Story of the Alfa Romeo factory and plants: Part 1

The early Portello Factory

Patrick Italiano

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Over the last few years, we have had to deal with large changes in Alfa Romeo-related places and buildings, as we witnessed the destruction of the old Portello factory, step by step in the late 80s, and also the de-commissioning of the much more modern Arese plant. Sad tales and silly pictures of places and people once full of pride in manufacturing the most spirited cars in the world. As reported by historians, it has long been – and still is for few – a source of pride to belong to this "workers aristocracy" at A.L.F.A.. Places recently destroyed to make place for concrete buildings now containing commercial centres or anonymous offices, places where our beloved cars were once designed, developed and built. It's often a mix of curiosity and thrill to have the chance to look behind the scenes and see into the sanctuary.

Back in 1987, when the first part of Portello was being torn down, Ben Hendricks took us on a visit to the Portello plant in Het Klaverblaadje #40. That was, as Jos Hugense coined the title 15 years later, the "beginning of the end". Today, one can see Alfas running on the Fiat assembly lines along with Fiat Stilos and at best Lancia Thesis. These Fiat plants are no longer the places where distinguished and passionate brains try to anticipate technical trends five years into the future, thus ensuring that the new generation of Alfas keep such high company standards, as Ing. Satta related to Griffith Borgeson in his 1970 interview.

As the old times are long gone, we might try to relate the story of a factory – Portello – and a company – first A.L.F.A. and then Alfa Romeo as independent company - that no longer exist as they were, whatever the feelings we have about the current state of automobile design and manufacture. Official corporate history quite often distorts older situations and events in order to present a clean, positive and spotless version of its history and development, while sometimes automobile journalists spread the same partial and/or legendary stories.

We are not so arrogant to believe that we know the entire story, but we will attempt, using solid sources, to go into some detail on the inside history of the A.L.F.A. factory over time and give some better insight into the events that led to the very creation of Alfa Romeo as a leading carmaker. As it often is, the beginnings set the overall tone of a company's growth, and we are totally indebted, in trying to go back one century into Portello's life, to the late Prof. Duccio Bigazzi who wrote, in 1988, the definitive book on Portello 1906-1926. I wish I had done all the research myself, but in this case I won't do anything other than summarize Bigazzi's 600-page book, sometimes referring to further available sources. Almost all data and events quoted are thus from that source, so we will not quote it every time, but in the original book all information is duly supported by reference to first-hand documents, be they from the Centro di Documentazione Storica, state archives, contemporary newspapers and so on.

At the origin was Darracq

Confirmed Alfisti are usually aware that before A.L.F.A. was even dreamed of, a French-British company, A. Darracq & Co., had decided to create an Italian subsidiary: a visit to the Alfa Romeo museum today draws attention to this because the first car you come across at the entrance of the museum is an odd, small car, looking much more dated than any other Alfa in the museum: a 8HP, twin cylinder Darracq of 1908 vintage. But where 1906 is usually taken as the beginning of the precursor company in Italy, and thus the origin of Alfa, it is worth looking closer to what happened that year. Darracq was an old, flourishing automobile company, initially started by Alexandre Darracq in 1897, with its main plant in Suresnes, near Paris, but already international with subsidiaries in other European countries[1] and its official location in London, where shareholder meetings took place. English investors had taken control of the company in 1903, keeping Alexandre as technical director. The company was making comfortable profits during these years (shareholders were rewarded with a 20% dividend in 1904 and 1905, and 25% in 1906, with 2200 cars produced that year), and Chairman John S. Smith-Winby had no difficulty in getting approval when announcing on February 21st, 1906 that the Italian market was offering interesting perspective for selling and assembling locally their cars, and hehad been approached by Italian partners willing to create a company in America for that purpose. Indeed, only one week later, on Feb. 26th, the Società italiana automobili Darracq was created with a capital of 1.5 million Lire, of which 500 000 belonging to Darracq & Co, 500 000 to the Italian investors, and the last 500 000 corresponding to the use of Darracq's name and know-how. However, the purpose of the society was still very far from anything related to Alfa, as it was about creating an assembly plant in Naples? The Italian investors were mostly from this area, and the 1904 law for development of Naples granted advantages to new industrial companies: no customs fees for imported material and exemption of property taxes on buildings and installations. So the objective was an 8000 m² factory aimed at the production of 500-600 cars per year. Therefore a piece of land was bought in the Naples area from the Italian company Hensemberger, a large 23000 m² tract of land for the huge sum of 450 000 Lire all included. But as soon as mid-1906, one of the then frequent, stock market crises took place, and the land had just been bought when doubts arose about the location, together with unexpected difficulty to raise further capital to deal with the purchase. However, the development continued into the second part of 1906 with preliminary construction of the plant buildings and with ordering the necessary machine tools and tooling. Then in the last months of 1906, Alexandre Darracq requested a study on the pros and cons of the planned location and activity, only to find out that the workforce was to be a problem, as no trained workers were to be found locally, and training the amount of people needed would incur unanticipated costs and time. Moreover, the lack of local specialized companies, from which to source out accessories or semi-finished materials was another concern. Other automobile companies who tried to install themselves in the area were failures, including international joint ventures such as Hermes (Belgian-Italian) and Daimler (English-Italian). The same study concluded that Milan was a much better location as there was a large specialized workforce and potential sub-contractors, as well as a large market for automobiles. These sub-contractors also included specialized coachbuilders.

[1] In Germany Opel started with the production of a Darracq-licensed car, and so did Talbot in England, initially Talbot-Darracq.

From Naples to Milan: a slow start

The shareholders meeting of Dec. 19th, 1906 decided that the plans were to be changed, and as soon as January, 1907, a 18000 m² trait of land was acquired in the northern area of Milan, along a road leaving Milan called "strada del Portello", n°47, named after the old city's small door where the road started. This place did cost five times less than the Naples one, at an official price of 96000 lire, while it's already worth noting that Darracq, then A.L.F.A., keep the land in Naples up to 1914, thus tied up needed capital. At the Portello site, construction was immediately started of a 6700 m², brand new, modern for its time, factory - the very beginning of this historical Alfa Romeo plant. The exact location was somewhat odd, as other Milanese industries were in other areas, better linked to railways, but an automobile factory didn't have as heavy a transportation need as did railways, steel or other heavy industry.. Indeed a large number of workers then lived in the northern part of the city, and tram line 14, before WWI, already reached close to the Portello area.

The initial part of the factory, which remained unchanged up to WWI, is worth being detailed (see the attached drawing for identification of the locations). First of all, the building itself was a modern design, with an internal iron structure and roof allowing flexible use of the space, 8X12 m² modular elements, and well-lit by large glass dividing walls and glass skylights on the roof. The internal lay-out placed the main machines in a central location, surrounded by the auxiliary rooms. As one can see from the period pictures, machines were operated through the famous but dangerous hanging belts, often seen in pre-WWI industries, with power being transmitted via shafts hanging from the roof. Tooling was a mix of quite simple, French-built, lathes, for the less demanding machining, and modern, US-sourced automatic lathes and milling machines, for precision machining, that were regarded as state-of-the-art then. While this group of machines was the centre of the factory's tooling, both in physical location and for its importance (the Milanese technical schools used to visit A.L.F.A. as an example of modern factory those years), other activities were still carried out with traditional tools, not quite synonymous of precision, like hammers and files, as can be seen from period pictures. So the modern machines were the centre of operation, with the maintenance department on the side, and the assembly halls (engines, gearboxes, complete car), of which we have several period pictures, were in the southern half of the factory. Assembly, as well as machining of components, was carried out in batches of a certain number of similar pieces, then switching to another type.

The workers responsible for the maintenance of the machines were among the most specialized, but it's easy to see that the workers who assembled, bench tested and adjusted the cars were the true aristocracy, highlighting the pride of belonging to the then most modern branch of industry. In the pictures, engineers, foremen and specialized workers are clothed in a more refined manner than those in the machine rooms, indicating that way they were of another class. Indeed, the original factory included, on the southern side, not only the employee offices, but also a sales room directly along the test and tune-up departments. In fact, the customer very often came to the factory instead of buying his car in the sales room in the centre of Milan, so to be able to watch those incredible "engine doctors", the people who used to magically identify by ear or feeling why those damned new cars would not run properly. It was not rare then that a new car needed several full days before it was running properly; a gearbox OK on the bench could suddenly fail to work once installed in the chassis… While the southern end of the factory was the one housing the finest skills, at the other end, the raw materials were stored in the north-western corner after just a weighing, without any kind of control, but most of the incoming materials were semi-finished pieces from the mother company. Indeed, on the most northern edge of the building were the only places to work raw material, to a limited extent with a small forging shop and bronze foundry.

Even the chassis frame assembly did not look as modern as the other areas, with teams of workers moving between those iron frames assembled with hammered rivets in seemingly disorder. From the outside, the Portello factory looked serious due to its Lombard style architecture. Yet it was, and would remain up to the mid-twenties, a factory lost in the country-side, as there were two small bridges to cross over the small *Mussa* River from the strada del Portello. When the outskirts of Milan were urbanized, this entire area was paved over.

As a modern factory, it also paid attention to the workers "comfort" in that, unlike most other places then, it included services such as a bicycle storage room, lavatories and a dining room. But still, the workers had a specific entrance, different from that of the other employees, and first met shift control room (where worker's start and finish times were monitored, potential thieves were kept out, etc)

This was the original factory, as planned, but we somehow anticipated the events in describing it while still talking about 1907, since it took one full year before construction was completed, and the first traces of productive activity took place in spring 1908. Even more, the first Darracqs assembled at Portello were finished around September, 1908. That's why we first stated that the often quoted starting date of 1906 for pre-Alfa activity is somewhat early compared to the reality of the company's life. Fortunately, in 1907-1908, the Società italiana automobili Darracq was not completely inactive, and while work was in progress at Portello, the company was already importing the whole range of Darracqs, which consisted of 8 types of engines that could be fitted to six different models of touring chassis or seven industrial ones.

But those were chaotic times in the world market[2], even more so on the Italian scene. 1907 had seen one of the many short-term crises, which especially affected the automobile market in Italy. So when one year later the first Darracqs left the assembly building at Portello, they arrived on a saturated market. Some sources have calculated that in those years, the Italian market was good for a maximum of 4000-4500 cars over four years, based on the estimate that maximum 10000 Italian families could then afford an expense of 10000 liras per year needed to buy and run an automobile. And in front of that, Italian carmakers produced 18000 per year. Here lies probably the main reason for Darracq's failure that, as we will see, is not exactly what is usually reported in official history.

So, at the end of 1908, i.e. a full two years after the founding of the company, a few cars had been assembled, which had to be sold at discount prices given the market conditions. The best opportunity was also vanishing, as Darracq had hoped for large orders of taxis, mainly for southern cities, but those orders never came. And here we can see how Darracq and A.L.F.A. are closely tied ventures because, as early as February 1909, when the very first cars were probably delivered to their customers, Ugo Stella was nominated Chairman in place of Henry Elliott, an Englishman. Stella would remain in place after the creation of A.L.F.A. the following year, but it is also worth noting that he was not an especially wealthy man, nor was he technically minded, but he was part of the Milanese "Jet-Set", and well liked by the ex-patriot Englishmen in the area. All in all, after the first full year of activity, i.e. from 1908-

[2] It's worth noting that in the pre-WWI era, according to many indices, the globalization of the economy was even more developed than now. This is particularly true for ownership of industrial companies. Italy was a country of late industrialization, partly due to late unification, and most of the industrial activities (railways, energy plants, steel and mechanical production) were in foreign hands, mostly German – for instance Siemens owned most of the electrical supply facilities in Italy prior to WWI. Belgians were involved with tramways. Darracq is of course another example.

1909, a total of 61 small cars had been assembled at Portello. Considering the millions invested and the three years elapsed time, no doubt it was a very deceptive figure.

Famous Italian journalist Giovanni Canestrini published an article in 1953 on the first steps of A.L.F.A. as a company, where he attributed the Darracq failure to Suresnes feeding Portello with poor-quality, flawed parts resulting in their commercial lack of success. This explanation of the Darracq Italiana failure has been successively reported in almost all books on the A.L.F.A. origin. According to Bigazzi, primary sources show no trace of these problems. Indeed, the Milanese plant was dedicated to the production of the smallest models in the Darracq range. This was not only the result of Darracq's belief that such economical cars would fit the Italian market, but also the fact that Suresnes had been concentrating on upper scale cars in 1906-1907, so that Portello thought at some point that they would be called to export those small models back to France. This never happened, and because a subsidiary of a foreign marque could not export back out of its country of production, Darracq had little chance of success with the Portello venture. As mentioned above, the Italian market was too small then to absorb even their own Italian car production; export was needed to survive the recurrent economical crises which periodically depressed cars sales in Italy. Moreover, this very narrow market was oriented more toward luxury, status symbol cars than toward economical, purpose-built ones, for instance "doctor cars". FIAT, among others, was able to sell luxury cars abroad that it successfully marketed in Italy first, building its reputation on quality and refinement In summary, Darracq just tried to sell the wrong car in the wrong market at the wrong time, even though the decision had been consistent with the flourishing market at the moment the decision had been taken. The worsening of economic conditions prevented the Italian subsidiary from raising the capital needed for a quick start of the new factory, having already lost time and money with the initial Naples plans.

From Darracq to A.L.F.A.: a smooth transition

Here's another key point where the overall impression given by the official A.L.F.A. history is somewhat misleading. It has been said that "a group of Italian industrialists then took control of the failed Darracq factory", but things didn't exactly fit that version. Ugo Stella had been appointed chairman in February 1909, i.e. under the full initial ownership. Among his first steps, he had spotted the main weakness of the Darracq Italiana business as an inadequate range of cars, so, while still under full Darracq ownership, he appoints Giuseppe Merosi, from Bianchi, then a leading Italian car marque, as technical director. That is on October 1st, 1909. Merosi is immediately entrusted with the overall design of a new, original range of cars, a task he completes in his private house within a few weeks. Indeed, he presents his drawings to the Darracq Italiana board at the Milan Automobile Club in December of that year. It's somewhat odd he worked at home and presented the result in a "neutral" place, so it's possible, but not reported, that a part of the board of directors was not fully convinced of the new orientation for the company. But yet it's not until June 24, 1910 that the company changed name for (Società) Anonima Lombarda Fabbrica Automobili. More evidence of Darracq's involvement with this new direction is that six months earlier, on January 13, Stella made a report at the shareholders meeting where he recommended a huge cleanup of the company's account, including the devaluation of the Naples' land. It's therefore the original Darracq Italiana company who decides to reduce the value of the head society's shares, dropping the 500 000 lira asset attributed for the name and know-how, and devaluating the capital due to the cumulated losses of the previous years. It's worth noting that, if the Italian adventure hadn't earned what the shareholders expected, they had not lost all, since the loss-making Italian society had been paying them substantial royalties and other revenues over time.

So, this financial reorganization of the company is carried out with the acceptance of Darracq's representatives and, even after the change of name in June 1910, Darracq & Co keep a large share, close to 50%, of the new A.L.F.A.. Alexandre Darracq in person stays in charge as administrator. On the other side, this also means that A.L.F.A. will no longer receive raw material from the French headquarters, and will have further difficulties in raising new capital, because the English and French shareholders want to maintain their position, but certainly not to invest more in this company. Access to bank credit was difficult in such a situation, and thus A.L.F.A. was undercapitalized all the way up to WWI.

Merosi had started working at Portello in early 1910 and had his design layouts developed into detail and construction drawings by a team of designers. The first cast parts, such as cylinder blocks and gearbox housings, arrived at the factory in March, and pressed steel parts, such as frame elements, were sourced in Switzerland. Machined parts, such as gears, were instead fabricated with the Portello tools. The first prototype of the 24HP hit the dusty roads around Portello by the summer of that year, as reported in an article in *Motori, cicli e sport* dated August 1910. This is also about the time when Merosi, asked to design the new badge for A.L.F.A., took inspiration from the medieval arms of the Visconti family, as he could study them on the Sforzesco Castle, in the centre on Milan, while waiting for his *tram 14*. A set of pictures published in several places[3] show a badge-less prototype of the 24HP tested by Merosi himself, with members of his family aboard, on August 7th, 1910, in front of a relative's house near Como.

The pride of working at A.L.F.A.: the "elite of work"

At this stage, Portello's overall workforce was around 80. Among them, skilled workers who had come from Bianchi, including Amletto Bossi who headed the experimental department until after WWII, Nino Franchini, Giuseppe Campari and Attilio Marinoni, for whom the status of test and race drivers would be welcome promotions, and Antonio Santoni, who built the first A.L.F.A.-powered plane. In a slightly later picture, the whole workforce posed for a photographer, and a patient count gives about one hundred. But the start of the new venture is slow, and by the end of 1910, only 20 cars are completed, of which none were yet sold. The lack of financial resources explains that delay, so that the 100 cars (50 24HP and 50 12HP) planned for 1910 are postponed to 1911, when they are effectively completed and all sold. Indeed, the Italian market immediately welcomed the new production, as Merosi had believed that this kind of machinery would suit Italian tastes. Soon the first 24HP and 12HP cars were entered in racing, the very first outing being the Modena Regularity race on April 23rd-29th 1911, over 1500 km[4]! The A.L.F.A. 12HP won there, in a tie for first place with five other entrants. Meanwhile, Santoni's airplane had brought much publicity to the marque, as not only had it flown right from the beginning, on Sept. 17, 1910, but also flown well enough to become an early training aircraft at the Milan aero school. And the first really competitive event, the 1911 Targa Florio, run during nine and a half hours under strong rain, had seen Franchini's 24HP Corsa leading for the first two laps, before retiring in the third and last lap, due to a broken wheel caused by a loss of visibility in the mud.

While the first 1911 sales successes already included export to the U.K., a second series of 150 cars was planned, built and sold in 1912. This trend continued up to early 1914,

[3] For sure in the introduction of *Alfa Romeo 1900 Sprint* by G. Alvarez Garcia, p. 7; in *Le Alfa di Merosi e Romeo*, by Luigi Fusi, p. 32; in *Die Merosi Epoche 1910 bis 1927 by W. Hönscheid and S. Knittel, p. 27*; in La Manovella, N°2, March 1997, p.21

[4] Illustrated in *Le Alfa di Merosi e Romeo, p. 98*

with increased production and commercial sales leading to break even or even a marginal profit (i.e. after remuneration of the capital). But the company was still struggling with undercapitalization, which would cause the company to dissolve as soon as the war broke.

It may be interesting to stop and have a look on the working conditions in those pre-WWI years, as 1913, especially, was a year of social unrest in Italian industry. In those years, A.L.F.A. employed 150 to 200 workers according to the season. Indeed, in that era, automobile construction was affected by seasons, as poor road conditions did not allow much driving in winter, so production was concentrated in late winter for the coming year, and in late spring for summer sales. Among the long and difficult strikes at A.L.F.A. and other factories of the Milan area in February 1913, that of Feb. 12th is a good example, as it was about three important issues. First, workers wages were a fixed rate per hour, plus per-piece wages that accounted for 30-40% of the total salary. But in times of difficulty, it was very common for the company to cut unilaterally the per-piece wage. So the first workers' claim was the stability of production-based wages, in Italian "cottimo". The second claim was the ban on penalties for missed pieces; the third was the "English Week", i.e. a reduction of two hours on Saturday, leading to a 58-hour week. Actually, in this strike, only a partial settlement was found, with 57 hours worked but paid for 58, but things changed as soon as either demand increased or diminished. To put this all in perspective, it's worth quoting the overall amount of a typical wage. Where a worker was paid from 20 to 60 cents per hour (100 cents = 1 lira) according to age, skill, and function, a cheap bicycle was worth 120 liras, i.e. more than three weeks average salary of a skilled worker – a good quality bicycle went for 400…

After a year that had seen several strikes and social agitation, A.L.F.A. had survived only to find that in 1914, with the war breaking out, even though Italy initially stayed neutral, the market for cars just collapsed. From August, export was forbidden, and one month later restrictions were put on the internal market. But export was resumed during that fall. So A.L.F.A., whose production had been increasing over the few years of its existence – overall 727 total cars had been produced in 1914 - found itself unable to continue activity in 1915. Actually, Alexandre Darracq had already left the board, finding more fun in running the Deauville casino, and while the company had reached the break even point, it was not enough to allow an increase in capacity of or access to bank credit. Already on August 8th, 1914, all the workers had been dismissed, but some were rehired when the possibility of some work arose. A few cars were exported, but Government orders remained scarce, as large carmakers were preferred for ease of maintenance and spare parts availability. So A.L.F.A. only managed to sell a few dozen 24HP-powered ambulances and trucks, a series of which can be seen in a contemporary photograph. 205 chassis were nevertheless completed in 1915, while Stella was going around in search of anybody willing to take over the company. When this was achieved, and car production came to a complete halt, all the parts for producing 105 further cars were left over – they weren't completed until 1920! This is where a certain Mr. Romeo enters into the stage…

Alfa finds her Romeo

Nicola Romeo, whose biography has been written many times, deserves to be mentioned here for a few key features and circumstances. Son of a primary school teacher from the Naples area (Sant'Antimo), he was allowed not only to study for an engineering degree in Naples, which was a great achievement and opportunity then, but also to study at foreign universities, including a diploma in electrotechnics at the University of Liege in 1900 and further classes in France and Germany. In 1902, a private, local railway company run with Belgian funds offered him a job as Station Chief, which he accepted reluctantly until, when travelling back from Brussels on the train, he met someone from the English Blackwell

company who asked him to manage the Italian subsidiary of this company selling railways and electrical materials. After 4 years there, he had raised funds for his own commercial company, selling first specialized steel from Hatfield (GB), and then mostly US-built Ingersoll-Rand compressors and related machines. That's how, since the business was running well, he opened a small (522m²) shop in 1909 for assembly and repair of the American equipment, situated on via Ruggero di Lauria, not far away from Portello. From there he made an important friendship, as we will see, with Angelo Pogliani, administrator of a "prancing" bank, then called Banca di Busto Arsizio, and later in 1914 part of the new Banca Italiana di Sconto (Bis). While the leading banks of the time were quite prudent in supporting new companies, Bis could be compared to the "corporate raiders" of our times, aiming at rapid growth through investment in new technologies, with all the risk they imply. Let's say that back in the 1910s, the automobile industry was something like the e-economy today.

Mid-1915, faced with the difficulty in obtaining war material orders, the A.L.F.A. board sold all the shares to Bis, who on August 4th, 1915 entrusted Ing. Romeo to run the company with almost complete control. Up to that time, Romeo was running his small, but successful, shop with 50 workers overall. On September 21st, the board of A.L.F.A. gathered to dissolve the company in the presence of the new shareholders, with 95% of the shares owned by Bis, and Ugo Stella representing the former ownership. This is another important step, as this decision meant a huge devaluation of A.L.F.A.'s assets, about which Merosi would later complain. In December of the same year, the former A.L.F.A. came to be part of the Soc. Ing. Nicola Romeo & Co.

Actually, as early as July 28th, 1915, Romeo, thanks to Pogliani's backing, had been granted an order to produce 1.55 *million* 75mm shells, for *23 million* liras, with only 50 workers in the "Lauria" shop[5]. This figure, 11.25 liras apiece (excluding the raw material, eventually supplied by the government), should be compared to the price paid to Turin's major industries for the same product (about 5.25 liras) and to the 9.25 liras contracted by Breda and others. The state, moreover, arranged a large amount of financing for the contract amount, so investment didn't require any fund raising. Just one month later, Romeo obtained further orders for 2.5 million pieces of a type of shrapnel, and another one-and-half million 65 and 75mm shells, all that to be delivered before December, 1916.

Immediately Romeo planned to reorganize Portello for the new production; at the same time he re-tooled and extended the via Lauria shop and rented another 6800m² industrial building in via Alberti, next to via Lauria.

The Portello plant would be entrusted with manufacturing both the massive shell orders and the compressors and related machines. This required immediately building an extension to the initial A.L.F.A. construction, on the surrounding land belonging to the company.

- The first new building, named nationalistically "Trieste"[6], was erected on 7750m² south-west of the initial factory, opposite to Portello road (see the map for easier understanding) in late 1915, i.e. very quickly, mainly for compressors, in order to

[5] It is not a unique case of huge orders granted to ad hoc companies, and the Bis backing put indeed Romeo in another league compared to even less prepared contractors.

[6] Italy entered WWI against Austria, claiming sovereignty over the north-eastern provinces of Trento, Gorizia and Trieste. Those names mislead the famous and remarkable authors Peter Hull and Roy Slater in their *Alfa Romeo – A History*, a ground-breaking book (3rd ed., 1982) to believe that Romeo had plants in those three cities.

dedicate the original A.L.F.A. building to the shells. There, Merosi was entrusted to develop new models of compressors for war use based on the 24HP A.L.F.A. engine.

- Another 3400m² building, called "Trento", located south along the Portello Road, was bought in December 1915 from a small company called "Carrera", and dedicated to mining material. This Trento plant was soon extended to the double of its initial size.
- Shortly thereafter, still in 1916, another hall was built as a consequence of yet another order for artillery shells, this time of a larger calibre, 149mm. This 8500m² building, located farther from the Portello road, started producing the big shells in mid-1917. It was called initially "149", referred to its production, but soon got the third war-related name, "Gorizia".
- All the new buildings were at least as large as the original Portello site, and it's not yet over, as in late 1916 a northern extension was built right against A.L.F.A., for presses and furnaces.

These extensions had been actually built in haste, with no overall coordinated design. For instance, it soon proved problematic that the presses were too close to the buildings housing precision machinery, because vibrations caused the machines to often get out of adjustment. Based on this experience, the last WWI extension, the foundry and forges, were constructed in 1917-18 at some distance from the machine shops, still leaving the company with a poorly organized use of its space.

The tooling was also affected by the haste in which production was increased: lathes were bought anywhere possible, as machining of the shells did not require maximum precision for every operation, and the lathes were to be operated by more and more unskilled workers. Yet, the time it took to organize such a large enterprise did not allow production levels to reach the expected amount in time to meet the deadlines, and as soon as end of 1915-early 1916, it was clear to the military authorities that only 50-60% of the orders would be fulfilled in time by all contractors. But the situation was possibly worse by Romeo, when 2000 shells a day in March 1916, and an expected 3000 in April, were about one quarter of the rate needed to deliver the contracted quantities. And yet, that was a good achievement among the companies that did not exist before the war, compared to others in the same league. The government was, on the other hand, rather well disposed toward Romeo as, since the war was taking place in the north-eastern mountains, compressors and mining material were strategic, and the company was also supplier of those. Ten types of US compressors were built between 6 and 40 HP, and two of them were powered with A.L.F.A. engines, both the 15-20 and 20-30HP. In 1916, production also started of the Merosi-designed "piccolo italiano" ("small Italian"), a light and manoeuvrable compressor powered with a 10-12HP, 2-stroke mono-cylinder. Later, he designed a larger unit, on the base of the A.L.F.A. 4 cylinder, whose central two cylinders powered the unit, with the external two acting as pumps. This one was called "monoblocco" as pumping and power were both carried out in a single unit.

Hard times and minimal wages

Albeit, as we have seen, the original Darracq/A.L.F.A. factory was a modern one, including facilities for the workers, working conditions had never been that great in any industry before WWI. But despite some turnover and the "management" of the most militant workers right from the beginning, the A.L.F.A. workforce was among the best qualified and felt some pride in belonging to an automobile company, as were those of Bianchi, for instance. All of them had been recently dismissed in 1914, and then re-hired, and Romeo tried to keep as much as possible of that skilled workforce, helping them avoid going to the front.

The takeover by Nicola Romeo, the switch from automobile to artillery shell production, and the overall circumstances changed dramatically the composition of the workforce, where the skilled and professional workers soon became a minority in the Romeo factories. While the "real workers", ex-A.L.F.A., remained at their specialized tasks, the massive arrival of hundreds of mostly second-hand machines, which were used for less sophisticated operations than those needed for automobiles thanks to stops, jigs, and so on fitted to them, meant that unskilled people were hired en masse, who had no previous industrial experience. Among them, many came not only from the surrounding agricultural areas but also women and soldiers who had been detached from the Army and assigned to strategic production. From mid-1916 up to 1918, Romeo was employing, at the Portello main works and annex shops of via Lauria and via Alberti, no less than 4130 people, of which 2750 were at the Portello plant itself. Among them, 26% were detached soldiers, mostly experienced workers ; no less than 21% were women, often working in less demanding jobs, but yet able in many cases of running old-fashioned lathes, with the same ability as men after some training. Another 3% were boys, in charge of the transportation of materials inside the factory, an important task as we previously noted that the layout of the facilities was not optimal. The new buildings, that had increased the available area by more than five times, were not provided with any of the "comfort facilities" for the workers as the initial Portello had, actually nothing was dedicated to the workers' comfort inside the factory.

Despite the wartime laws, working conditions were so poor that many strikes took place at Romeo[7], as well as in other industrial companies of the Milan area. Most were aimed at salary increases needed keep up with the skyrocketing prices of basic furniture and food. Similar to before the war, an important part of the salary was the piece wage. But according to one's position in the production cycle, this might or might not apply (it didn't, for instance, for the boys who were not directly "productive"), so some functions were quite better paid than others. Let's consider that the complete production of a shell needed a total of 36 operations starting from the raw material. Including the piece wage, the daily income could vary from a minimum of 4.5 liras, corresponding to a woman in charge of painting the shells (to identify the type), to a maximum of 13 to 17 liras a day for a skilled worker in charge of the most delicate machine operations.

Because this social conflict worried the military authorities, the Regional committee in charge of industrial organizations, CRLMI[8], operated as mediator between industry and workers. In most cases, the CRLMI took its time before deciding, as long as work had resumed. When it allowed some gains for the workers, sanctions from the company against strikers were usually cancelled. When the strike failed, usually most of the involved workers were dismissed. These strikes are also a good source of information about what the situation looked like at this time, as deliberations were archived and provide data and figures. Inflation was a major concern, and official data on 9 basic commodities indicate a 60% increase in price between October 1916 and October 1917. This explains why the CRLMI was compelled to satisfy some of the workers demands despite the need for military supplies. In 1918, a communal office of the city of Milan calculated that the minimal requirement for a worker's family, covering only the very basic wartime needs, was 66.5 liras per week. In comparison, the effective wage at Romeo, in line with those of other comparable companies, rarely reached 10 liras per day. Average daily salary, including piece wages, for male workers was

[7] No less than 22 are counted at Romeo by Bigazzi from November 1915 to July 1918, usually limited to certain parts of the workforce and/or departments and varying from a few hours to a few days. In half the cases, the workers obtained partial satisfaction.

[8] Comitato Regionale Lombardo per la Mobilitazione Industriale

calculated by the same office as 8.63 liras, i.e. under 52 liras per week, well under the minimum needs. Female workers not only were paid much less than their male colleagues, despite being as productive, but also it was a huge concern when the husband was at the front or, worse, had been killed at war. Moreover, they were often kept out of the agreements, when any, with the CRLMI, for which some strikes were specific, women ones. Possibly even worse conditions existed for the Libyan workers, 370 of which were working for Romeo from September 1917 to January 1919. Mostly assigned to unskilled tasks, they were paid ridiculous wages - 0.43 liras per hour - and had to camp on the northern edge of the Portello area.

War profits: the bright side of the coin

Most publications recognize that World War One had been the opportunity for the yet-to-come Alfa Romeo to grow from a strictly artisanal to an industrial company, with Ing. Romeo's takeover. But this growth could happen, on one hand due to the Banca di Sconto support, and on the other due to the huge profits from war supplies. We shall see that this latter statement is not exaggerated.

We are lucky enough to have, for Nicola Romeo & Co, two sources allowing a look into the company's profits on each branch of activity, shells and compressors. The former represented the majority of Romeo's wartime income. As it was well known that WWI had helped cause excessive profits throughout Italian industry, official commissions had been created to estimate the extreme profits and the amount of refunds due the Italian Government on the basis that an 8% industrial profit was a "normal" one. In 1919, one of the commissions estimated that Romeo's above-normal profits on the shell manufacture alone was 12.6 million liras. For comparison keep in mind that, from the figures quoted above, a skilled worker was paid under one lira per hour. Many other companies were in the same boat, so it took time before the first hearings took place, and finally in 1922 was Nicola Romeo called to justify his production costs. One can't help but be amazed to see that Romeo presented a 75mm shell cost split where the contracted 11.25 liras include 3.46 for labour cost, 0.88 represent the profit (7.8%), and 6.23 liras for general expenses. This can be compared to Ansaldo's cost splits, from internal documentation, were labour at 1.58 and general expenses plus material losses at 1.64. Romeo himself signed additional contracts for the same shells, in late 1916, at 8.75 liras, but we can look at the problem the other way around. Considering the total investment costs for the new halls and new machines acquired or erected from 1915 to 1918, the amortized cost spread across the million shells that were effectively delivered would have amounted to about one lira apiece.

Despite such an improbable documentation of his costs, Nicola Romeo refunded nothing to the Government, partly due to political events leading to Mussolini's rise to power in late 1922 and to the fact that other companies were charged with even stiffer claims. Fact is that at the end of the war, he owned a company over ten times larger than in 1914, had extra money to invest, as we will see, and had new facilities were completely paid for.

Now the previous figures were only about the main production, but interestingly enough, we have another source for compressor production figures. Giuseppe Merosi had been "bought out" with A.L.F.A. in 1915 and entrusted to run the compressor department. In 1919, he filed a lawsuit against Romeo because his original employment contract stated that a share of the profits were to be allocated to him as technical director, and thus Merosi claimed his part of the war profits from compressors. In support of his claims, he provided Romeo's internal accounting figures which showed that a compressor sold to the Army for 18000 liras effectively cost 4500, all included. A settlement was found with Merosi without

acknowledging any profits, and here as well a commission on war profits eventually dropped the case.

A further source of comfortable profits, where again Romeo was not a unique case, lied in the government supply of raw material. Even though control of supplies was centralized, the amount for 75mm shells allocated to factories such as Romeo was up to 40% more than needed. It's then easy to understand why new foundries and forging shops were built and to imagine how the same metal could have been sold over and over back to the government… However, at Romeo, the electric steel furnaces became operational late near the end of the war and could have provided much higher profits from excess material if ready earlier or the war had lasted longer.

For the entire 1918 year, official profit of Nicola Romeo & Co was 6.3 million liras. In 1915, the board of directors had agreed to grant the *Ingegnere* 35% of any profit exceeding the 6% "normal revenue on capital", which he also earned of course, for his own share.

This lengthy discussion is quite necessary, we believe, to understand better how important WWI was for Alfa Romeo to develop into a large industrial concern, based upon the huge profit opportunities given by the Italian military supply organization of the time. WWI allowed large parts of Italian industry to get into Italian hands, mostly at the government's expense, and Romeo was no exception, nor was he the worse case.

"Liberty" style and locomotives

This huge increase in liquidities provided the impetus for new investment opportunities. On the private side, in late 1918 or January 1919 Romeo bought a Liberty style villa in the centre of Milan, not so far from Portello. (Liberty Style was the Italian version of Art Nouveau.) This acquisition caused comments from an associate of Romeo, a Ugo Ojetti, from well-educated origins. As the new style wasn't really the cup of tea of such old-fashioned people, we have some quite funny comments in Ojetti's letters to his wife describing the façade with "Nude women running over the windows, stone-pissing kids ("putto" in Italian is best translated as "Maneken pis") threatening to commit suicide, as they are frightened by those nude housewives, and old thin men calling both to calm down". Ojetti also reports his words with Romeo's wife, the latter expecting the house not to be to Ojetti's taste: "You probably find this style ugly…" – "Dear Madam, at my age, we are very forgiving" – "You find it very ugly…" – "And she was right".

On the industrial investment side, Romeo decided to invest in railways, as he felt that post-war reconstruction would need increased investment in transportation and the war had caused the destruction and extended wear to rolling stock. As he had foreseen the needs in that sector, the extended Portello could not improvise itself as rolling stock constructor, and the way to go was to buy existing companies. The first acquisition, on Feb. 18th, 1918 was the Costruzioni Meccaniche di Saronno, a 17000 m² factory, employing 1000 people, and offered for sale by the German Maschinenfabrik Esslingen, eventually at 11.8 million liras[9]. After manufacturing war supplies, it had been granted in mid-1917 an order for 12 steam locomotives, so its original activity was already being resumed, and moreover, the company had already experimented pre-war with the construction of electric locomotives, 6 of which

[9] Actually another good deal for Romeo, as the payment was contracted in Marks, whose devaluation meant that at the deadline for effective payment, the real amount in liras was down to less than half the initial value at the 1918 exchange rate. Ojetti refers in his notes that in October 1918, Ansaldo had offered to Romeo the Saronno plants for 20 million. Romeo replied along the lines "*we are industrialists, not speculators*", refusing the proposal. A later pencil note from Ojetti aside the quote adds "*and we were idiots*".

were effectively built in 1917. The German owners could no longer run it during the war, being an enemy, and had to sell.

At the same time, under initiative of Bis, Romeo bought the majority of the shares of two railway carriage factories: the Officine Ferroviarie Meridionali (OFM) in Naples, and Officine Meccaniche di Roma (OMR), former Tabanelli, plant. The first one employed 1650 workers in 1916, the second a more modest 300. It should be noted that the bank itself didn't loose any money, as it sold the OFM to Romeo for 2 million liras more than the acquisition price a few weeks before, and that war conditions had hidden structural weaknesses at both companies. From the 1.825 million lira capital of 1915, Nicola Romeo &Co had been revaluated at 30 million in February 1918, when it become a limited liability company, then to 50 million in July, after the acquisitions.

Portello, 1918-19

Even before diversification into railways cars, Romeo had sought alternative production to replace the artillery shells, but was still dependent of government orders. In late 1917, Romeo entered into aircraft engine production for the first time (the Santoni aircraft of 1910, as successful as it was, was a one-off), because the Army ordered a huge number of Caproni bombers, for which the 5000 Isotta-Fraschini V6 (it was really an in-line 6 despite the name) engines could not be all produced by I.-F. itself. Romeo got a small part of the order, 300, whose production started at the original A.L.F.A. building early in 1918, because the organization of that part of the factory was the most suitable. While the supply of parts and material was slow, at the end of 1918 (the deadline for the contract and, of course, when the war was over) a total of only 671 engines had been delivered, of which 5 were from Romeo. However, Romeo had another 100 in progress and 75% of the parts for the remaining 195, and considering the difficulty in starting up such a new product for an inexperienced company, Romeo was not among the worst. Where the end of the war had meant for most companies the cancellation of their orders, Romeo managed to be allowed to complete 200 of the 300 initially ordered.

At the opposite end of a product image like (?) aircraft engines, the other big deal of 1918 was the production of the land tractors, well known to Alfisti as well, as they are quite often illustrated, and one is on display at the Arese museum. Albeit the civilian destination of such a product is obvious, an order for production of US-licensed *Tytan* tractors came again from the state. The lack of a workforce in agriculture toward the end of the war led the government to buy thousands of tractors from the USA and, after some polemics, to have some also manufactured in Italy. In June 1918, Romeo secured an order for 1000 of those machines. In addition to the production of the tractors themselves, secondary contracts also included production of hundreds of ploughs, some visible in period pictures. After Romeo failed to buy out a specialized Milanese company, Motoaratrice Pavesi e Tolotti, it was decided that the tractors would be built in the "Trieste" department of Portello, where shells were previously machined. While the first 2 prototypes were ready as early as August and fully tested in October, no more than 40 were finished at the end on January 1919. But as the thousands of US built ones were lying unused and eventually offered for sale at much discounted prices, the possibility for Romeo to rely on selling tractors for the post-war recovery soon proved impracticable. The situation was so alarming that the Government withdrew from the signed contract and forbid Romeo to continue production. Eventual settlement, after pressure from the Prime Minister, was given to Romeo with payment of penalties and disposal of the already assembled tractors and parts. From the declared (but overestimated) 350 finished, barely 30 were effectively sold early 1920, and a batch of 100

sold to a Rumanian broker at a discount in October was not paid for until legal and diplomatic actions were taken.

After the Isotta V6 aero engines were all completed, the A.L.F.A. building held compressors and pneumatic devices (including pneumatic braking systems and tools); the Trento building was partly a warehouse and partly where mining material was assembled; the Gorizia building produced machines and tooling for industry, public works, railways and harbors; and Trieste, as stated above, was busy with tractors and other agricultural tools. The other external buildings were either abandoned, if rented from other companies, or reconverted to warehouse facilities, like Nicola Romeo's first plant on via Lauria. Thousands of machines, unsuitable for non-war production, were also stored at Portello. The forging and foundry facilities were, at the end of the war, both too large and inadequate for peace-time needs, thus needing further investment. Those were employed mostly on external orders, including railway material and cooperation with Saronno, but soon fell into disuse

Back to cars: the birth of Alfa Romeo

Resuming automobile production had not been considered until late July 1919. Expectation of increased tractor sales and investment in railways with Saronno, OFM and OMR had left open a manufacturing sector that much larger marques such as Fiat, of course, but also Isotta-Fraschini, Bianchi and Ansaldo, filled. Moreover, Romeo himself had never been active in the automobile sector, and Merosi was into legal action against Romeo. Merosi had been away from Romeo since May 31st, 1918, but a settlement was reached on July 30th, 1919, with the re-hiring of Merosi as technical consultant for "automobiles, airplanes and petrol engines" at the same time that Portello was reorganized for automobile production. Merosi had proposed that the pre-war 20-30HP be updated to 20-30ES (probably using the parts for the 105 chassis that remained unassembled in 1915) and that the plans be implemented for the luxurious six-cylinders G1 he had designed, as he did for the 24HP in 1910, at home during his period out of Romeo.

As soon as November 23rd, 1919, the first post-war race entry of the pre-war 40-60HP took place, at the Targa Florio. This occasion was the first use of the full Alfa Romeo name, according to "Die Merosi Epoche", and that was also the occasion of another suit against Romeo contesting that he did not have the rights to the A.L.F.A. name[10]. Romeo won the case pretending that "Alfa" in Alfa Romeo was not a reference to the former A.L.F.A. company, because he took "the first Greek letter as a symbol of the number one marque of the new Italy"[11].

To make room for resuming automobile production, the modest mining tool production was moved from the Trento department to the Gorizia building, with the other industrial tooling. At the end of 1920, however, a further reorganization was necessary, as industrial machine production was too low, so Gorizia was down-graded to a warehouse, and tooling manufacture was moved to the Trieste building, where the tractors and agrarian production had come almost to a halt. As automobile production was then becoming the major activity of Alfa Romeo, the ex-A.L.F.A. building was used also for automobile parts,

[10] It is not clear whether this is the same legal action which involved Merosi. Since the information came from another source and the two don't refer to one another, the only clue, providing the reports are accurate, is that these are two separate cases since this one takes place 3 months after the Merosi-Romeo case had been settled.

[11] In Italian, « alpha » spells with a 'f' instead of the 'ph'.

and since the industrial supplies became more and more an exclusively commercial business, Trieste also became involved with automobile activity.

From 1923 to 1930, the engines were built and assembled at ex-A.L.F.A., other mechanical parts such as gearboxes, steering boxes, and rear axles were made at Trieste, and car assembly took place at Trento, which also housed the repair shop. The production of automobiles, as well as of aero engines, resumed in 1925, and, was organized by batch as it had been before WW I , where the same machines were successively used for various parts, one after another, but that also required that machines and stocks to be duplicated in various parts of the factory. It is not before 1930 that an attempt of a more rational manufacturing layout took place.

The world breaks down around Alfa Romeo

As we know today, cars were the correct activity for Alfa Romeo and, even though they became marginal again later, this automobile production activity had to evolve amid hard times for many reasons.

In late 1918, the workers found new strength with the end of the war and organized massive demonstrations to have their wages revaluated due to wartime inflation. They succeeded in November 1918, but the following year was a very unstable, both from social pressure from socialist organizations and from the political scandals linked to war profits. Italy's difficulty in converting to peace-time production also meant severe devaluation of the lira from late 1919 through the first years of the twenties. This forced, by the way, the batch of 50 luxurious G1s to be sold almost entirely to England and, from there, to Australia, while none were recorded as sold in Italy, except possibly the two prototypes.

With devaluation, internal inflation increased (39% between Sept. 19 and July 20) and caused further social action and strikes aimed at raising the minimal wage. Political agitation was also at a height, with the first "squadre", fascists groups who attacked demonstrators, trade union locals, and even workers' houses. It was not rare either that demonstrations ended with police shootings. That social unrest was a general concern, but the situation was even worse at Alfa Romeo. When the trade union, in August 1920, instead of further strikes, decided to boycott overtime hours and to slow down production, Romeo decided, against the advice of the authorities, to lock-out the factory, sparking the occupation of most other heavy industries by their workers. Romeo's decision was not only a political one but also a matter of opportunity: with the state of the market, it was indeed a way of saving money to close the factory until the conflict settled. The following months saw increasing violent activity of the 'squadre fasciste' until Mussolini took power in October 1922.

The acquisition of the railway factories and the necessity of raising capital to reorganize Portello for automobile production had placed Romeo in heavy debt to Bis, who was reluctant to put capital into the Romeo group, instead preferring to grant lucrative loans. Romeo was again undercapitalized, and the interest was higher than the profits of the company. Romeo, despite his huge war profits, was unable to find the huge amounts of money needed to extend production of electric locomotives at Saronno, to face the risk of returning funds to the government (actually he had to pay extra property taxes in 1919), and to complete the Portello plants. He had already poured 2.5 million lira of his own money in the company, one quarter of the capital raised in 1920. Actually, the bank was even more exposed with loans to other mature industries it had supported during the war, and whose conversion to peace production was much more demanding than that of Romeo. Ansaldo mechanical construction was in debt, by 750 million, to Bis, as well as the ILVA steel plants, then the largest in Italy. Already in 1920, Bis owed 650 million liras to the National Bank,

increasing to 1.6 billion when it defaulted in December 1921. By then, the Romeo group owed the bank almost 90 million.

While Alfa Romeo was facing hard times, and having difficulty selling its expensive cars, Alfa Romeo had to cancel the 1922 production program that included a second version of the big 6 cylinder limousine, planned as the G2, as well as another batch of 20-30ES. Only a few prototypes of the new RL were assembled, 6 according to Fusi.

Fortunately, railway rolling stock was finally being produced in their acquired factories, which allowed Alfa to respond to the bank's default, as income from the Naples plant gave them the liquidity to pay the salaries at Alfa in December 1921. While OMR in Rome were struggling as a poorly organized, high-cost factory, they had to rely on street car production and wagon repair to compensate for low orders. OFM in Naples was doing well with large orders for railway wagons, and Saronno, an efficient plant from the beginning, was strengthened when engineers specializing in electric locomotives, including an Hungarian called Kando, were hired. The difficulties of financing that new electric locomotive department with Bis delayed the development, but Kando proved himself as a kind of Merosi, or Jano, in his department, and Saronno continued to produce advanced electric locomotives even after it left the Romeo group.

State financial rescue and doubts about Nicola Romeo

It was of course a big concern for the government and public authorities that such an important bank collapsed, both for possibility of closure of the industrial companies involved, with their strategic importance and thousands of workers, and for the possibility that the Bank of Italy could recover part of its own debts from the failed Bis. Actually, the banking authorities were compelled to give further credit to Ansaldo, Romeo, ILVA, etc. to increase their chances for survival and, hence, any possibility later to either sell them or drive them back to profitability. So, as early as March 1922, the Bank of Italy and the government decided to create a new financial institution in charge of providing the financial means to those companies. The Banca Nazionale di Credito (BNC) was founded to replace Bis, and any insolvency was covered by the Consorzio per le Sovvenzioni su Valori Industriali. This could be seen as the first step to public status for Alfa Romeo, even though Ing. Nicola Romeo & Co was still a private corporation, but the former Bis shares would be from then on in public hands.

The former Bis managers, still trying to maintain some control of their industrial empire, changed their attitude toward Romeo and started to cast doubts on Nicola Romeo's skills as manager of such a huge industrial corporation, the same doubts being expressed later by other finance managers, up to Romeo's exit from his company after 1925. Indeed, in such troubled and instable times, Romeo's management had been quite short-sighted, and in historical perspective, he might not have been up to the task of running Alfa and the three railways plants with proper vision and means.

His motto in late 1921, early 1922, faced with the Bis default, was just to wait and see, hoping for better times. The year 1921 was concluded with a 10 million lira loss, and at least officially, not accounting for their structural weaknesses, Romeo claimed the situation was due to the amount of taxes (6 million) and interest on the debts to Bis (7 million). But total income was indeed down by 50% compared to the previous year. Still, he showed confidence in stating that at least Saronno had orders for over 100 locomotives, both steam and electric ones. The huge loss and overall situation forced another devaluation of their capital, while no definitive solution to their financial situation was negotiated until late 1923. The pending claim for refunding the war profits was also settled in 1923, when the shell over-charges were

politically reduced from 12.6 to 3, then to 1.5 million, and the tractor issue from 3 to one million. Eventually, an agreement was found so that Romeo refunded 1.5 million total to the State in June 1924. The enquiry commission decided not to insist on that matter for several reasons, including Mussolini's recent rise in power, and not wanting to fight against industrial concerns, while the economic problems and the Bis failure were further concerns. While it seems that Mussolini himself did not intervene in the war profit affair, the relationship with the new BNC bank and its position toward Romeo as for the conversion of debts into shares was possible only after his personal involvement. Almost two years later, when the P2 won the GP d'Italia and, doing so, the first World Championship, Mussolini saw the propaganda potential of Alfa Romeo's sport successes in saying that they were "as fast as his thoughts" (!).

And indeed, the industrial situation of Romeo was critical. Car production, which had been 169 cars in 1921, dropped to near zero the following year with only the six RL prototypes already mentioned. And yet, Merosi was up to the task, as he had presented the first RL as early as October 13th, 1921. But the lack of finances prevented organization of any production programme until 1923, when total production then reached an apex with 823 cars, supported by the first international racing success of an Alfa Romeo, the 1923 Targa Florio. Yet, it's not before the second half of the year that production actually found its pace, with 100-110 cars assembled per month starting in August 1923. The product was there, the image of the marque was growing to international fame, but the commercial organization was still weak, preventing Alfa from reaching their effective production capacity. In Italy, the sales organization was mainly in the hands of GP drivers or gentleman enthusiasts: Antonio Ascari was the exclusive dealer for Lombardy, Enzo Ferrari for Emily. But that commercial net did not even cover the whole country, and actually the drivers did not create proper commercial organizations, and, moreover, were very difficult people with which to negotiate. Foreign sales were conducted by subsidiaries, such as the Societe Française Alfa Romeo in Paris, who were the first one. Further subsidiaries were founded in Spain, England and Germany. They proved themselves utterly inefficient in almost every case, but the strangest story was the initiative of two Argentine crooks who registered the name Alfa and the name Romeo in their country under two societies. They immediately merged and tried to ask for royalties when Alfa Romeo attempted to install itself in Argentina. Fortunately, Romeo won the court suit against them.

Eye witnesses at the time however point out the inefficiency of Romeo's organization as well, recalling that he was under pressure to hire people here and there, and the administrative side of the company was sometimes appalling. In a period newspaper, workers calculate that an RL chassis then cost about 13000 liras for material and labour. The difference from the selling price of 30-35000 liras was all for general expenses. Of course, the design costs were important, but they could have been amortized onto a larger production. Also high was the cost of racing: it's estimated that the sole entry for the 1924 Lion GP, the first world-level victory of the P2 against all the leading carmakers then (Fiat had been unbeaten the previous years, but there were as well Sunbeams, Delages, Bugattis,…) cost 1 million liras. In this case, of course, it was a good investment. But administrative charges reached their absurd apex when it come out that Alfa Romeo spent as much as 3 to 5000 liras in exchanging telegrams with Australian customers to decide the details of coachwork colours and accessories of a single car. The 1923 exercise thus ended with a slight loss caused by the automobile division., despite locomotive production at Saronno earning a 4 million profit.

Clouds over the locomotives

The very precarious financial situation of Romeo had started after WWI and the buy-out of the Saronno, Rome and Naples factories. These three rolling stock companies needed new investments way out of reach of Romeo and his associates, while bank support had not been favourable to Romeo. Yet, the continuing state orders for the railway factories had effectively saved Alfa Romeo from bankruptcy, as it emerged from the difficult and slow automobile activity. In the early twenties, the income from Saronno had been vital to their cash flow. Indeed, the Italian State Railway (FS) orders for locomotive and rolling stock had been important for the last several years of the war, in order to expand the railway's capacity and replace worn out, pre-WWI material. Also, Italy, lacking coal mines, had been interested in experimental electric power lines even before WWI. After the war, plans for extending the electric lines were ambitious, but several problems soon broke that industrial dream. The state had been strained with the cost of the war, and the economic crises of the early twenties had not helped the recovery any. When Mussolini took over power in 1922, one of his first policies was to reduce the state's expenses, first of all decreasing investments in the FS network. Indeed, the FS did not order any kind of locomotives between October 1922 and May 1925.

Saronno had built several significant steam locomotives (Type 740 was an icon of the steam era in Italy) and was innovative in the electrical branch, but this new development caused as many difficulty as success. The Hungarian engineer Kando was certainly brilliant, but still struggled with financial difficulties, the very first electric locomotive, a Type E552, was not delivered until August 31st, 1922, a batch of 15 having been ordered in 1919. That delay cost Romeo penalties, but the event was duly recorded, even with a gold medal celebrating the day. The first Italian electrification was tri-phase alternating current, needing a double overhead line and all the associated equipment. This was because at the beginning of the age of electricity, control of power and speed was a problem[12], and a tri-phase system was easier to manage. Even though some tri-phase Italian lines remained in use as late the early 1970s, the "system issue" was a hot debate in the early 1920s. 3000 volt direct current (DC) was eventually chosen, and tri-phase projects dropped off in the second half of the twenties, i.e. when Mussolini resumed investment in the railways.

With Ing. Kando as a resource, Saronno – and thus Romeo – accepted the challenge in 1921-22 of developing a new, advanced model of electric locomotive, whose control system would have been far ahead of any existing one in use in Italy then. That model was called the E471, of which 10 examples had been ordered by the FS. This advanced project took years before a prototype was finished, tested, modified, and eventually dropped by the FS. In 1928, it was calculated that the E471 had cost Saronno 12 million liras for nothing, since electrification was now being planned using DC.

In early 1924, since Saronno was a reputed factory, Westinghouse proposed buying the electric equipment part of the plant, but the conditions were deemed unsatisfactory. Yet, Saronno was a key factor in reaching financial sustainability for the Romeo group, since it was the one part of the group most able to attract outside investment. The Credito Italiano Bank eventually invested in the Saronno company, relieving pressure on the Romeo group's finances. It should be said that the situation then might have caused Nicola Romeo to loose all his personal wealth (as he had poured as much of his own money as he could into the company), at a moment when the banks were devising financial schemes based on the

[12] This issue has been recently addressed in the article on Alfa Romeo trolleybuses in KB 104

forecasted rise in the stock market, with all the risks involved. Again, bank managers judged him unfit for managing a company of such a size.

So, under the Credito Italiano's leadership, Saronno became an independent company called CEMSA (Costruzioni ElettroMeccaniche di SAronno), of which Romeo no longer retained direct control but still had two thirds of the shares. Direct control was granted to Credito, while Romeo kept a minority position in the whole Romeo group. The Credito paid 25 million liras to Romeo to buy their one third; Alfa needed the funding so badly that they gave effective control to the bank even though they owned only 1/3 of the shares. This money was immediately needed to run Alfa Romeo, which would cause CEMSA to lack resources .Indeed, Romeo had signed a good deal in selling Saronno at its most valuable, as subsequent times saw CEMSA lose more and more money, albeit being involved in the construction of more DC locomotive prototypes, the E626, examples of which were still in use in the Italian network in the 1990s. The participation of Alfa Romeo in CEMSA quickly diminished in the years following its founding.

With the new situation where BNC and Credito Italiano were both involved in the ownership of Alfa Romeo, they took effective control of the company, and, in 1925, Nicola Romeo was "promoted" to President of Nicola Romeo & Co, which means he was actually demoted to a non-management position. The new Board went on to sell Romeo's personal assets, including estates and houses in Saronno and Milan, and of course wanted to part with the remaining two smaller, unprofitable rolling stock companies as well, OMR in Rome and OFM in Naples. This happened in the opposite way compared to Saronno. The two southern factories had rarely finished a year with any profit, especially the one in Rome, which was reduced to 150-200 workers in 1925. Selling was difficult, and the new Board of Romeo almost forced Romeo was given all the OFM shares as compensation for being ousted from the group, in exchange for the loans he had himself personally covered for Alfa. So, by the end of 1925, Nicola Romeo was out of the Board of the company he had founded, keeping 25% of the shares, but also with an equivalent amount of debt. He was left with only being the owner and manager of the factory in Naples, which had recently entered the aeronautical field, with the construction of the Fiat CR1 fighter. Being a native of Naples, Romeo was especially attached to the OFM plant, and until his death in 1938, he continued running the factory. Renamed IMAM (Industrie Meccaniche e Aeronautiche Meridionali), it produced throughout the late twenties and thirties several models of its own training, recognition and combat aircraft, mostly biplanes usually equipped with radial Alfa Romeo engines. Among others, a squadron of Romeo Ro.37bis planes was used by Franco's air force during the Spanish Civil War, and Romeos were also in force with the Italian Aeronautica at the beginning of WWII.

The small OMR factory, instead, found a buyer, even though orders from the State Railways had been very scarce from the beginning and the plant had very high costs. They had mostly built streetcars, until ATM of Rome, its main customer, found it beneficial to run its own production and repair shop.

Quality products at Portello

That side of Romeo's history dealing with finances and railways has taken us far away from the Portello factory, to which we can now return. It was still as we had described it at the end of WWI, with the *Mussa* River needing to be crossed to get to the factory (Up to circa 1920, there was even a mill further down the Mussa, where the Filiale di Milano was built after WWII on Piazzale Accursio), and with a fashionable restaurant, the *Trattoria del Portello*, near to the factory, where wealthy car enthusiasts used to gather. Workers could

certainly not afford it and went instead to much cheaper places. While Mussolini's accession to power meant more violent repression using the *Squadre fasciste*, the new regime progressively closed or made ineffective many non-fascist institutions, including local councils, unions, and newspapers. 1923 and 1924 saw yet more strikes as the regime was not in full force. But by the end of 1925, all democratic and social laws were now completely dismantled.

In early 1924, when trying to raise money to run car production, Nicola Romeo had sold part of the extra land surrounding Portello. On the northern side of the property, some pieces of land were bought by the Milan city council, but the largest part of the sale was on the most southern end. 40000 m² were sold to Citroen to install an assembly plant for small cars. These small cars were not competition for the much more expensive Alfas, and, in addition to the income from the sale of the land, this was seen as a business opportunity, because Citroen would probably order parts locally from to the underused foundries at Portello. This was good news, as it was calculated that the production capacity of the forges and foundry was 300 cars per day (!), but Alfa could not even reach their 1000 car per year target until 1925 – never to reach such a figure again before the 1950s. But unfortunately, the Citroen venture was not up to expectations and struggled to reach their planned 30 chassis per day, until assembly ceased in the early 1930s. It's interesting to note that there is still today a Citroen dealership in the same location, in front of Portello's main entrance.

When Nicola Romeo hired Vittorio Jano in late 1923 to build a GP car, it's well known that he asked the Turinese engineer to build a car that didn't need to be a world-beater but that would give the company an image. A car that the public would actually buy would have to come later. Of course the P2 largely exceeded expectations, but Jano also impressed on his team a much stronger discipline and commitment to work, being in the office himself everyday until 8 pm, and often coming back after dinner to supervise an engine test or drive a prototype in the factory's courtyard. In late 1924, Jano was entrusted with designing an advanced new production car, called initially the NR (for Nicola Romeo, of course), also known as the 6C1500. It was planned to replace Merosi's small RM (a 4 cylinder version of the RL, an underpowered car for Alfa's standards), which didn't sell well, and to have a car exploiting the image of the successful P2. The development of the prototype proceeded quite slowly both because the technical team was busy with racing activities (a situation which happened again and again at Alfa Romeo), and because of the lack of financial resources. Even though the 6C1500 was presented at the Milan auto show in April, 1925, the car was not produced and sold until 1927. Commercially, this was a lost opportunity considering the huge publicity earned with the 1925 World Championship.

What drained the limited resources for investment was an order from the Air Ministry in 1925 for an initial batch of 150 aero engines to be constructed under license from Bristol, the 420HP, radial 9-cylinder, Jupiter IV. After the bad experience with the Isotta-Fraschini engines in 1918, Alfa Romeo was again back to aero engines, the path that would dominate the company's life from the thirties to the end of WWII. The return to such production had the advantage, similar to railways, of being independent of economic cycles, as the orders came from public authorities. Of course that can be as unsafe as the car market, and planning of both car and the aero engine production was a problem as well. But at least a large part of the machines and tooling used for automobile parts could also be employed for the aero engines. Yet, it was a challenge, considering the financial condition of Romeo, to raise the 3-4 million liras of investment for new tooling, but they could also be used to update the existing machines for automobile engines. Actually, startup of production, as usual, proved more difficult than expected. At the time, Alfa Romeo had no light alloy foundry of a suitable size; thus the aluminium engine blocks were outsourced to Gnome & Rhone in France until

Portello was able to do the job around 1928. Both the lack of appropriate machines and the special requests from the Air Ministry caused the engineers at Alfa to find original solutions for production, a task they seemingly brilliantly carried out, albeit with delay. The first 8 engines were delivered in August 1926 instead of the previous December. The 150-hour reliability test, required for homologation, was only completed in February 1927. However, after this slow start, the Jupiter engine built at Alfa exceeded expectations, and 700 were built by Alfa from 1926 to 1930.

The post-Romeo era: heavy restructuring

At the Board meeting of December 31st, 1925, the Romeo group had been officially dissolved, keeping only the automotive and aero activity at Portello[13]. The ousting of Nicola Romeo from his management position took place under the rule of the BNC representatives, who appointed Pasquale Gallo as the new General Manager, against Romeo's advice, who still held 25% of the stock. Gallo had been successful in salvaging Itala of Turin from Bis bankruptcy, and came to Alfa Romeo with half a conviction he should close it – another one! Being granted full power, he swiftly removed all the old guard from Alfa Romeo, including original Board members such as Fucito and many technicians. Ojetti, mentioned above for his comments on Romeo's villa, was nominated director of the Corriere della Sera newspaper by Mussolini himself, who ordered him to leave the Portello Board as well, his shares being partly refunded. Gallo immediately reduced the workforce from 2200 to around 1200 and reorganized design and production responsibilities, Up to then, production had always retained some independence from technical direction. The long time production director, Agostoni, resigned, as well as Ing. Rimini, who had organized the victorious racing campaigns of the P2 in 1924-25. Another important loss was that of Ing. Merosi, who was not in conflict with Jano – in fact, they were good friends and had mutual respect for each other from the beginning – but he would not accept Gallo's authority[14].

The same difficulties as with the old group, a lack of resources and cost of restructuring, meant a very poor 1926, with only 311 RL and RM produced, while the production of the new 6C1500 was delayed to the next year. The cumulative losses summed up in early 1927 to 50 million liras…

November 1926 was a turning point for two main reasons. On the 6th, the CSVI[15] section supporting the BNC was dismissed and immediately replaced by a proper state holding, with its own autonomy and capital, called ILI (Istituto di Liquidazione Industriale), forerunner of the IRI. Up to that time, the restructuring was just a temporary solution to avoid completely closing down the business. That was the first step toward a genuine public administration of Alfa Romeo. The second key event happened two weeks later, when Director Pasquale Gallo was arrested at the Swiss border, with an Alfa test car, while helping a Republican member of Parliament, Facchinetti, escape fascist repression. The affair was annoying for the regime, which tried to settle it as discretely as possible – newspapers didn't report the event – and Gallo was released awaiting trial. Since there was no suitable

[13] Yet the compressor section remained, mainly for commercial uses, but still earning money, thus not to be closed down, and one of mine prospecting…

[14] Actually, Merosi's move was not a wise one, as he had to switch jobs many times in the following years, including going to France for only six months and later working for Isotta-Fraschini. He came back to Alfa's design office during WWII, when in financial need, where he is remembered as still very capable and impressively quick at his tasks, albeit in the 70s then.

[15] Consorzio per le Sovvenzioni su Valori Industriali

replacement for him, he stayed in charge for almost another year, under close police surveillance. He left the position in September 1927, more or less when the final agreement for Romeo's complete exit from the company was signed. This became official in May 1928. Gallo was not replaced until early 1929, the company being run by an interim Direction Committee headed by Ing. Facchini.

The possibility of folding the company was again taken into consideration, as well as a sale to Isotta-Fraschini, whose health was however not flourishing at the moment either, so no deal was made. The huge losses and material devaluation once again forced a capital reduction from 50 to 10 million, but if it weren't for the company's fame, it could as well have been zero. The new, ILI-nominated members of the Board were once again faced with lack of liquidity and the need for new investments to produce the 6C and to extend aero engine production. While better than 1926, 1927 production still was far below plan, with only 350 6C1500 built by the end of the year, summing up to 492 total cars including the RLs. Profitability of the Portello plant should have been in the 1500-2000 cars-a-year range, a target never even dreamt of until the 1900 model in the fifties. This caused the cars, as magnificent as they were, to be priced too high, thus either not selling or not making a profit – the 6C1500 was "a mechanical jewel" according to the British Autocar magazine.

The sales network was another serious cause of concern, as previously mentioned. In summary, when race successes would have helped sell more cars, enough production was not possible for the lack of investment, and when production eventually started, the commercial side was ineffective. The Italian representatives even didn't cover the whole country, so something had to be done. New sale agencies were created in Turin, Genoa and Veneto in 1928, extended to southern provinces the following year. The foreign subsidiaries were instead all closed in 1927, including the French, British, Hungarian and Spanish ones, to be replaced in 1930 with a new organization. Actually, when the markets became depressed after the 1929 stock crash, Alfa Romeo, possibly due to such low sales levels, maintained its sales in 1930 in spite of an overall decrease in the Italian automobile market of 40-50%.

The ILI board members, in late 1927, faced with those commercial difficulties, decided that the public works sector, mostly aero engines, would compensate for the lack of an automobile market. Actually, such a statement did nothing more than retrace the path of the Romeo's previous management decisions.

Portello had been increasing its Jupiter IV radial engine production capacity and had even been able to improve the engine itself, so it was not certain that switching to the newer Jupiter VI version was a good idea. Indeed, the type VI was dropped, but instead, the Air Ministry asked for its own, national engines to be developed. After water cooled designs and a Diesel engine designed by Ing. Gatti were considered and abandoned, Jano proposed the full design of a double row, radial engine that could produce 500-600 HP, but the Ministry wanted instead a light, 220-240 HP, air cooled engine. This became the first Jano-designed aero engine, 220 HP 13.7 litre, called first DUSE, then simply D. While the design was completed quickly in 1928, the obligation to use national suppliers and the difficulty of creating the moulds for the two initial prototypes delayed the D engine until 1929. Meanwhile, Jano added to his design a reducing gear and a compressor which raised power to 240 HP and, after being allowed to outsource certain material, such as high-strength steel for the crankshaft, the D2 engines were eventually completed. In 1930, the Air Ministry extended more support to Alfa, ordering prototypes of all types of D: simple, with reduction gear, and with reduction and blower. The double, 18-cylinder derivate was expected but never materialized. Actually, 600 D2s were built from 1930 to 1934.

1929-1932: Fragile development

In March 1929, a new General Manager was put in charge of Alfa Romeo by Mussolini himself, Prospero Gianferrari, about whom we know very little. However, after ILI had agreed to convert debts into capital again, capital was raised from 10 to 60, then 100 million liras, without a single fresh penny being brought in. But still, with aero engine production just being developed – another licensed radial was added to the Bristol Jupiter: the 7-cylinder Armstrong Lynx (200HP) - and the 6C eventually reaching the show rooms, the company could survive. During the 1929-1932, accounts showed slight earnings, but those were mostly cosmetic. Indeed, that period would end with another stage of serious trouble. Nevertheless, Gianferrari was in position to develop and modernize Portello to some extent.

The high quality alloy foundries were still in need of major investment, necessary for the quality expected for aero engine construction, but Gianferrari was also responsible for Alfa Romeo's entry into truck and autobus production. It seems that an RL-based ambulance was also presented at the 1930 Milan auto show and was followed by a small production run in 1930-31. But the big deal was the license acquired from the German company Deutz for producing large Diesel engines, in the fall of 1929. There was indeed no precedent for such Diesel engines in Italy, thus the shortest way to enter that market was to obtain a foreign license, no matter how much this was opposite to the current regime's wishes. The engine license was complemented with a license from Bussing-Nag for the lorry chassis, so in 1930 Type "40" and "50" prototypes were built. A new assembly building was even erected for that purpose not only targeting the private transport market, but mostly of the public market: public transport companies for the busses and army for the lorries. From the little documentation that still exists, production probably started in 1931, as their first appearance was at the Milan auto show in April 1931. There were two chassis, a six-wheeler of 10 tons and a 4-wheeler of 7 tons. The next year, a further design was presented, a three-axle bus chassis, type "80N" fitted with a larger, 11.5 litre engine.

Another initiative of Gianferrari, new for Alfa, was to open, the first coachbuilding department in late 1931, intended to produce standard bodies for the 6C1750 berlinas. In 1932, with the technical assistance of Ratier, the production of alloy propellers was also started, together with the licensed production of yet another type of engine, the Mercury. The 2 million lira investment for this later project turned out to be a total loss, since there's no data to show that they were actually built. If they were, that was in ridiculously low numbers.

By 1932, the workforce was up to over 2700 people, but only 876 vehicles were produced in 1929, down to 492 including commercials in 1931, and 582 in 1932. While under control of fascists inside the factory, the so-called 'squadre' often waited outside the factory gates to identify any workers willing to agitate for the trade unions and beat them or throw them into the *Mussa*. The atmosphere was then described by survivors as highly volatile, the number of fascists being higher at Alfa than in other companies. While those fascists often came from the more unskilled workers who were swiftly promoted to foremen or guards, ,the Alfa Romeo workforce had retained the most skilled workers with higher wages than the going rates in the Milan area since the mid-twenties, in contrast to the high turnover rates of the early twenties. Fascist "trade unions" were also a transmission belt of the political power, as Mussolini's protection of Alfa was both a blessing, preventing its closure, and source of pressure. In May 1930, Mussolini visited the factory, with no guards, in an Alfa Romeo sports car (probably his 6C1750 Gran Sport).

Closest to closure

With nominal profits of a few million lira per year during the 1929-1931 period, Alfa Romeo seemed to be doing well. Also, racing activity had resumed, to Mussolini's delight, and was again successful on many fronts: Mille Miglias, Targa Florios and international GPs were very often won, first with the supercharged 6Cs, and from 1931 with the 8C2300s and the Tipo A. It should be noted here that the 8C was initially intended not for the public but only as a racing car. This is a good example, when one keeps in mind the overall situation of Alfa Romeo, over the last several years, of the nationalist propaganda value of racing and the political demands on Alfa. Investing in the 8C2300 and the Tipo A monoposto was probably not the best move from an industrial and financial point of view. Yet, for 1932, a more formidable machine was designed and built that won every race it entered on the Grand Prix scene (but one, won by an 8C Monza), the Tipo B or P3. And that, once again as in 1925, in some way contributed to salvaging the company, for the prestige that could not be ignored.

In early 1933, IRI (Istituto per la Ricostruzione Industriale) replaced ILI. As the name indicates, this was the very first step in taking control of major industry and running them as public institutions. But well informed people in Rome knew that the real financial situation of Alfa Romeo was not as bright as the official accounts showed, as depreciation of tooling and machines had not been accounted for, and the industrial organization was still dramatically cash-starved. So with the takeover by IRI, many of these irregularities in accounting were corrected, including a stop in all racing activities. The P3s were locked up, asserting that, since they had won everything the previous year, entering them again was pointless. The Scuderia Ferrari continued to enter Alfas in major events but had to do with re-bored 8C Monzas until the P3s were released toward the end of the season.

Gianferrari was removed as General Manager in October 1933, and his successor, nominated by the new *Istituto,* Corrado Orazi came from O.M. The Finance Minister was of the opinion that Alfa should be closed, and Orazi was entrusted to carry that out. Moreover, his plans were supported by Fiat, the Agnelli family having always tried to kill the competition, no matter how smaller they were. The workforce was already down to about 1000, but Orazi was perceived as a "Fiat-man" and was strongly opposed by the workers, even those holding fascist trade union cards, who also didn't want the closure. Tension arose again inside the factory, with local city authorities reporting their displeasure to Mussolini.

The year 1933 was closed with a loss of 93.4 million lira, in fact erasing all the fictional capital, but Mussolini's personal intervention allowed Alfa Romeo to be rescued, against the advice of the Finance Minister and the Board of Directors. In December of that year, Ugo Gobbato was appointed in place of Orazi, after a mere two months, with the mission to completely reorganize Portello. But that's another chapter…