.I.I.A., which includes a dam and 4-metre long penstock tunnels. They are tempestuous years, of hard work and great satisfaction, especially 1951 which witnesses the birth of Enrico, the brother of Giandomenico, Marina and Manuela. **It is the fourth generation of the Ghella family.**

1944  
-  
1951

## GIANDOMENICO AND ENRICO GHELLA

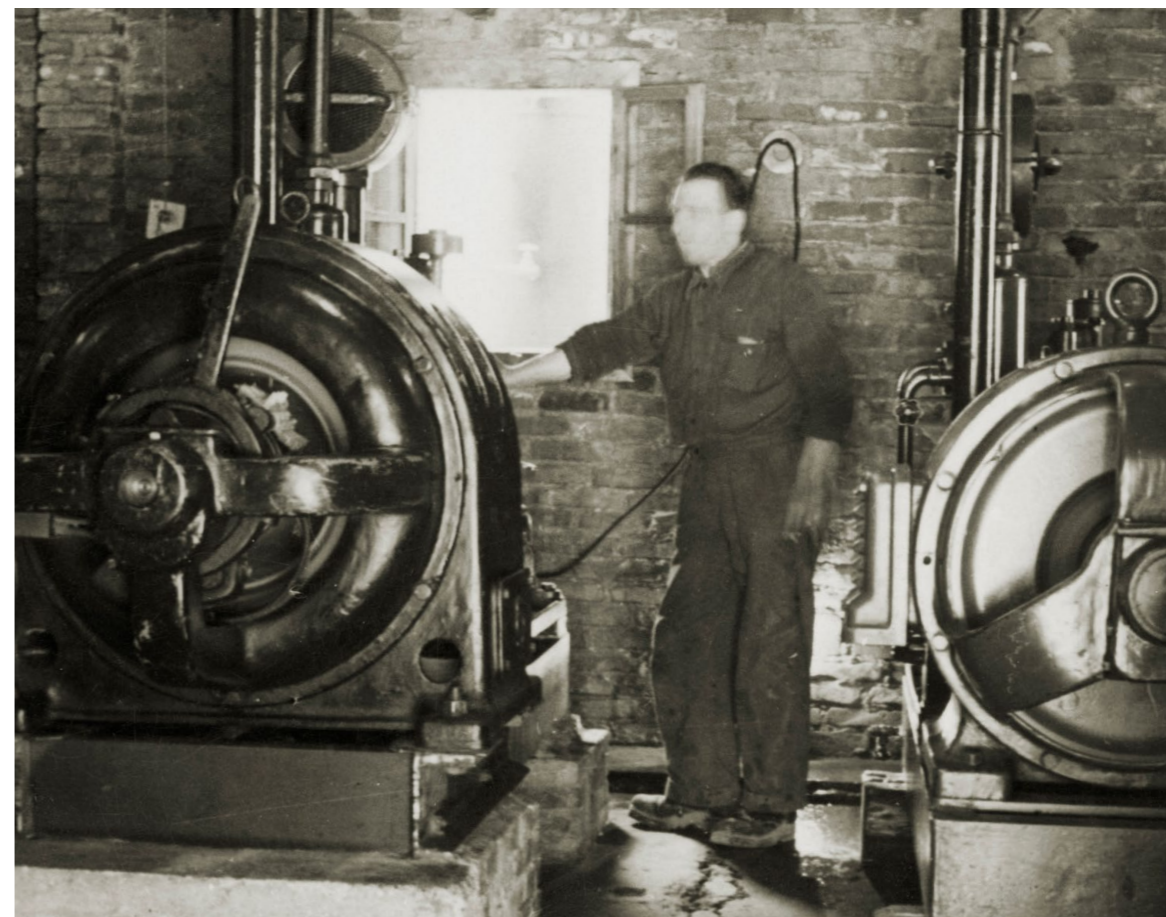
The fourth generation

**Enrico is born in Rome in 1951, in the post-war period:** they are years of reconstruction, economic boom, revival and opportunities. Following the tragedy of the war and the Nazi occupation, the country gets back to its feet: the De Gasperi government inaugurates a new tax regime and, for the first time, introduces tax returns. The national radio broadcasts live coverage of the first edition of the Sanremo festival, conducted by Nunzio Filogamo ("My dear friends close and far" being his famous greeting). It is won by Nilla Pizzi with "Grazie dei fiori", beating Duo Fasano and Achille Togliani.

The ninth census carried out at the beginning of the year gives a positive snapshot of the Stivale (the Boot) as an area full of hope. But also contradictions.

The Italians number little more than 47 million 515 thousand: 22% are over 50, and 25% are under 20. Out of a hundred people of working age, between 15 and 65 years of age, no fewer than 53 are inactive. In essence, there's the same old fear: the country is ageing and many are out of work. But at the same time childhood mortality plunges: where in 1941 out of a thousand newborns at least 115 did not survive the first year of life, in 1951, the percentage has dropped to 66. Forty two percent of the workforce is engaged in agriculture, 32% in industry, 26% in the tertiary sector, where males make up only 24%: the country still needs to complete its industrial revolution.

RIGHT 1948 - Hydraulic  
plant, Adige river



**But it is the big infrastructures that will provide the mighty impetus for the economic boom: Adolfo and his sons, Domenico and Giovanni set up a modern company with a structure capable of managing multiple construction sites** in different parts of the country. In 1950, construction work begins to build a tunnel over one-kilometre long to allow for the plain of Fondi and Monte San Biagio in the zone of Agro Pontino to be reclaimed. They then secure the underground pagan basilica of Porta Maggiore in Rome and begin construction of the underground hydroelectric power station in Fundres, Trentino. It is one of the most impressive feats of engineering in the country from that period: a dam and a gallery almost one kilometre in length is created despite the presence of fault lines in the glacial lime and the infiltration of water.

LEFT 1953 - Rutino tunnel,  
Battipaglia-Reggio Calabria  
lines



The Ghellas also win this bet: at this point in time also Domenico and Giovanni rank among the most renowned and esteemed constructors in Europe, and they are called upon wherever there is a need for underground tunnels, rail bridges and dams. Italy is the right place to be.

In the early 1950s the race begins to rebuild the country: the Ghellas are at work on the construction sites to build the railways for the State; the Domodossola-Iselle, Pescara-Teroli, Salerno and Battipaglia-Reggio Calabria lines.

*Domenico and Giovanni rank among the most renowned and esteemed constructors in Europe.*

In 1953 Adolfo and his sons return to work in Rome. The Lord Mayor Salvatore Rebecchini, a leading member of the Christian Democrats like the Prime Minister Alcide De Gasperi, gives the go ahead for the construction of the subway station at Piazza Euclide and the Rome-Civita Castellana-Viterbo railway line: in the capital immigrants begin to arrive from the south and the north of Italy, the population is growing, there are over one and a half million inhabitants, and there is an ever-increasing number of commuters on their way to work in the city centre's public administration offices.

The country is back on track, public investments are attracting entrepreneurs and construction sites are opening, the country's development is moving rapidly: the period of the economic miracle is beginning, thanks in part to a group of pioneers and visionary entrepreneurs with a strong commitment to innovation and experience abroad. The country goes from being a feudal, agricultural system to an economic model of mass production: the gross domestic product is growing annually by an average of nearly 6%, more than the Netherlands, France and even Great Britain, stable at +2.6%.

Heavy industry takes over thanks to the boom in the petrochemical and metal industry sectors, the first great capitalists are born, but many entrepreneurs who, having gained a wealth of experience abroad before and during the war, create a business model that is open and international, innovative, flexible and specialised: **Made in Italy** comes into being.

**This is the generation of enlightened entrepreneurs**, often self-made men, like Enzo Ferrari, Adriano Olivetti, and Michele Ferrero. And these are also the years when Pietro Barilla launches his multinational pasta company, Enzo Fumagalli begins large-scale production of washing machines with Candy, and Italo Barbiani takes off with Algida, his Italian ice cream industry. Adolfo rightfully belongs to this school and his sons follow in the footsteps of their father and their grandfather Domenico, before him: they have worked their way up on the construction site from an early age, completing their engineering studies and going abroad to work and to hone their international vocational skills.

The first will be Giovanni, born in 1913: his destination Canada, where the family firm, **Canit Construction** (an amalgamation of Canada and Italy) builds the sluices to make the San Lorenzo River in Beauharnois navigable.

But hard times are soon to follow and, in 1955, Adolfo passes away. Born in 1877, entrepreneur and adventurer, he left behind him a fundamental contribution to Italy's industrial and economic development. The baton passes to his sons Giovanni and Dominico, and then to his grandchildren, Giandomenico, Manuela, Marina and Enrico. They too will follow in their grandfather's footsteps.

In 1957, **at the age of thirteen, Giandomenico accompanies his father, Giovanni to visit the Canadian construction yards**. Later they begin work in the United States, in New York, on a project whose idea originated from **David Rockefeller's Lower Manhattan Association**: to build a global business centre in a single skyscraper complex with state-of-the-art technology. In the sixties it will become known as the **World Trade Centre**.

Through Icos, a subsidiary of **Canit Construction, Giovanni creates the foundations of what will be the Twin Towers**: the goal of the project comes from an idea by Rockefeller and other big businessmen in the Big Apple, to develop the East River to give new life to the downtown area of the city, entrusting the implementation of the plan to the Port Authority of New York. It is the high point for the family business, but also the beginning of their most difficult years, which will even culminate in bankruptcy, quickly overcome however without any real damage done, as we shall see shortly.

Towards the end of the Sixties, enthusiasm for the "Oscar for the stronger currency", as assigned by The Financial Times, began to wear off, and the country's economic boom begins to lag behind. The contradictions of an economic acceleration, all too often left unchecked, and poorly managed from a social point of view, are about to bubble to the surface, as evidenced by the growing protests. Events which, however, are in line with what is happening in the rest of the world.

In the suburbs, the large number of workers and immigrants are not integrated with the rest of the city and middle class, and investments to develop heavy industry in Mezzogiorno have led to big white elephants being built, without benefiting the small and medium businesses in the territory: Opportunities are still too limited and there is growing social inequality.

There are nearly six million cars on the national roads, but for the first time, the number of new car registrations is down, from nearly one million in 1964 to less than 800,000. Production output stops, investments decrease by 35% and unemployment rises by more than 5%. But while the economy is beginning to drag its heels, the country is going at full speed and charging off in the opposite direction: the consumer society is born, which in 1965 reaches 23 billion lire, compared to only 12 just six years earlier.

The national income is increasing, the Italians are spending more on clothes, and meat is no longer a food for the well-off; the quality of life is improving. On TV, 10% of the programmes are cultural, 7% are theatrical transmissions, and movies make up only 9%. More books and newspapers are being read, the publishing business is winning the day, and a critical consciousness is formed: those born between the mid-sixties and the end of the seventies make up the generation that reads more than any other. But social acceleration is tearing ahead, unaccompanied by economic growth and without the fair redistribution of income and opportunities. But this is not just happening in Italy.

In 1965, the first demonstrations against Vietnam begin in the USA, Che Guevara leaves Cuba and goes to Bolivia where he will meet his death. In China, the Cultural Revolution has begun. The whole world is shaken by disruption and social tensions that will, in a few years, result in disorder, violence, clashes, and terrorism; nothing will be as it was before, especially in Italy where the Years of Lead begin. It is in this context of uncertainty that the Ghella company goes into receivership. The world is changing, along with the way that business is done.

RIGHT 1974 - Fabro tunnel





A new era of State capitalism begins: family businesses and adventurous pioneers can no longer stand up against the large industrial groups and multinationals. Added to this is a diversification towards civil constructions that will lead Ghella to collide on one side with an aggressive and unjustified competition, and on the other to have to deal with payers who are not exactly punctual. From here to receivership is just one short step away. Therefore, also Giovanni, Giandomenico and Enrico Ghella have to start over: but just like their Grandpa, it doesn't take them long.

*The group can put the dark phase of "pre-failure" behind them and the family by the two brothers is once again in control.*

They repay all their debts and restore the company's integrity. In 1967 they start on a subcontract with LGA, for a tunnel in Tivoli, at the gates of Rome. In the same year Ghella wins a contract for the construction of a tunnel for the Fiori motorway, on the Savona-Ventimiglia stretch; immediately after they work on the Astaldi construction site on the Peschiera aqueduct in Moricone and, in 1970, on behalf of Condotte, they build the Armata and Fabro railway tunnels (over 4.5 kilometres in total) along the Rome-Florence line.

It was a milestone, as it was at that moment that the two brothers **Giandomenico and Enrico took full control of the company**, and their elderly father Giovanni gave them them carte blanche. **They are also the first projects undertaken with Domenico Nigro, the new Ghella partner.** The union soon brings good results: **in the mid-seventies Ghella is in Rome to complete the Line A** metro stations along the Termini-Repubblica section and to build the connecting tunnels between the Spagna station and Villa Borghese car park.

Orders see a somewhat encouraging acceleration. The group can put the dark phase of "pre-failure" behind them and the family, represented by the two brothers, who have now taken charge of the operations from their father as the company passes from one generation to the next, is once again in control.

To resume foreign contracts, **in 1976, Enrico eventually moves to Venezuela, while Giandomenico remains in Rome at the main headquarters**, and from there he also coordinates the recommencement of international work. But 1977 is a pivotal year. While Italy is in the tight grip of terrorism, the USA is having to deal with the Black Panther movement and Leonid Breznev pulls out an ace with a new Constitution in an attempt to revive the Soviet Union. The Ghellas have not lost their international calling and, for the first time, they go to work in South America, in Venezuela, where there is a need for know-how and experience in underground engineering works.

**In Caracas the Ghella brothers create the four tunnels for the Tachira aqueduct**, in the south-east of the country where most of the farms and livestock are concentrated. **Venezuela will serve as an international launch pad for the Ghellas: two years later, in 1979, the company begins working on Line 1 of the Caracas Metro and, in 1981 work starts on securing the La Honda dam: it will be the first construction site with zero impact on the environment in South America** - at a time when environmentalism was still little talked about - thanks to an innovative working method that allows the tunnels to be laid one on top of the other, and to cut the rock with hydraulic pressure.

A few years later, on 16 February 16 1989, the "Consorcio Contuy Medio" is formed in Venezuela, of which Ghella is part, along with other Venezuelan, Italian and Japanese companies. It will build the first modern day railroad in Venezuela, connecting Caracas to the city of Cua, 43 kilometres further south, along which tunnels and viaducts totalling 30. An integrated work of civil engineering encompassing technological solutions to ensure perfect functionality, including the provision of trains. In addition, it is created on a rough, mountainous area. Following the construction of the railroad, the urban heart of Cua and the entire Tuy valley - within the country while Caracas is near the coast - have seen a major development and a growing integration with the capital.

**In the meantime, a new generation of constructors specialised in sophisticated underground engineering is born: in 1980 in Rome, Giandomenico's son, Lorenzo is born.**



Italy continues to be the main base of activity for the Ghellas. In the eighties they build tunnels for the water system in Campania, for the sewage network in Rome and Ariccia: immediately after they create new rail links in Basilicata, on the Circumvesuviana railway in Naples, between Rome and Chiusi and between Chiusi and Siena. In the nineties, the first works focused on the environment arrive, such as the Mercure basin wastewater treatment plants in Basilicata.

# 1991 - 2016

## WORLDWIDE CONSOLIDATION

The world is changing. In Germany the Berlin Wall comes down, the USA's Bill Clinton gives rise to the green economy of the 'Third Way', half way between liberalism, statism and income redistribution; the EEC becomes the European Union with the Maastricht Treaty, opening the borders to the free movement of people. The way in which business is done also changes: there is a focus on investments abroad and internationalisation, a transfer of know-how, and sustainable development for local economic systems. The era of globalisation is born, but the key word is glocalisation, from the global village to the local community: the new sectors of engineering manufacture are environment, healthcare, tertiary and services.

The Ghellas prove to be pioneers also in the new economy: **in 1991 they begin working in the Dominican Republic** and in 1994 they are in Guatemala, to build the maternity and paediatric wards in the Roosevelt Hospital in Guatemala City, the capital of a country that is attempting to return to normality following the critical stage of the civil war in the 1980s. And it is in need of everything, from technical personnel to the resources necessary for reconstruction. A few kilometres further south is Honduras: there too the civil war has left behind thousands of dead, suffering and destruction. In 2001, the Ghellas build the new Fundaciòn Maria Children's Hospital.

RIGHT 2008 - Operators  
inside a TBM



Meanwhile, in Italy, new technologies in infrastructure are coming into use: a new High Speed era begins and Ghella is one of the first to make it happen.

In 1998, the company is involved in the excavation of the Pianora tunnel in Bologna, which will allow the Pendolino to travel between the centre of Bologna and Florence. Then in the year 2000 they work on the construction of the high-speed train to Bologna: the main works by Ghella are two single track tunnels, over six kilometres in length and with a diameter of almost ten metres, at a depth of 30 metres in the subsoil.

LEFT 2012 - Athens Metro  
Line 3 worksite



In a few years the company will go on to specialise in high-tech engineering, above all underground: **focusing on new technologies, honing and shaping a new class of technicians and surveyors**, who will soon account for more than 20% of the three thousand employees or so who now work for Ghella. **Know-how, training and specialisation**; these are the winning assets that enable the Ghella brothers to stay competitive in an ever-changing market with increasing demands, where small businesses struggle to keep up with the big multinationals.

**Globalisation and the digital revolution** make no concessions, and little by little, the traditional economic models shift, from traditional clusters to the figure of the artisan/entrepreneur. But not so for Enrico and Giandomenico who, in 2005 - nearly **150 years after the journey of the company's patriarch Domenico - return to France to work on the construction site of the high-speed Turin-Lyon link**; in the same year they take part in work to enlarge Rome's ring road, where they create the main tunnels leading to the ultimate enlargement of the arterial road.

The world is moving fast. These are the years of the Internet, of the second and third generation, but also the USA's subprime mortgage crisis, collapse of the investment banks and the boom of public debt; a "strong" Euro finds itself in trouble, the United States has to deal with the problems and the disillusionment of unemployment, and the "Third Way" economy goes into crisis. The new emerging markets are the BRICS: China, Russia, India and Brazil.

It is here in Carioca country that Enrico and Giandomenico begin working, interpreting the signs of change and metamorphosing into one of the top global companies, an industry leader, capable of adapting to each and every client and proposing specific solutions to suit the needs of each individual market: from new, high-tech technologies in Europe to prime-needs infrastructure in Latin America.

**In 2008, they build a tunnel for the gas pipeline network in Brazil, and then start work on the Maldonado network in Buenos Aires, a vitally important, high-tech facility, capable of protecting the Argentine capital from flooding** due to the reservoir in the northern regions of the city..

Once again in Buenos Aires, in 2011 the brothers begin work on the underground links for the Sarmiento railway, the most important public transport construction in the country, with the capacity to transport 80 million passengers a year.

**Ghella has now become a well-known and respected international company**, and once again in 2011, **exactly 110 years following Adolfo's journey, the brothers return to Australia where they build the Brisbane motorway**, with two parallel tunnels over 4 kilometres long and 12 metres in diameter. The work is difficult and overcoming the challenge requires achieving a world record in excavation. But in the end, they reach their goal and, in 2013 the construction is recognised as the best tunnelling project in the world. It is only the beginning of a new era.



In the same year, the Ghellas are in **Athens, where they construct the new metropolitan line for the old train that connects the port of Piraeus with the Haidari district and the centre of Athens.** But there are numerous construction sites opening in Italy: in Marche, in Campania, and at the Brenner Pass for the **high-speed train between Austria and Italy.** Finally, they design and build new infrastructures in **Brazil, Argentina, France, and Vietnam**, where they participate in the construction of the Hanoi metro.

And then in **Norway**, where they create the most important railway construction the Scandinavian country has ever seen: the High Speed line between the capital of Oslo and the city of Ski, a construction of over 40 kilometres, of which 36 were excavated simultaneously by no fewer than four TBMs (tunnel boring machines): a challenge for the Ghella company, the umpteenth, just like those which, as always, they are used to winning.

2017

## FOURTH AND FIFTH GENERATION

Of an entrepreneurial dynasty

On a warm spring morning, in the brightly lit group headquarters in the Prati district of Rome, **brothers Giandomenico and Enrico Ghella**, President and CEO of the group, the first born in 1944, and the second in 1951, are sitting side by side. The large floor-to-ceiling windows help to lighten the brutalist architecture of the building, which acquires an almost paradoxical personality with its concrete beams, softened by multicoloured railings, added by the Ghellas to reinforce the windows. Outside the hall, solar panels can be seen, which break up the light on the teak terrace, producing water for the 180 employees who work here at the head office.

**Opposite his brothers sits Lorenzo, Giandomenico's son** who, at the age of thirty-two, is already a fully-fledged member of the company's management team. A tall young man, a smiling face, but serious in thought, **who looks towards the future** with a discerning eye, anticipating any problems which may arise, first and foremost, with regards to the environment. It is the **fourth and fifth generation of this entrepreneurial dynasty** which comes, as we have seen in all the previous pages, from so far away. It is a family picture that seems to belong to other times, with a serenity and also a simplicity that's almost disarming. Everything is calm and quiet, in a cocoon-like environment.

RIGHT 2011 - Legacy way



On the first floor, down below us, a suspended bridge is being built (the second in the complex) which will serve as a base for a conference room with **roof garden and ventilated walls**. It is almost hard to believe **that here, and on the five floors below, there is a mighty organisational machine in operation**, capable of handling contracts in every part of the world, of selecting, evaluating and analysing requests for the most diverse tenders, monitoring the course of large-scale public construction over five different continents.

And then, of course, creating futuristic structures, from the subway in Athens currently under construction to that of Hanoi in Vietnam (in partnership with the South Korean conglomerate Hyundai), from the slip roads of Brisbane's Legacy Way motorway that marked their return to Australia after almost one hundred years, to the high-speed rail tunnels in Norway which are now in full swing. **The two brothers have been working together for over forty years, sharing an identical approach to commitment and a vision that has never failed.**

*"We don't take on jobs in high risk areas, where there is current or potential warfare," chirp up the two brothers in the unison, "even if the profit margins would be so much better." A prudence that results in a turnover that is growing step-by-step (recently more than 800 million Euro, while **the order book amounts to almost four and a half billion**) and also keeps them at a distance from the Stock Exchange for the time being, "we have nothing against it mind you, and we're not ruling out anything for the future."*

For the time being, however, this is how things work, and it works extremely well: antennas extended in every part of the world, not only to capture tenders, but above all, to liaise with hundreds of public authorities, always striving to comprehend their respective needs and investment intentions. Because being quick off the mark and presenting a perfect and economically-viable project every time a contract goes to tender is a must, and being prepared in advance, i.e. knowing beforehand that a certain public works programme is likely to be launched, is often what makes the difference.



The group forecast is, as indeed it could not be otherwise, is decidedly international. It is not without reason that Giandomenico, in addition to being President of the family business, was also elected (and re-elected) Chairman of the Standing Committee for the Foreign Affairs of ANCE, the national association of building constructors. **Today, more than 85 percent of turnover comes from abroad**, where the majority of the company's 3,000 plus employees work, to which should be added all the labourers employed on different sites, engaged on a temporary basis and often from the local area. **On the construction site in Oslo alone, for example, at peak times there are 800 employees from 19 different nationalities** (the work is due to last six and a half years).

*The group forecast is decidedly international.*

It is thanks to groups like Ghella, that global geopolitical tensions, the prospect of market closures, Brexit and the Trump presidency - a source of great agitation and concern for export companies - do not seem to touch Italian construction companies. Or at least those which are large or highly specialised, and which have been witnessing steady growth of turnover abroad in the last ten years. *"This is not to say we underestimate the potential of our own country,"* points out Giandomenico who, with his brother, was at the side of Prime Minister, Paolo Gentiloni on 22 December 2016 at the inauguration the Salerno-Reggio Calabria motorway, following a decade of hard labour.

*"We created the last lot - in chronological order - to be concluded, twenty kilometres in the most northern point of Calabria, in the municipalities of Laino Borgo, Laino Castello, Mormanno and Morano Calabro, all in the province of Cosenza. A section that includes the famous Italian Viaduct, the country's highest, and the second highest in Europe.*

*It was particularly difficult, but for us it was doubly important: firstly, to participate in the completion of a historic work for our country, and secondly, to go back to the same area where our father's father had worked on the tunnels for the old Calabrian-Lucan railway".*

Among the engineering solutions adopted by Ghella, their new steel viaduct has been especially significant, with special technologies that in practice have enabled them to "overlap" the new track on the pre-existing concrete one (dating back to the times of the first motorway built in the 1970s, and now completely obsolete) which functioned as a base on which to work, without having to rebuild the pylons from the ground, instead working 'in suspension'. The old pylons were naturally subject to very thorough analysis in order to verify their state of preservation. The "old" two-lane track in the end was demolished, and the whole thing saved us a year and a half of work.



Again in Italy, Ghella is completing a 17-kilometre, three-lane extension of the A14 Bologna-Taranto motorway, between Ancora Nord and Ancona Sud. It is a job - this of the Adriatica begun in January 2012 and nearing completion - which has also presented some **unexpected technical difficulties, which Ghella's engineers successfully managed to overcome with the same innovative and determined spirit that has characterised the company throughout their entire history.** It is an integrated agreement costed at approximately 290 million Euro, including security contributions.

In Lot 5, the one assigned to Ghella, there are two natural tunnels, one of about one kilometre in length (Sappanico tunnel) and the other, 300 metres (Montedomini tunnel). For these tunnels, two totally innovative solutions on a global level have been developed in terms of improving safety on the job and construction methods.

In particular, for the construction and the consolidation of the Sappanico tunnel, **an "automated rib" was devised, created and patented**, in conjunction with SPEA engineering, **which eliminates the risk factor related to the presence of workers on the excavation face** during the the rib postioning phase.

For the construction of the Montedomini tunnel, moreover, a concrete shielding system for the entire length of the tunnel was built to physically isolate the construction area from the part used for traffic flow, performed with the "pre-splitting" method, and thereby enabling traffic to continue flowing without interruption. This work, on our doorstep so to say, allows us to reflect on the innovative capabilities of the Ghella company, which have since been exported to every corner of the world.



Another "domestic" example regards the Pavoncelli tunnel which, for centuries, has supplied drinking water, acting as a link between Campania and the Puglia aqueduct. Ghella is building the "Pavoncelli Bis" tunnel, a construction over eight kilometres long, in "chaotic" terrains, with water transits and underground methane gas streams.

Since the 1970s, many contractors had tried and failed to resolve fissures in the Pavoncelli tunnel due to earthquakes and subsidence, until the arrival of the Ghella company that is, who make no secret out of the fact that his type of excavation work is "amongst the most difficult in the world": Without a doubt, the construction will bring the Apulian aqueduct back to its former splendour.



On the subject of **tunnels, the main specialisation of the Ghellas**, of equal importance is their commitment to high-speed rail: Ghella is currently participating in the Lyon-Turin line on the French side ("thankfully, we are not involved in the Italian section being contested in Val di Susa"), primarily the realisation of underground construction works on the Italian section of the Brenner railway tunnel, from Mezzaselva (Fortezza) on the border with Austria.

The main works involve completion of the exploration tunnel and the two main line tunnels for a total of 23km, to be excavated using traditional methods, plus a further 46km with mechanised procedures using the much publicised, state-of-the-art "moles". The Brenner work is being carried out in partnership with other groups with minority interests. The construction, which is due for completion in 2025, will provide a new rail link between Italy and Austria as part of Corridor 5 Helsinki-Valletta and, stretching 64 kilometres between Fortezza and Innsbruck, it will be one of the longest railway tunnels in the world.

*"We would like to work more in Italy: unfortunately the excess of bureaucracy is not just something the newspapers dream up, but we never lose heart. **Our professionalism, our experience** and, God willing, even our corporate identity as "constructors" **is at the disposal of our Country**, and that's all. We have no political ties, we're not interested in playing financial games, and we don't get involved in anything that's too big for us. We build, preferably tunnels, and that's it," say the brothers. "Mind you: in our favour, five years ago we received the first Export Bank loan to a company that operates directly abroad, which we used to purchase machinery" points out Giandomenico.*

*"This allowed us to pitch for new tenders on equal terms with the French and Germans who, at home can obtain money at better rates. The State system has in effect supported us: in recent years Sace and Simest have aligned themselves with the best international standards, and the diplomatic network is of great help to us."* It is hard to say which job is the most important for Ghella. Or rather, it's difficult until you go and talk to Lorenzo who, today, is the group's Vice President, and whose particular focus is on the maxi-contract for the hydro-geological redevelopment in Buenos Aires as well as the group's entire Argentinian presence.

We'll wait and see how events pan out.

One needs to take a step back. The new contract in question, which is still in progress, was awarded to Ghella by virtue of their expertise demonstrated in the "Maldonado" construction completed five years ago, which was a public contract (awarded by the Argentinian Government), which was completed on schedule and with the allocated budget which furthermore, was funded by the World Bank.

*It is hard to say which job is the most important for Ghella.*

The Maldonado stream was essentially designed to collect the city's water, especially useful for avoiding flooding during heavy rains. In the 30s the stream was moved underground and, for a few decades, it more or less served its purpose.

But with the overwhelming expansion of the city, and the increasing cementation of every single centimetre available, the Maldonado was no longer enough. It quickly filled up and, as a result, disastrous floods occurred in the city, becoming more and more catastrophic. In short, something similar to what happens in Rome when the water is no longer able to go down the manholes because they are clogged up with dried leaves, but on a much larger scale.

The Ghellas, whose work started in 2008, have built an additional drainage channel at a lower level, connected to the "old" stream with various pipes and discharges. A system of centrally-controlled sensors actuates the sluices and other "faucets" which regulate the water, depending on the necessity. Well, now we arrive at the present day, and the maxi-contract that we were speaking about.

Armed with this experience, the Ghellas have since embarked on a new large-scale project that is currently under way, whose objective is to reduce water pollution. It is one of the most important water purification projects in the world. It collects a huge basin of black water and filters it before releasing it into the Rio de la Plata. In the final part of its course, the river runs through the heart of the city which today, has been reduced to a smelly bilge in the open air. The basin is home to over four million inhabitants, and it is considered to be one of the most polluted urban areas in the world. In fact, the work assigned to Ghella, which will be completed in 2022, received ad hoc funding to the tune of \$800 million from the World Bank, to which is added funding from the Argentine government to a total of one billion Euro.

The whole work is divided into three lots, from which Ghella is awarded one. *"The need to carry out work of this kind has been spoken about for the past forty years in Argentina, the reason it hasn't been done before now, is simply due to the continued delays in funding"* says Lorenzo Ghella.

Until you arrived?

*"It had become a matter of urgency. Specifically, the work came about through a group of citizens living in the area, even attracting the backing of Greenpeace, who were exasperated by the ecological burden of a river that had turned into an open sewer"* recounts Lorenzo. *"The citizens won the cause, it took a long time but, in the end, a public tender was called and we were its winners. The work - says Lorenzo, who is personally overseeing the construction with frequent stays on site - will change the face of the river that runs through the city."*

We're talking about 44 kilometres of tunnels. There were then several areas to be connected up (the pumping station, water treatment plant, collectors), as well as carrying out various external work. The contract also includes 20 access shafts and 11 secondary wells. In practice, a series of small tunnels tap into the sources of greatest pollution, as well as drawing on the same course as the river upstream. Then it forms a network system by feeding into more galleries that continue to get bigger. The polluted water ends up in a sort of "full-blown cesspool" that takes it to a purifier fifteen kilometres away. So far, the first small tunnels have been made, with a diameter varying from 80 cm to 1.1 metres. Work will then move on to the larger tunnels.

RIGHT 2016 - Brenner



The municipal administration is currently planning the final transfer of the water, at this stage having been cleansed by the purifier, through additional pipelines and remote locations at the bottom of the sea.

It is a very high tech job, known as the "Riachuelo Project", and the Ghellas are rightly proud of it. But it is not the only public works project in which the Rome-based group is engaged.

*All the main works by Ghella which include tunnel excavations and also sewage are done with the help of TBMs.*

In fact, just a short time ago they were awarded the Sarmiento contract, which involves moving an existing city rail line underground.

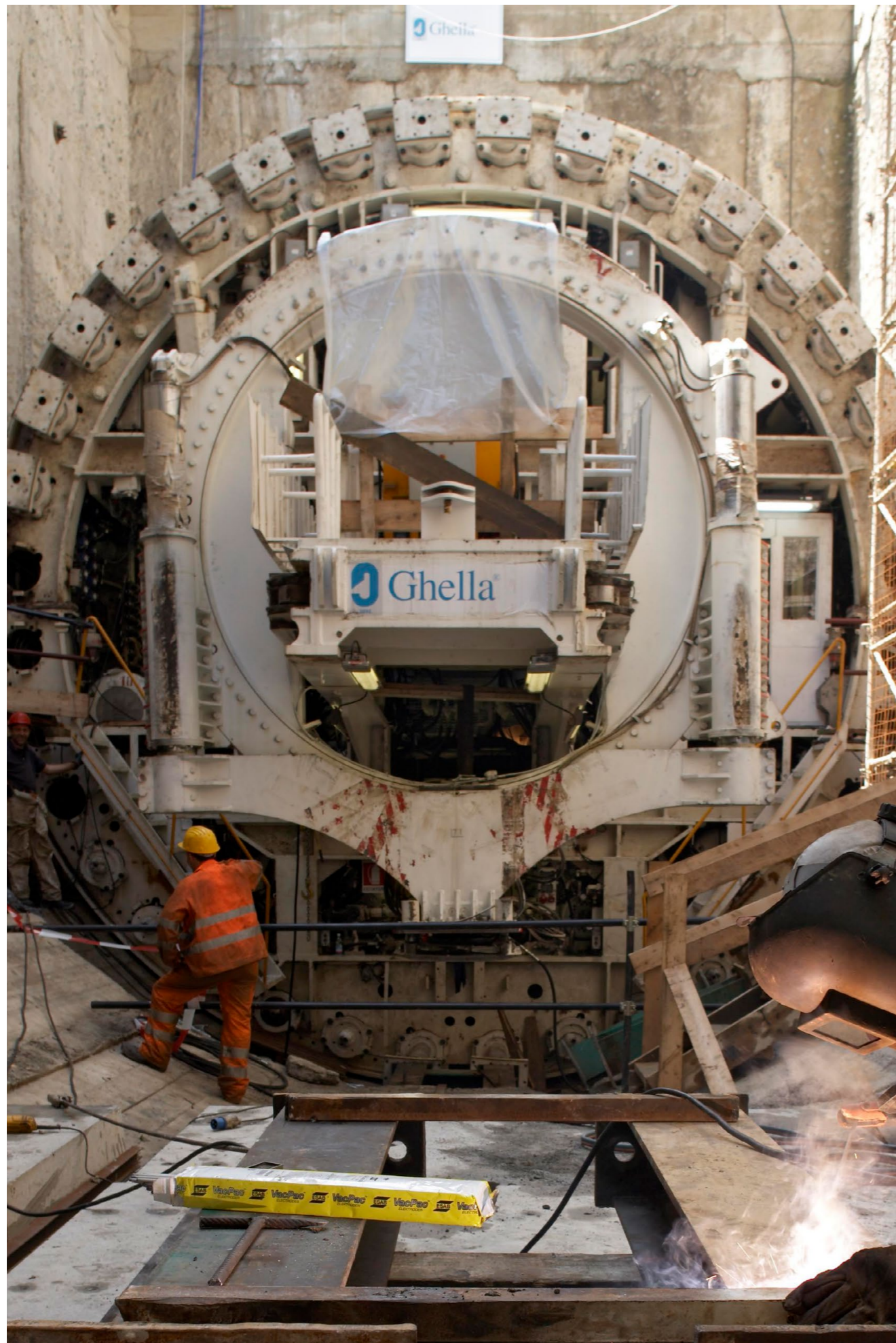
The Sarmiento railway, with more than 300 trains per day, allows for the transit of over 110 million people a year. The railway today is completely above ground and connects the main transport systems between the western suburbs and the city centre.

The project aims to move the railway underground, and also provides for technological modernisation of over 33 kilometres of track. Fifteen new underground stations will also be built. The contract is costed at \$ 3.5 billion.

Thanks to this work, the city of Buenos Aires will be spared 127 level crossings, which cause frequent accidents and are certainly a great inconvenience to traffic. There will also be several new urban parks, built on land regained from removal of the tracks.

**All the main works by Ghella**, which include tunnel excavations, roads, railways, for the metro and also sewage, (from Athens to Oslo, from Buenos Aires to Brisbane to Australia) due to their size, **are done with the help of the notorious TBM** (Tunnel Boring Machine), known in the public imagination as "moles", even though this term for some unknown reason is not liked by the engineers.

However, it gives the idea: like the dear rodent in Aesop's Fables, these machines slowly work their way through the ground, opening tunnels in even the roughest and stoniest ground. And like moles, they make their way blindly, although only in appearance: **the control cabin of one of these machines, which is located within, resembles a space centre**, chock full of monitors, computers, and audible and visual alarms. Operators (there are usually two at the controls) keep a close watch over the machine's operation and advancement, monitoring its position in the subsoil, just like the captain of a ship who knows, at all times, exactly where his vessel is in the open sea. On first sight, the machine in its entirety looks like a train, just that it is much bigger: **it is as high as a four-story building, 150 metres long** and over.



In each "wagon" there is a function. At the head there is a sort of immense rotary blade that has several dozen cutters which, like drill bits, penetrate into the ground by gradually cutting away the earth, stone, and mixed material they encounter. To finish the tunnel and render it secure, semi-circular pieces of concrete are used, ashlar: a variable number of them (usually a dozen) entirely cover the vault that has been created. The ashlar are automatically positioned by the machine (at this point in fact it begins to lose its similarity with a mole), which are then joined to each other and the surrounding terrain, using various technologies. At one time they were physically bolted, today more modern and efficient systems are used. At that point the tunnel is sealed, and the machine can slowly move forward, at an average speed of two metres every half hour.

Until a few years ago, the lifespan of a tunnel required by clients was 50 years, today it is normally 100 years, but the Ghellas are fearless, whatever the challenge: after all, they say with a smile to the clients, there is a living prototype, the Kowloon railway tunnel in Hong Kong (which we talked about in one of the first chapters of this lengthy tale) that was built by the Ghella company over a century ago and is still working and in perfect condition (just recently the city authority replaced it with a new one designed for the high speed trains that now connect the former British colony to mainland China).

These machines are so sophisticated, so complex, so state-of-the-art in their technical sophistication and complexity, that they have been likened to spaceships and, of course, they represent one of the most significant components regarding cost for a contract of this type.

LEFT 2015 - Riachuelo,  
Argentina



The Ghellas usually assemble the machine in-situ, so that it can better adapt to the characteristics of the ground and ensure an exemplary job. The individual mechanical components are produced by the manufacturers, always on the specifications drawn up by Ghella engineers, and are brought to the site. The first **TBM was tested by the Ghellas in the Peschiera Aqueduct**, and the first "export format" was used in 1978 in Venezuela. The latter was called "Carolina", **according to the custom of giving machines a woman's name.**

Today, on the Norwegian high-speed construction site, four TBMs are at work, all put into operation in 2015 and all named in a similar fashion after Norwegian queens: Eufemia, Ellisiv (the oldest, who died in 1067) Anna from Kloppa and Magda Flatestad. In Athens, for the 7.5 km metro, there is one at work, apparently by the name of Hippocrates, in France "Federica" is at work, in Australia it is Annabel and Joyce who worked on Brisbane's motorway tunnels, and so on.

A situation at the Athens Metro came about, where the risk of running into precious antiquities was almost a certainty. It opened the door to another type of work for the Ghellas, entirely new and unprecedented: finding themselves in the shoes of archeospeleologists, unearthing ancient relics from the subsoil and organising them at the metro terminuses themselves, which have become actual museums for the antiquities found on site. It is one of the first examples of such an original museum design. It is one of the first examples of such an original museum design. Now a similar experiment has been attempted for the San Giovanni terminus on Metro C in Rome, another place, shall we say, at a high risk of uncovering some priceless finds.

The term "company leader" has been somewhat overused and is also risky, seeing that sooner or later you will always come across someone who is a bigger leader than you. But there is still one area in the substantially large sector of infrastructure where the Ghellas have no fear of being undermined: **tunnels, a specialisation in which the group has gained global prestige perhaps unlike any other.** An overview of the Ghella business would not be complete without recounting two more stories from the group's experiences, one negative and one positive.

*"Our name as a guarantee of technical viability, as synonym of realisation capacity, as honesty."*

Let's begin with the first. We find out about it when the words of the two brothers, whose story was bounding along on a line of enthusiasm and pride, cracks momentarily: **the pride for their achievements, for the image of integrity that they have managed to project in a sector that is far from easy, for the many collaborators, all of them enthusiastic, skilled and super-specialised collaborators with whom they wisely surround themselves: men and women in possession of world-class professionalism, who also consider the company to be an invaluable asset** and above all theirs, and therefore to be protected, defended, and valued.



Well, as we were saying, the Ghella story becomes momentarily more pained, and it is when they recall the one and only stumbling block that their 150-year old group has ever encountered: the declaration of receivership in 1965. Prestigious work abroad is blocked as in Italy (where Ghella was working on building the Pisticci lot of the Basentana II3 state road, in the "first version" of the Salerno-Reggio Cosenza lot, to double the single-track lines of the Battipaglia- Reggio Calabria railway line).



LEFT 2017 - Photovoltaic plants, Italy



The voice of the two brothers, however, bounces back immediately: "Objectively, **our name as a guarantee of technical viability, as a synonym of realisation capacity, as honesty in job costing negotiations**, was not affected in the least, above all as far as tunnel work was concerned," the brothers immediately add. "It was a financial misadventure and nothing more."

The second experience, this time a completely positive one, regards an important diversification which took place ten years ago, apparently far from the company's core business of tunnels and construction. But not so far, when you consider that it always comes down to infrastructure: **photovoltaic plants**.

**There are now twenty-five group head offices in central and southern Italy**, producing a total of **60 MW** a year, with other plants in operation in Latin America. For the rest, given that the Ghellas take everything most seriously, export possibilities in this sector is something that has already been going on for some time: **a plant of world-record dimensions is currently being built in Dubai** with the help of some of the group's historical partners; those with whom they have already worked on various constructions, above all in Italy: **eight million photovoltaic panels**, which the Emirate intends to complete in time for the Dubai Expo in 2020. A new challenge, addressing the most "ecological" way to produce electricity. Although of course, in no way does this mean the company is losing sight of their original core business, perhaps the moment is right to say **"there's light (electricity) at the end of the tunnel."**