

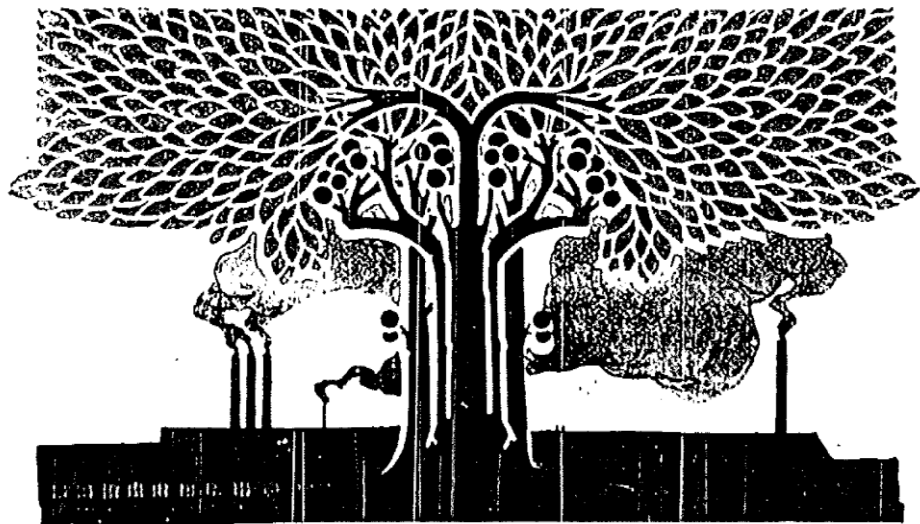


SOCIÉTÉ ANONYME DES ANCIENS ÉTABLISSEMENTS

# PANHARD & LEVASSOR

AU CAPITAL DE 5.000.000

VOITURES AUTOMOBILES



SIÈGE SOCIAL & USINE PRINCIPALE  
PARIS

19, AVENUE D'IVRY, XIII<sup>e</sup> AR<sup>t</sup>

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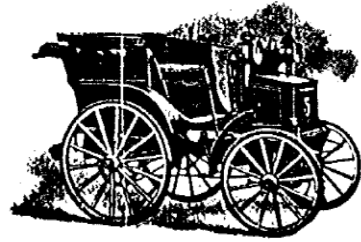
TÉLÉPHONES

1<sup>re</sup> LIGNE. 800-66

2<sup>e</sup> LIGNE. 800-86

3<sup>e</sup> LIGNE. 800-45

4<sup>e</sup> LIGNE. 804-91



Concours du Petit Journal 1894  
1<sup>er</sup> PRIX.

Course Paris-Bordeaux et Retour 1895

Voiture arrivée première.  
PRIX UNIQUE de Monsieur le Président de  
la République.  
PRIX UNIQUE de la Ville de Bordeaux.  
2<sup>e</sup> PRIX de la course.

Course Paris-Marseille et Retour 1896

1<sup>er</sup>, 2<sup>e</sup>, 3<sup>e</sup> PRIX.

Exposition de Bruxelles 1897

GRAND PRIX.

Course Paris-Dieppe 1897

1<sup>er</sup>, 2<sup>e</sup>, 3<sup>e</sup>, 5<sup>e</sup>, 6<sup>e</sup> PRIX.

Course Marseille-Nice 1898

1<sup>er</sup>, 2<sup>e</sup>, 3<sup>e</sup> PRIX.

Course Paris-Amsterdam-Paris 1898

1<sup>er</sup>, 2<sup>e</sup>, 4<sup>e</sup>, 6<sup>e</sup> PRIX.

Course Paris-Bordeaux 1899

Tous LES PRIX.

8 voitures dans les premières arrivées.

Course du Tour de France 1899

1<sup>er</sup>, 2<sup>e</sup>, 3<sup>e</sup>, 4<sup>e</sup>, 6<sup>e</sup>, 7<sup>e</sup> PRIX.

Exposition universelle 1900

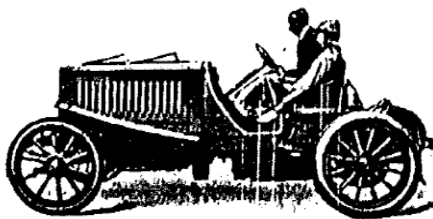
Membre du Jury. Hors concours.

Course de Pau 1900

1<sup>er</sup>, 2<sup>e</sup>, 3<sup>e</sup>, 5<sup>e</sup>, 6<sup>e</sup> PRIX.

Course de Nice-Marseille 1900

1<sup>er</sup>, 2<sup>e</sup>, 3<sup>e</sup>, 4<sup>e</sup>, 6<sup>e</sup>, 7<sup>e</sup> PRIX.



VOITURE DE COURSE 1904

Course Paris-Toulouse-Paris 1900

2<sup>e</sup>, 3<sup>e</sup>, 4<sup>e</sup> PRIX.

Course Paris-Bordeaux 1901

2<sup>e</sup>, 3<sup>e</sup>, 4<sup>e</sup>, 5<sup>e</sup>, 6<sup>e</sup>, 8<sup>e</sup>, 9<sup>e</sup> PRIX.

Course Paris-Berlin 1901

Grosses voitures : 2<sup>e</sup>, 3<sup>e</sup>, 5<sup>e</sup>, 6<sup>e</sup>, 7<sup>e</sup>, 8<sup>e</sup> PRIX.

Voitures légères : 1<sup>er</sup>, 2<sup>e</sup>, 3<sup>e</sup> PRIX.

Exposition de l'alcool 1902

2 médailles d'or.

4 médailles de vermeil.

2 médailles d'argent.

3 médailles de bronze.

1 objet d'art (Bateaux).

Circuit du Nord à l'alcool 1902

Grosses voitures : 1<sup>er</sup>, 2<sup>e</sup> PRIX.

Coupe de l'alcool.

Course Paris-Vienne 1902

Grosses voitures : 1<sup>er</sup>, 3<sup>e</sup>, 4<sup>e</sup>, 5<sup>e</sup>, 6<sup>e</sup>, 7<sup>e</sup> PRIX.

Coupe d'Arenberg.

Circuit des Ardennes 1902

Voiture arrivée première.

Circuit des Ardennes 1903

Voiture arrivée première.

Coupe Gordon-Bennett 1903

Équipe française, 1<sup>er</sup>, 2<sup>e</sup> PRIX.

Exposition de l'alcool à Vienne 1904

GRAND PRIX D'ÉTAT, 1 médaille d'or.

Exposition universelle de Saint-Louis :

1904

GRAND PRIX.

Circuit des Ardennes 1904

1<sup>er</sup>, 2<sup>e</sup> PRIX.

Coupe Vanderbilt 1904

PREMIER, gagnant de la coupe.

# Panhard & Levassor

The 1905 catalog for the 50th anniversary of the company

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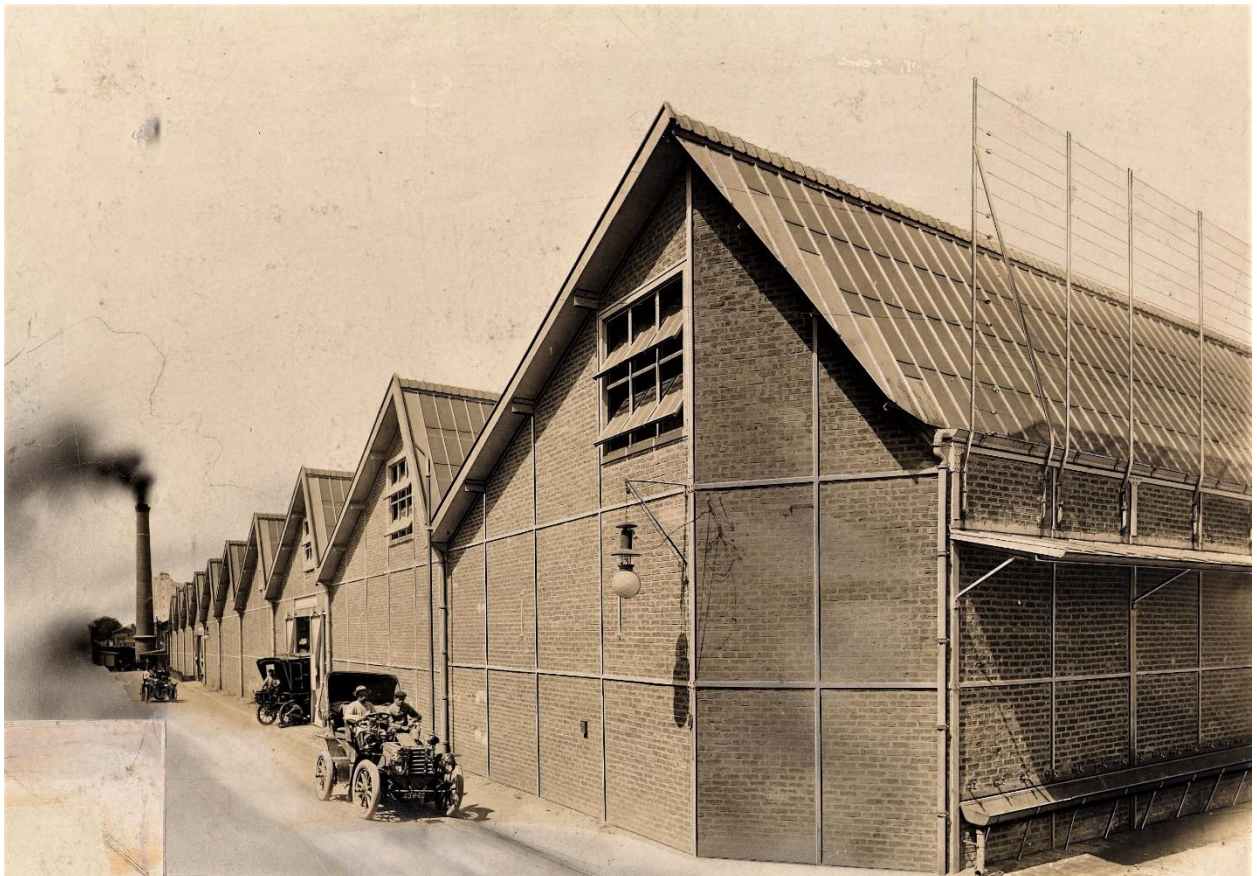
## INTRODUCTION

As the important house known today under the name of "Société Anonyme des Anciens Établissements Panhard and Levassor" will reach its fiftieth year, it seemed to us interesting to trace its history in a few words.

When fifty years ago, Mr. Périn, the promoter of the band saw, founded his mechanical construction company, he was far from assuming that his workshops would one day become the cradle of automobilism, and that it was from there that these famous vehicles known around the world were going to take out.

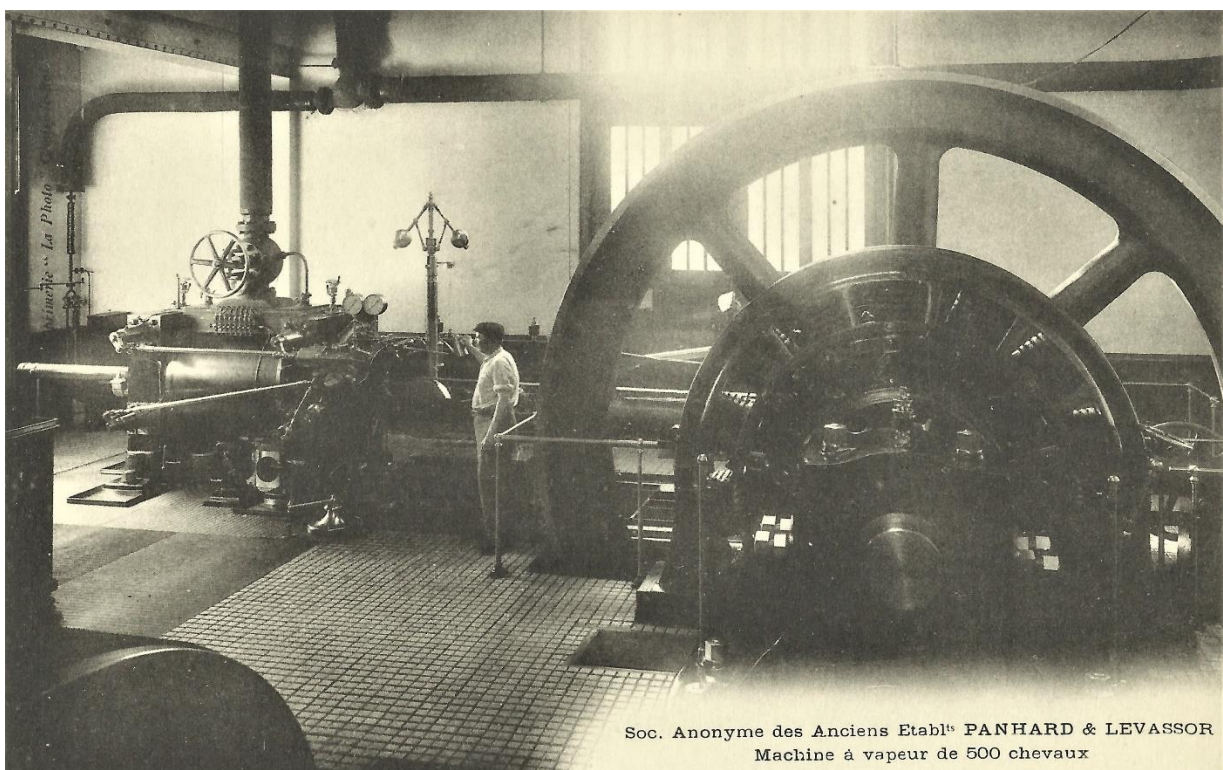
For almost thirty years, the house was devoted only to the manufacture of machine tools used for wood work. Always looking for the industry branches in which the most precise construction processes used in wood machines could be used, it extended its field of action and began manufacturing the gas engine in the Otto system. Daimler had just imagined his oil engine, and had applied to boats. MM. Panhard and Levassor who at that time led the house were struck by the remarkable properties presented by such a light and both rustic engine. They immediately glimpsed the high destinies to which it was called and signed the right of exploitation in France of the Daimler patents. One of their first applications was the use of the engine to propel a car. From this first test, the motor car entered the period of practical realization which has become so fruitful. If progress in this path has been so fast and fruitful, it is because the house treated the study and execution of these new machines with the care and precision which, being of tradition at its place, assured it the reputation of a good manufacturer to all the eras of its existence.

For several years, the petroleum motor car was above all an experimental device: some enlightened minds, however, saw the future of the new mode of locomotion and became ardently interested.

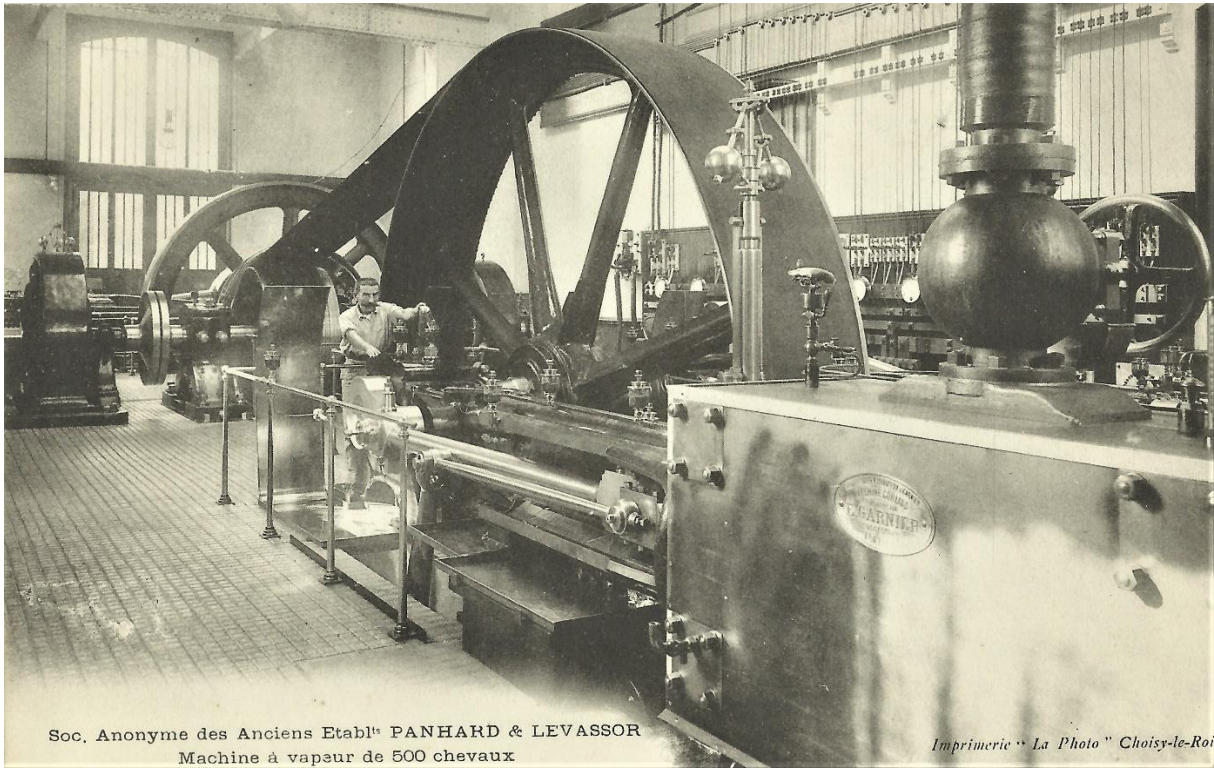


It was from 1894 that the first tests date from which the public began to be interested. Road competitions were organized and Panhard and Levassor cars were successful. It was in one of these contests remained famous, that of 1895, that Mr. Levassor, leading his 4 horsepower car, continuously traveled the 1200 kilometers from the Paris-Bordeaux journey and return to an average pace of 24 kilometers per hour. Accustomed to powerful, fast and comfortable machines of today, we cannot however think without admiration for this feat that many sportsmen would hesitate to renew on a 4 horsepower car. Since that moment, the sporting successes of Company Panhard and Levassor are no longer counted, and each year has come to bring new triumphs.

Panhard and Levassor company, however, has not sacrificed everything to the sporting element: anxious to give satisfaction to its growing customers, it has, from year to year, developed its workshops while perfecting its tools so as not to sacrifice the quality to quantity. The construction workshops of Panhard and Levassor extend over a huge quadrilateral of nearly 40,000 square meters between Avenue d'Ivry and Avenue de Choisy [in Paris]. Fifteen hundred workers work there in the best conditions of hygiene and comfort, and the latest production amounted to approximately 1,200 chassis. This quantity is insufficient and although the company has created a large annex near its factory for repairs, it had to increase its production means by acquiring a site of approximately 35,000 meters located in Reims. It installs workshops there that will increase production.



In the various markets in the world where the Panhard and Levassor brand is requested, the company does not hesitate to create counters or branches to ensure its customers everywhere for security and sincerity in the deliveries it offers them in Paris. This is how in New York, it has installed a branch for a year, where her American customers find all information useful for the maintenance and smooth running of their cars.

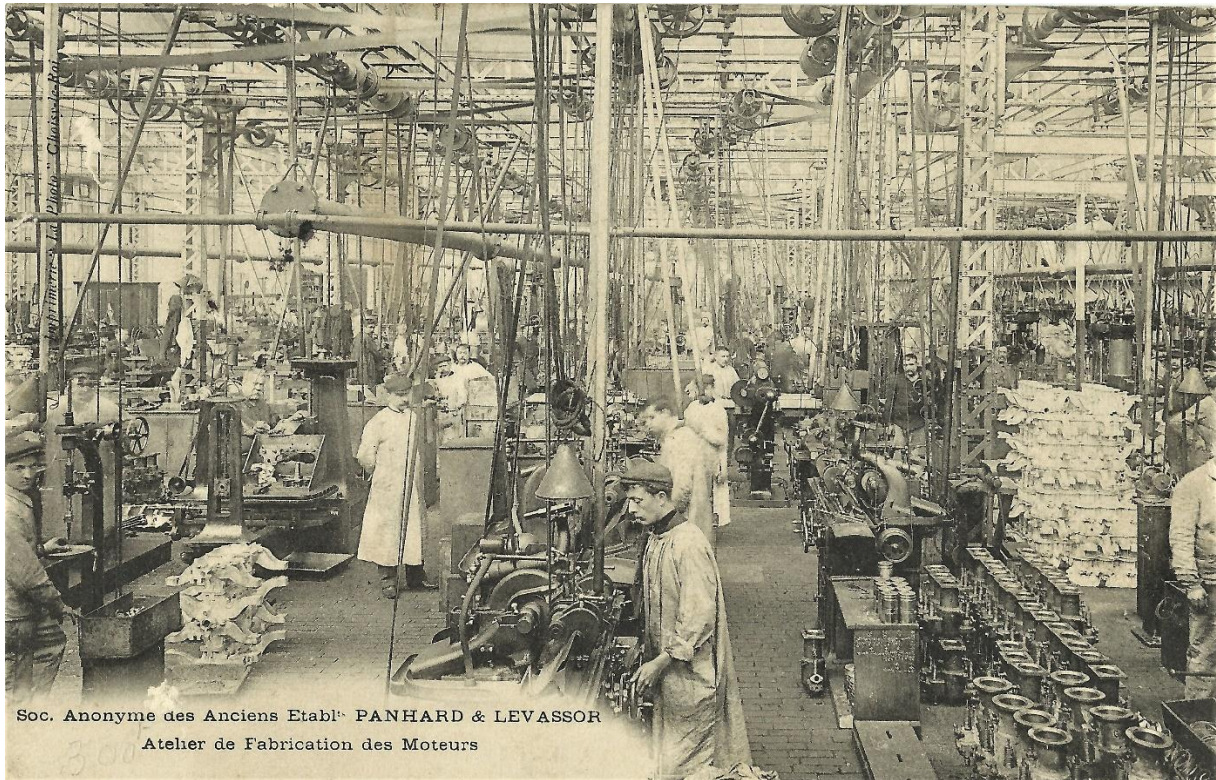


## THE MAKING

There is no one today who do not knows the qualities of Panhard and Levassor cars, and everyone appreciates it, at the same time as the simplicity of the mechanism, the perfection and the finish of their construction. But there are few people who have been given to attend the manufacture of these cars. Today we wanted to fill this gap in a way, and will try to show the public the story of a car chassis since the time, the type once designed, the drawings come out of the design office, to the way when the chassis is delivered to the customer.



The drawings executed, the parts are ordered in the first foundries and steelworks of France.



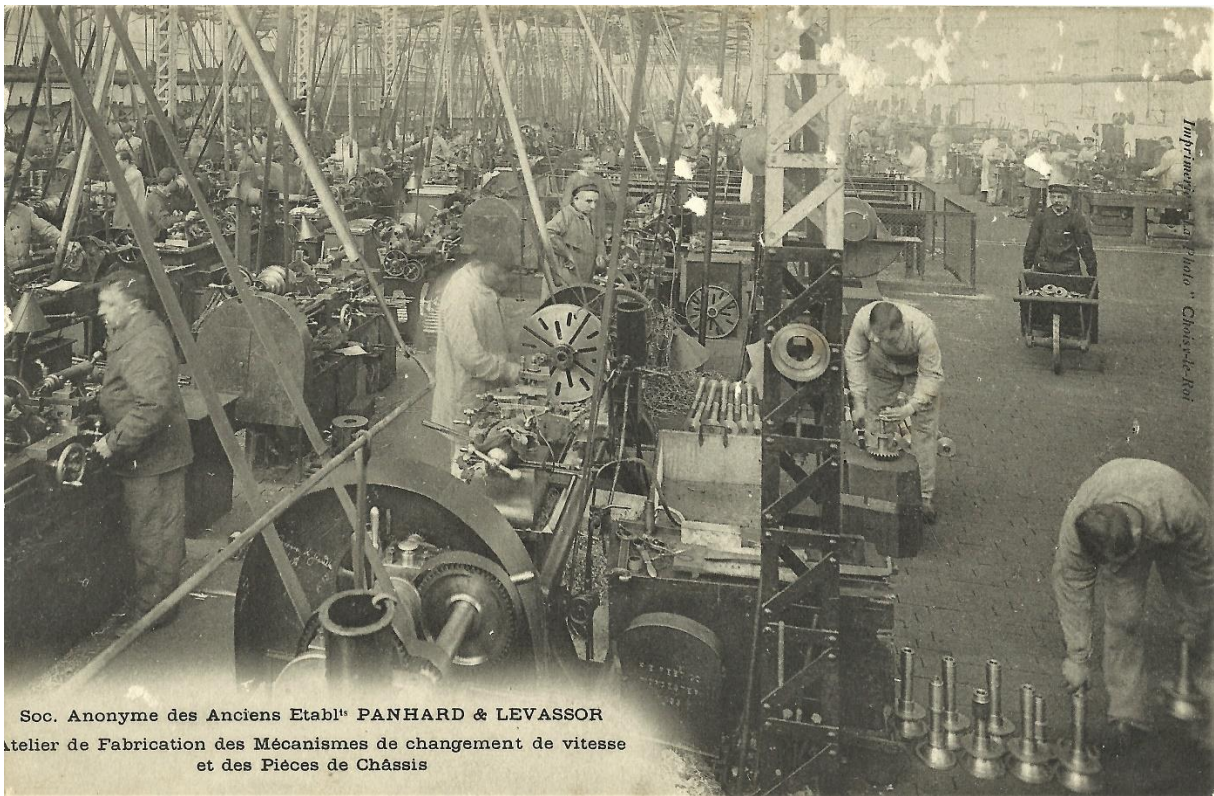
When they arrive at the factory, they are subject to tests that allow to control its quality.

The raw parts must then be transformed into finished organs and ready to be mounted. To this end, two immense workshops have been fitted out: one in charge of the manufacture of engines, the other of that of the mechanisms (gear boxes for speed change, clutch, brakes, etc.).

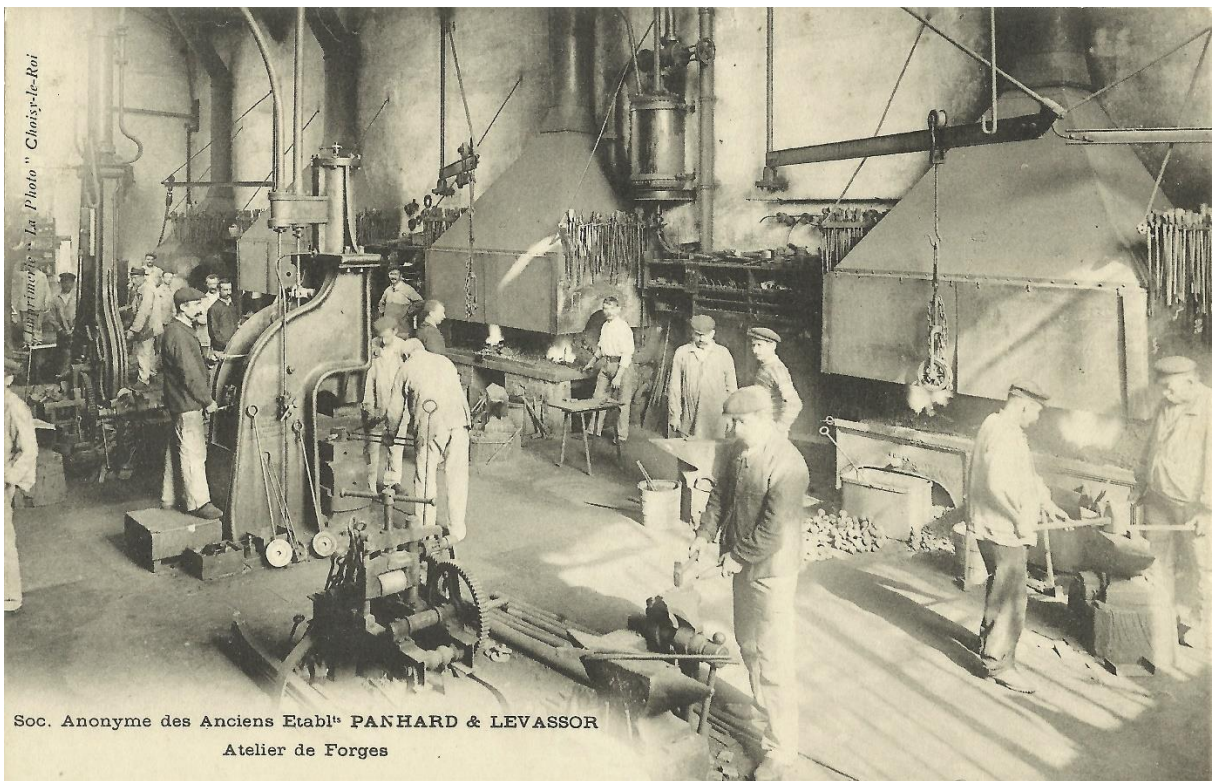


The principle applied to the manufacture of Panhard and Levassor cars is that of series manufacturing. It consists in having the same machine run a very large number of parts of the same model, and to equip this machine so that the parts thus produced are always absolutely identical to themselves and that their dimensions are scrupulously those indicated by the drawings. We will be sure that the parts thus manufactured will be interchangeable. In this way two organs which will have to be mounted one over the other can be assembled, without

requiring any adjustment, and when we will have a part to replace, this replacement can be done instantly without the need for the help of an experienced adjuster.



To achieve this result, it was necessary to create special tools for each kind of parts to manufacture, and to study what is called in terms of workshop a "montage". It is a process allowing the worker to place the raw part on his machine without having any trial and error to center it, and this as quickly as possible. The part being mounted, it will set its machine in motion and once the operation is over, the machine will stop itself.



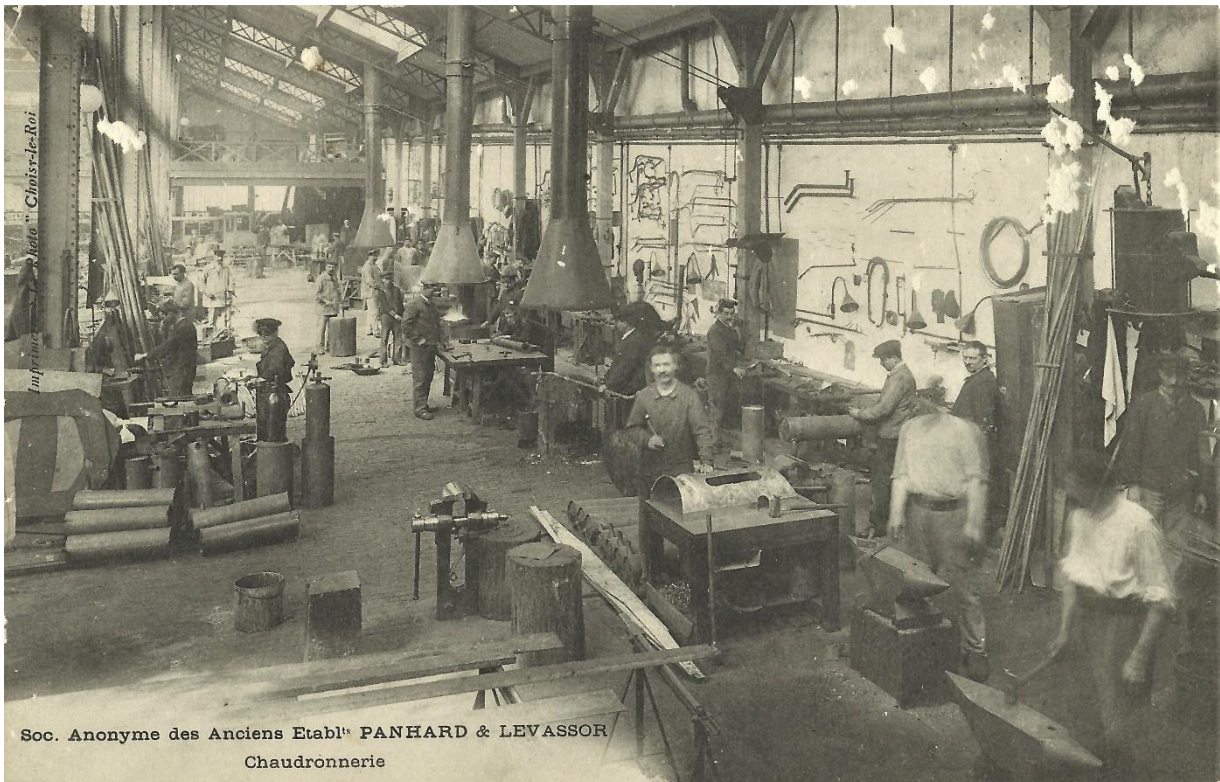
Free from any other concern, the worker devotes all his skill and his intelligence to the perfect maintenance of his machine and his tools and to ensure their proper functioning.



As soon as the drawings of a new type are given to the workshops, they go to the special service of tools. This service includes a design office and a workshop in which the tools and montages we have just talked about.

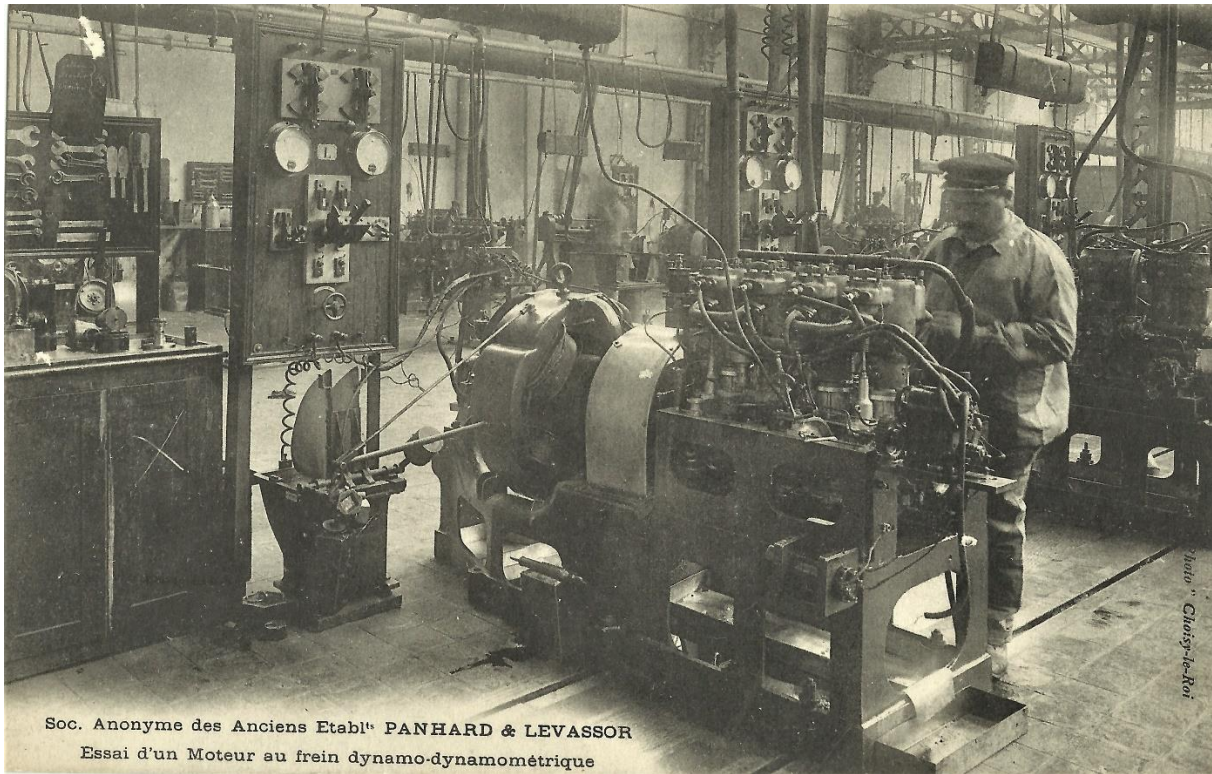


A very important verification service controls the execution of the parts after each of the operations they have passed through. The verification is made by means of comparators and other special devices suitable for each part. The parts are only stored after having undergone this severe examination.



Of the two workshops previously described come out on the one hand of the engines, on the other of the gear boxes. The engines are directed to the test workshop. Until these last times, we measured the power of the engines, at the Panhard and Levassor company, as almost

everywhere else, by means of the brake of Prony, very precise, but having the disadvantage of heating very quickly, and allowing only very short -term tests. For about two years, the company has adopted to measure the power of its engines the dynamo-dynamometer.



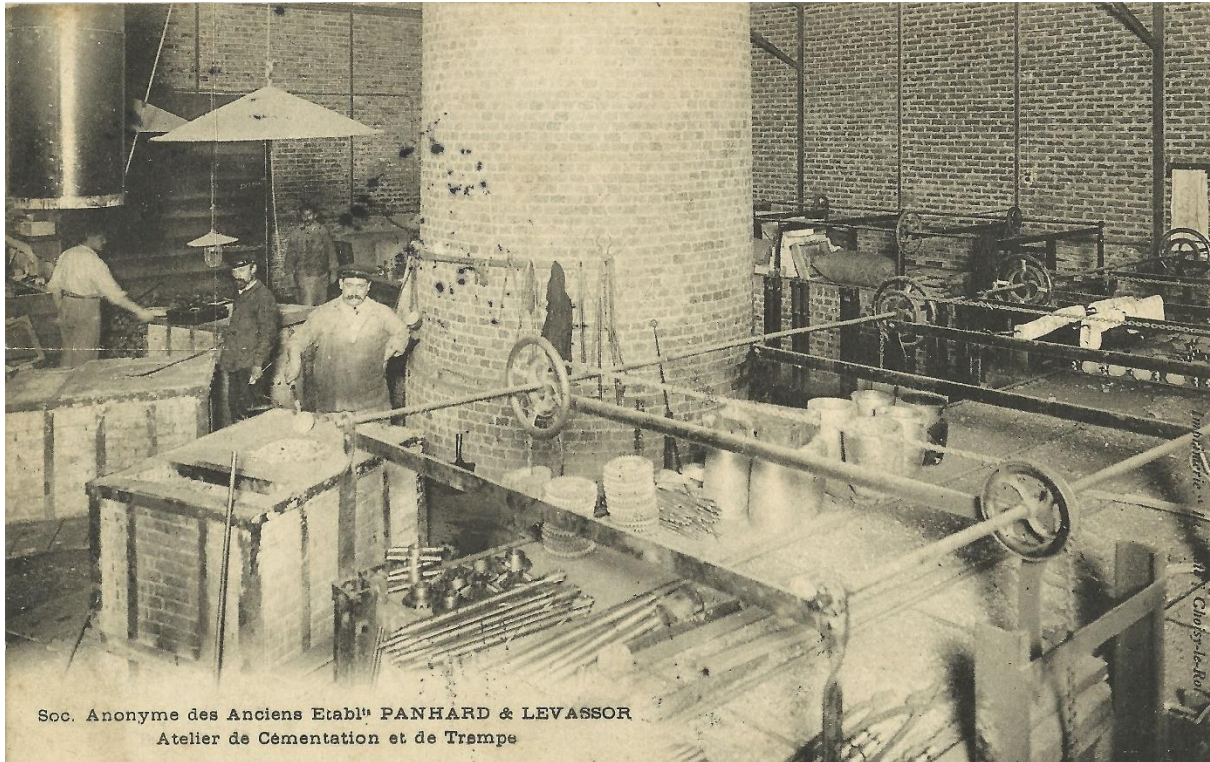
This device makes it possible to follow the operation of an engine in the most precise way, by varying the speed of the latter at will and the load to which it is submitted.



It is a real brake of Prony, in which friction is replaced by magnetic reactions. The indications of the experience are therefore absolute, and the latter can be prolonged indefinitely, since far from being accompanied by a harmful heat clearance (as in the Prony brake) about 90 p. 100 of the work produced are transformed into electricity which it is easy to collect. The superiority of the dynamo-dynamometer was recognized as such that the company wanted to use only this device for the test of all its engines. The figure opposite shows the entire workshop, in which we

see all the engines from the 8 horsepower of the current type to the special engines of 130 horsepower, each harnessed to their dynamo-dynamometer.

Next to the engine test workshop is that of cementation and soak. This workshop contains 6 ovens to cement and 2 ovens to soak with lead working day and night. The temperatures are adjusted by the most sophisticated devices, thus making it possible to give each part the desired degree of cementation.

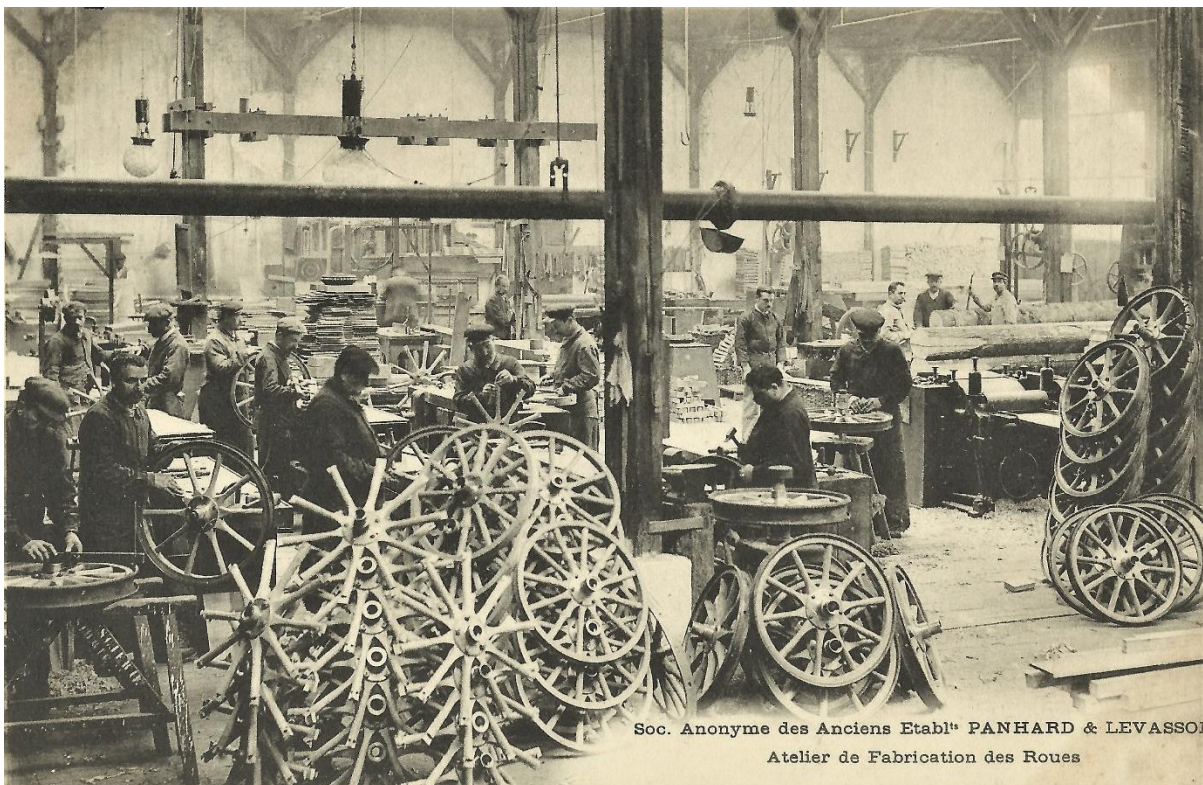


Before going to the assembly, we still have to talk about the manufacture of the wheels and the wooden frame.



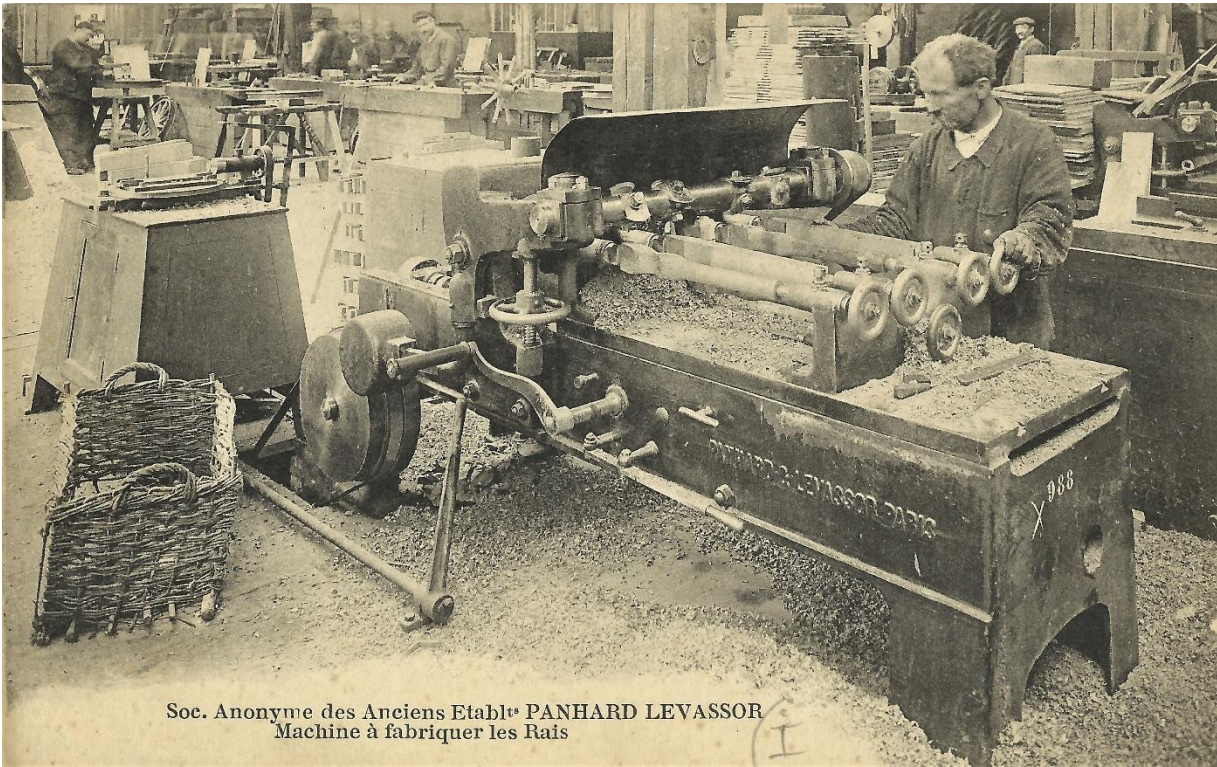


In the same workshop, all that relates to wood work is brought together, on the one hand the manufacture of foundry models, on the other hand the manufacture of wooden wheels and chassis.



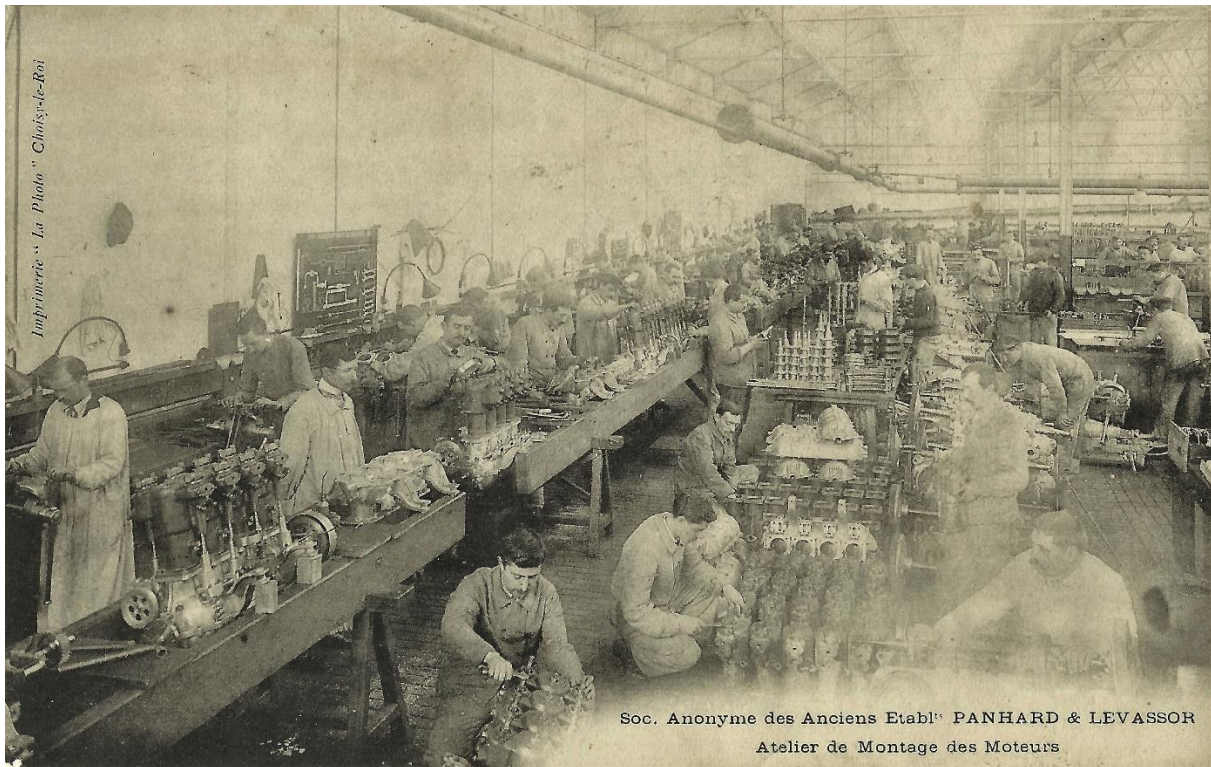
Finally, a third part of the workshop is reserved for carpentry work itself.

This is where we manufacture the duct guard plates, the boxes for magnetos and poles, tool boxes, etc. This workshop has this particular that all the machine tools found there are manufactured by the Panhard and Levassor company. We have seen that it is to the manufacture of these machines that the origin of the company goes up. Although the relative importance of this manufacturing is smaller, it still occupies a very important place in Panhard and Levassor.

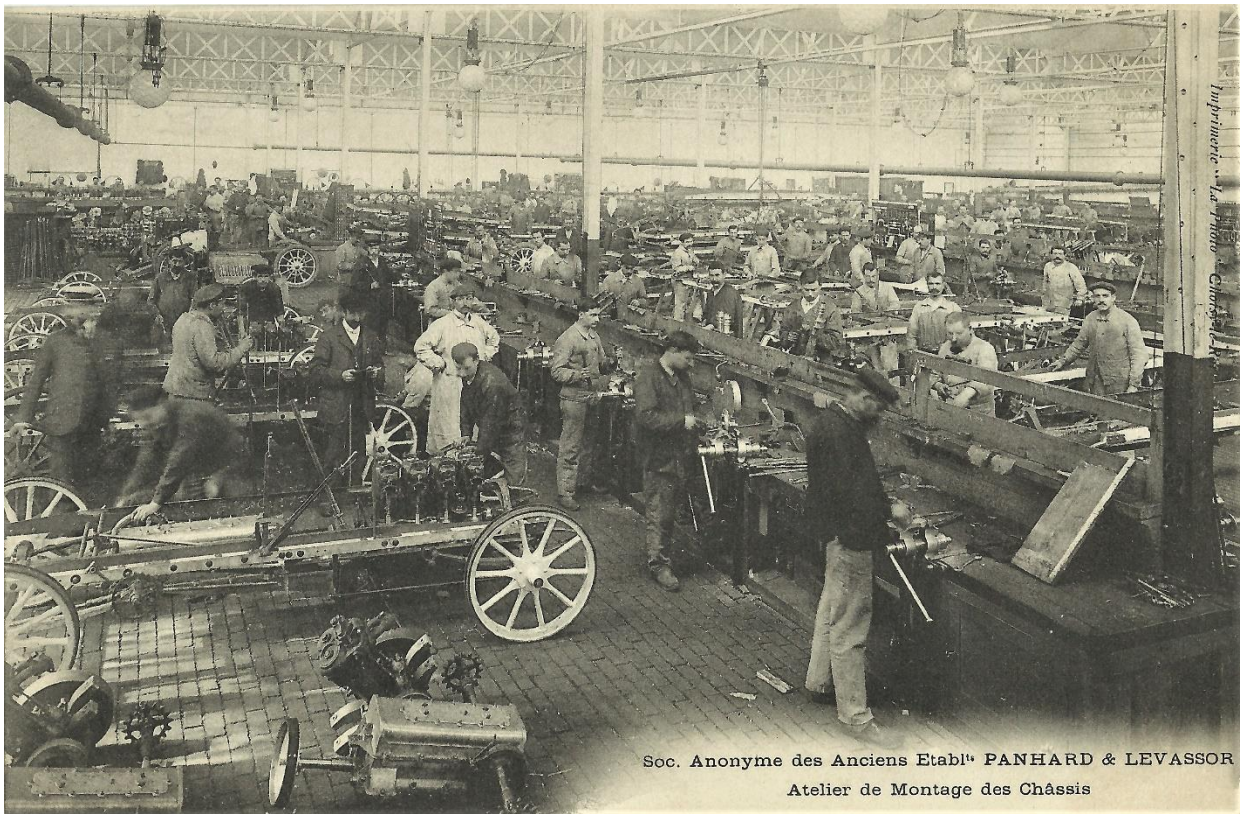


All the parts or groups of parts entering the composition of a chassis being ready, the assembly is proceeded.

This work is carried out in two different workshops. In one is the assembly itself: assembly of axles and springs with the chassis; fixing the engine, the gear box, levers, etc ... in a word assembly of all mechanical parts.

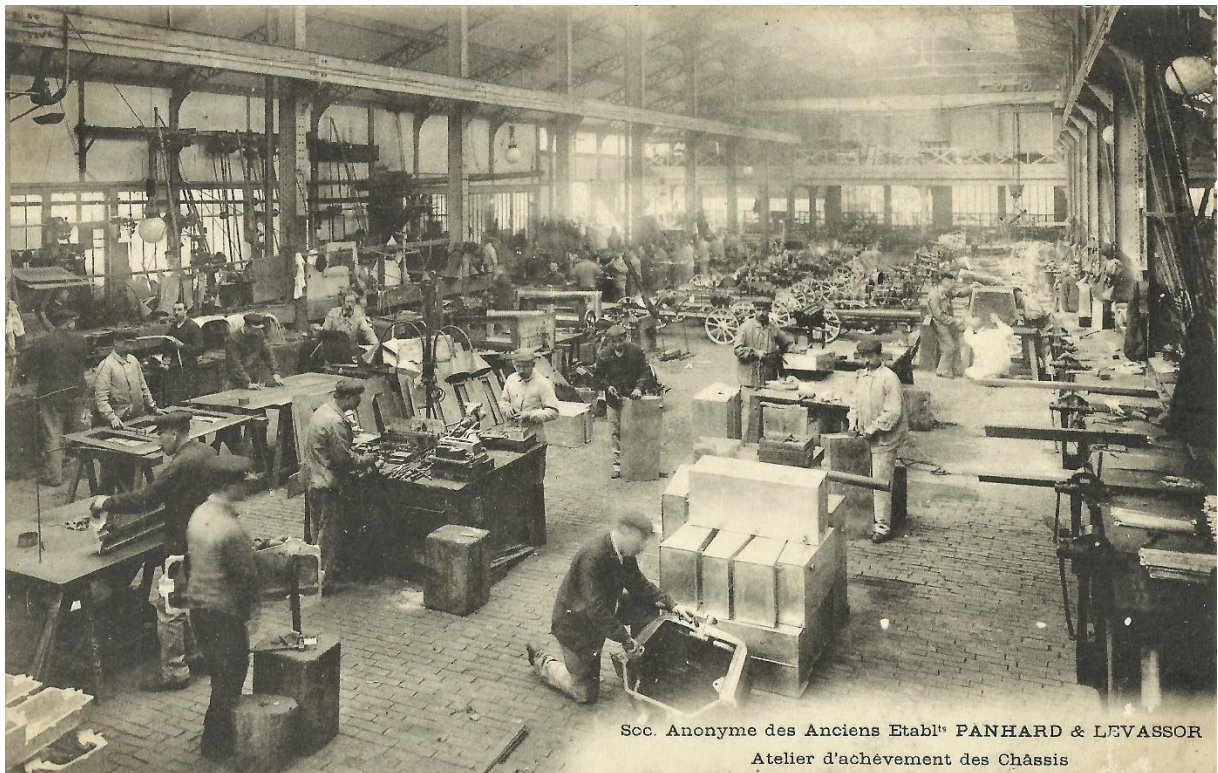


In the second workshop we have the intake and exhaust pipes, lubrication devices, ignition organs, tanks, exhaust, etc. The chassis is then complete. It is also in this workshop that the bodywork is placed, in the event that this assembly must be done by us.



Soc. Anonyme des Anciens Etabl<sup>s</sup> PANHARD & LEVASSOR  
Atelier de Montage des Châssis

Before being delivered it is subject to a last examination: we ensure with a practical test its operation is perfect. This operation, called tuning, is made in a special workshop and entrusted to a staff of choice. We start by turning the engine on site, in order to review its adjustment exactly; Then the chassis, equipped with a provisional box, is tried in the large avenue which crosses the factory, from one end to the other, and then on the road.

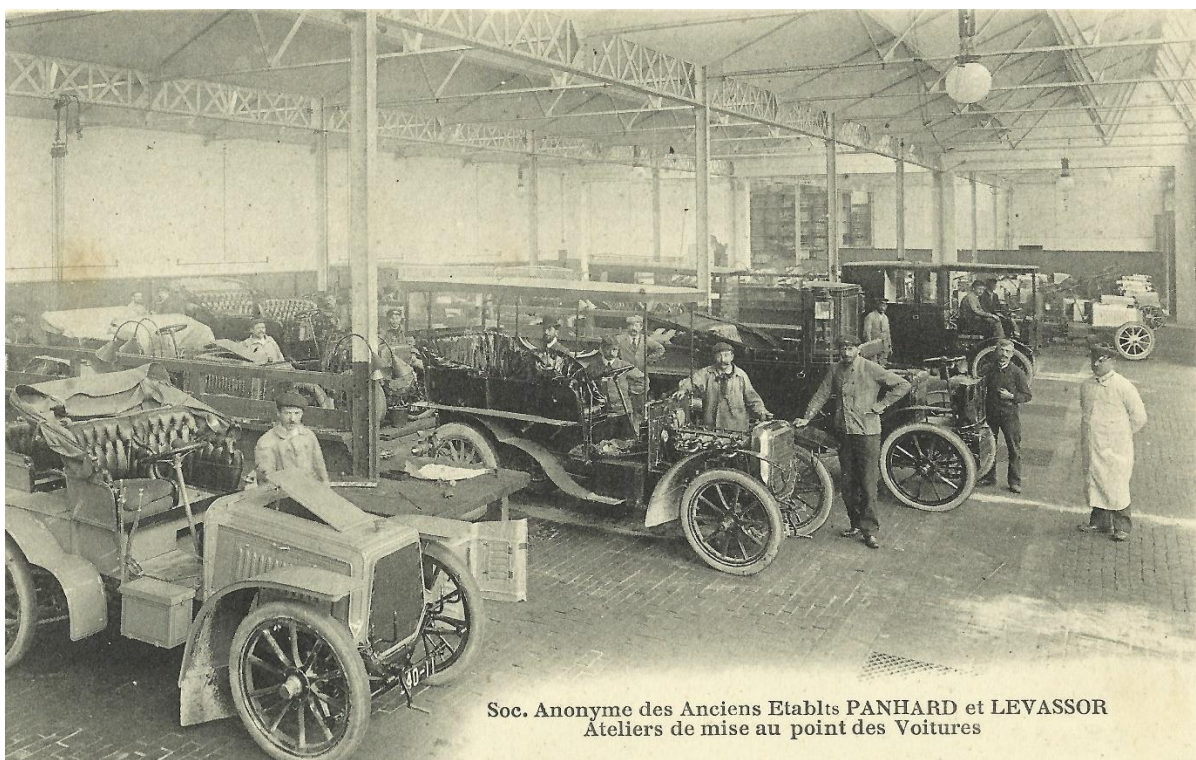


Soc. Anonyme des Anciens Etabl<sup>s</sup> PANHARD & LEVASSOR  
Atelier d'achèvement des Châssis



The chassis is then ready for the installation of the body. This last operation is done either by us or by those of a bodybuilder.

A final tuning, a last adjustment are still necessary: they are made by our staff in our workshops and on the roads and are the subject of the greatest care.



## THE REPAIR

As we have seen previously, Panhard and Levassor has set up its repair workshops outside its main factory. On a site of approximately 8,000 meters square meters, a large workshop extends around which a track was fitted out.

The car that arrives for repairs is immediately examined by experienced staff who begins by diagnosing evil; It is then given in the hands of workers who will perform the prescribed work.



It is as much possible that the repairs workshop can be enough for itself, and therefore it is equipped so that it can work some parts that have undergone some damage again. This is why a part is intended for motor tests, because if we have been forced to make major repairs to the engine, that we had to change parts, it must be tried again, and put to the brake absolutely as if it were new.

Finally, the finished car is tried on the track fitted out around the workshop, then submitted, if necessary, on the road to a more prolonged test.

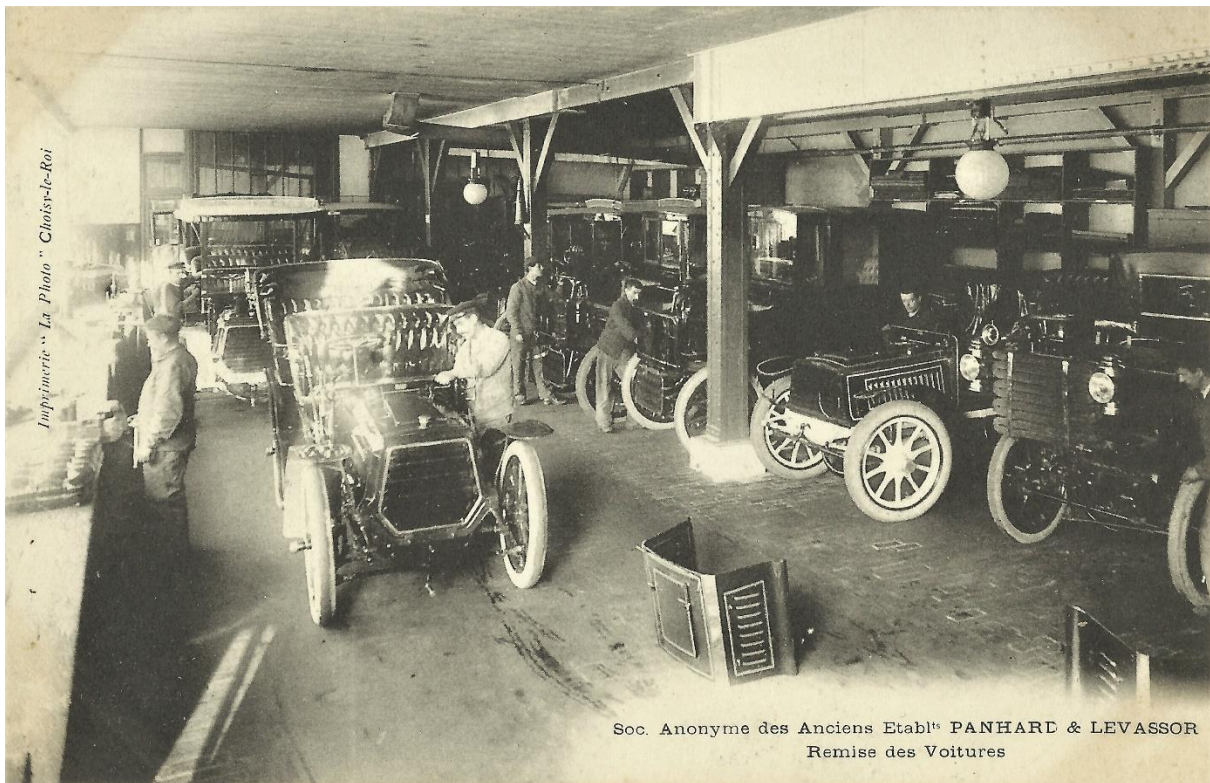
The repair workshop of the company of the Panhard and Levassor establishments continuously presents a collection of cars which constitute a complete history of the Panhard car. This is where we can, from time to time, review the glorious ancestors who are the best advertisement for the company. There are also the first four Phoenix horses with their steering bar, high on their rubberized or even rail wheels. Finally, a more advanced age, some antique Daimler cars with V -cylinders, over ten years old, make an appearance from time to time. However, these cars are still riding, they have been doing their little daily service for many years, and every two or three years, they are brought back to the factory to tighten a bearing that has taken gap or change a broken part.

These results are due to the manufacturing traditions of workshops in Panhard and Levassor. It is by employing materials of very first quality, and by machining them and treating them according to the use for which each part is intended that this result is obtained which the company can pride itself on and which ensures the loyalty of its customers.



## TYPES OF CARS

Cars coming out of the factories of the Panhard and Levassor company do not need to be presented: they are universally known.



True to the line of conduct it has followed from the outset, society has continued to work for the future. It has set out to combine regularity from the operation to the duration of the organs, while being concerned with offering its customers each year of the numerous, varied types, meeting well the new needs which are reported to it.

For all the powers of 8 to 35 horsepower, the model is the same depending on the dimensions. The engine activating the car is generally four -cylinder and a power that depends on the speed to be reached and the weight of the car. The engine is placed at the front, it can however be placed under the seat in certain types, particularly for the Landaus, Coupés and Landaulets, which must do a city service, and whose length must be reduced to make them very handy.

The engines are with separate cylinders: the grouping of the organs has been studied with a view to obtaining a perfect regularity of working by minimizing maintenance expenses.

They are easily reachable, lubrication and maintenance are very simple. The combustion being perfect, it follows that the operation takes place without any clearance of smell or smoke.

From 15 horsepower, intake valves are mechanically controlled. The engines of 24, 35 and 50 horsepower are made either in cast iron or in steel: this last arrangement reduces the weight of the engine.

The engines from 24 horsepower have, for the control of intake valves, a system of extensible cams, allowing to adjust at will the volume sucked by the cylinders, and consequently, to keep compression only what it is necessary for ignition, thus facilitating the start of the engine.

A special magneto, operating during engine working, ensures the ignition of the explosive mixture, removing the accumulators and the tremors. An auxiliary ignition, useful especially for

the start of large engines, increases the safety of operation. The engine must be supplied by ordinary petroleum petrol to the density of 700 to 705, or by fuel alcohol. Thanks to the use of the automatic adjustment carburetor which is mounted on all the engines of the company, petrol consumption is very strongly reduced, it is approximately 400 grams per horse and per hour. It is easy to have fairly large tanks, so that the car can cross around 300 kilometers, and even more if desired, without it being necessary to renew the supply of petrol.

The lubrication of the engine, gears and wheels is done in mineral oil, the consistent fat is used for the lubrication of the different bearings. Automatic devices greatly facilitate the proper distribution of oil and fat, and warn, to a certain extent, against the oversights always to fear.

A water provision contained in a special tank is necessary to refresh the engine cylinders. Thanks to the use of the radiator and the fan, the same water can be used for a very long time.

Any car consists of two parts: the chassis and the box.

The chassis is made of armed wood, it presents on the metal chassis the advantage that, while being as light, it is more resistant than it. On this chassis rest all the organs: engine, gear change box, brakes, etc.

The gear box is of the type called to ordinary "sliding-mesh".

The brakes are of two kinds, one acting on the differential, the other on the drive wheels, both also tightening during the front and during the reverse.

On this chassis is mounted the box treated by the bodybuilder in the ordinary way and not serving as a point of attachment to any part or mechanical organ.

*50 horsepower frames.* This new type has some particularities on current types. It has a separate four -cylinder engine, in cast iron. All the organs, including the two camshafts, and the duplication wheels are locked in an aluminum crankcase, and are continuously immersed in an atmosphere loaded with oil. The crankshaft is supported by 5 bearings, the lower parts of which are reported; In this way, it is possible to disassemble the lower bowl of the frame without removing the crankshaft. The centrifugal force regulator is replaced by a hydraulic regulator. The pressure variations in the pump water are transmitted by a special device to the gas strangle drawer; So the gases are all the more strangled as the water pressure increases and the engine runs faster.

The speed change is "sliding-mesh", but with direct socket at high speed and special device so that at this time the intermediate axle does not turn. The principle of direct socket gives an advantage from the point of view of the performance of the fourth speed transmission, because the friction of the gears is removed at this time; But on the old system, he has the disadvantage of introducing additional gears to other speeds, hence friction and consequently less good efficiency at these speeds.

Despite these drawbacks, it is currently preferred because it ensures the minimum noise in landing, the speed of the car being adjusted by that of the engine.

VOITURE LÉGÈRE, FORME SPIDER

TONNEAU ROI DES BELGES, AVEC PAVILLON

DOUBLE PHAËTON, ENTRÉES LATÉRALES AVEC CAPOTE

DOUBLE PHAËTON, ENTRÉES LATÉRALES AVEC PAVILLON

LIMOUSINE, ENTRÉE ARRIÈRE

LIMOUSINE, ENTRÉES LATÉRALES

COUPÉ LIMOUSINE

BERLINE DE VOYAGE

LANDAU (MOTEUR SOUS LE SIÈGE)

LANDAULET, MOTEUR À L'AVANT

LANDAULET (MOTEUR SOUS LE SIÈGE)

DELIVERY CAR

TRUCK