

**THE PARIS EXPOSITION.**

When the Exposition of 1889 closed, it was suggested that the end of the nineteenth century be fittingly commemorated by another great world's fair upon the banks of the Seine. The idea was taken up enthusiastically, and great specialists in the creation of world's fairs have since been devoting their entire attention to the formulation of plans for the largest and most interesting Exposition which the world has ever seen. Now the plan has materialized, and Paris, for the eleventh time, is welcoming all the world to the splendid showing upon the banks of the Seine. If the French do not understand the art of exhibition making, certainly no other nation can lay claim to it, for the first exposition that was ever held was on the Champ de Mars under the Directory, in 1798; and successful exhibitions were held in Paris in 1801, 1806, 1834, 1844, 1849, 1855, 1867, 1878 and 1889. The situation of Paris as regards such gatherings is unfortunate, owing to the fact that the space at her disposal in the center of the city is very limited. This difficulty has been surmounted, however, by a most judicious distribution of the structures and by the utilization of the banks of the Seine. In reality there are six sections of the Exposition, covering an area of 470 acres. The first section abuts on the Place de la Concorde, and it is connected with the Invalides section by the Alexander III. Bridge. The Champ de Mars and the Trocadero section are located at some little distance, and are connected on both sides of the Seine by a continual line of buildings which border its banks. There is also an important annex in the Bois de Vincennes, several miles away, where machinery, transportation

exhibits, etc., can be installed and suitably displayed, as well as affording facilities for sports of various kinds. The concessions or "Midway" features, as we might term them, are scattered all over the Exposition, some of them being in the grounds, and some out of them but connected with them.

Although the Exposition was opened on the 14th of April, the grounds and buildings were in a state of great confusion, and those who intend to visit Paris

the monumental entrance, which has been termed "the great money box" by the irreverent, and arrives at the two buildings devoted to fine arts, the smaller being given up to a retrospective exhibition of French art and the larger to exhibits of the contemporaneous art of the world. The new Avenue Nicholas II. separates the two buildings and leads directly to the Pont Alexandre III., which crosses the Seine, forming a continuation of the avenue and connecting the two sections of the

Exposition. The Esplanade des Invalides is a very handsome avenue, bounded as it is on both sides with important groups of buildings which have a remarkable unity. The avenue is terminated by the dome of Napoleon's tomb. The arrangement of the buildings is somewhat peculiar; thus if the exhibits of French furniture are to be visited, it is necessary to go to the building on the left side of the Esplanade, but if visitors desire to look at foreign furniture exhibits, they must cross the avenue to a building directly opposite.



Italy. Turkey. United States. Austria.  
THE "STREET OF NATIONS" ON THE LEFT BANK OF THE SEINE.

have done well to delay their journey for several weeks after the opening day, thereby saving themselves miles of travel through empty and cheerless exhibition halls. It is said that no less than 6,000 men have been working at one time upon the Exposition. There are 30,000 French exhibitors, 6,564 American exhibitors; then follows Belgium with 2,500, Germany with 2,000, Italy with 2,000, Russia with 1,500, Scandinavia with 1,400, Austria 1,000, and Great Britain 600, and the British colonies with 600 exhibitors. The total aggregate of the exhibits and concessions is enormous, and in point of size the present Exposition excels even our own World's Fair of 1893.

From the Champs Elysées the visitor passes through

The buildings on the Esplanade are devoted to national manufactures, the decoration of the furniture, and diverse industries. Leaving the Esplanade and continuing down the left bank of the Seine, the "Street of Nations" is reached; here are pavilions which are the official headquarters of the various governments which participate in the Exposition. This valuable feature was lacking in the Exposition of 1889 and was probably the most popular thing of the Exposition of 1878. These pavilions are devoted to some extent to the exhibition of the products of the country for which it stands, but some of them are reserved exclusively for reception purposes or for artistic or historical collections. One of our engravings represents several



VIEW OF THE ESPLANADE DES INVALIDES LOOKING ACROSS THE ALEXANDER III. BRIDGE.

of these pavilions on the "Street of Nations" looking toward the Alexander III. Bridge. The first one is the palace of Austria-Hungary, which is a baroque construction. The United States building, of which Mr. W. A. Coolidge was the architect, and M. Morin Goustiaux the French collaborator, is a large and imposing structure, measuring 85 X 90 feet, and is 165 feet high from the lowest level. In a general way the building suggests without imitating the capitol at Washington and the Administration building at the World's Fair. The architect has done his best to make the building prominent, and his efforts have been successful, for none of the other buildings have such high domes, and the main entrance, which is under a large portico, also makes it very conspicuous, as it covers the thoroughfare along which visitors must pass. In front of the building is a boat-landing, which is ornamented so as to resemble a classic trireme.

The pavilion of Turkey, which is next, resembles the palaces which can be found along the shores of the Bosphorus. Its architecture is frankly Oriental, being a happy mixture of the most interesting types to be found in Constantinople; on the lower level is a Turkish café.

The pavilion of Italy is one of the finest buildings in the entire Exposition, and by reason of its dimensions is the most important of all on the "Street of Nations." Its architect has succeeded in masking the effects of the material employed. It is in somewhat florid Byzantine style, and resembles, to a certain extent, San Marco at Venice. Mosaics and marbles are freely used, and there are five great domes of bronze gilded.

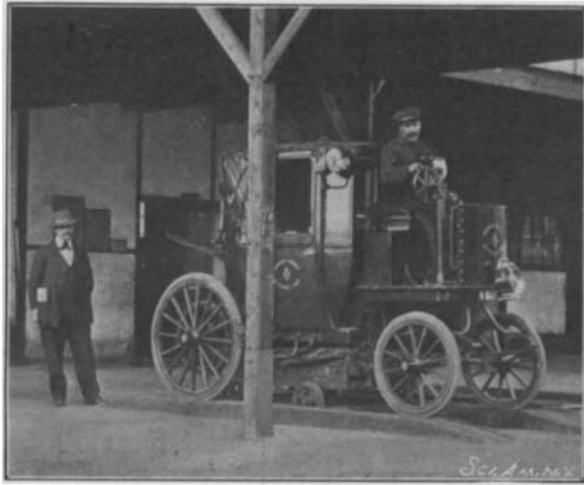
#### ELECTRIC CAB SYSTEM OF PARIS.

The city of Paris is provided with an electric cab service which, although at first in a more or less experimental stage, is now rapidly coming into successful operation. The Compagnie Generale des Voitures, which operates all the cabs in the city, some time ago made an addition to its existing property just outside the city limits, and has erected a number of buildings to accommodate the electric system, including a power house, accumulator building, carriage-house, etc.

After a number of tests, the company decided to adopt the type of cab shown in our engravings. The cab body, which is interchangeable, is supported on a frame which rests upon the front axle by two elliptical springs and upon the rear axle by two springs placed longitudinally, this disposition being adopted to give more room to the motor and differential. The case containing the battery is supported underneath the frame of the vehicle, this arrangement permitting of an easy replacement. The motor drives the rear wheels by means of chain gearing, the wheels being of wood with solid rubber tires. To steer the vehicle the forward truck is turned by means of a hand-wheel in front of the motorman's seat. To the springs of the cab are attached four wrought iron arms supporting a bronze crown upon which turns a similar crown attached to the frame; a series of rollers is provided to diminish the friction between the two crowns, the lower one carries a central pin upon which it turns; this crown is toothed around its periphery and engages with a pinion on the lower end of the vertical steering shaft. This shaft passes up through an iron column shown in the front of the cab, where it ends in a pinion, this being turned by an endless screw worked by the

hand-wheel; in this way the motorman steers the vehicle.

The lower engraving shows the general arrangement of the motor and back part of the cab. The motor is of the Lundell-Johnson type; it has four poles and is series wound. It differs from the usual type of motor



CAB ON RAISED TRACKS; TROLLEY WITH FRESH ACCUMULATOR BENEATH.

in having two commutators, one on either end of the armature, this latter having two series of windings. The field coils are also divided into two separate circuits, thus permitting several different combinations of circuits to regulate the speed without changing the battery connections. The weight of the motor is about 96 kilogrammes and it gives from  $3\frac{1}{2}$  to 4 horse power, with a speed of 1,500 revolutions per minute, when the cab runs normally at 16 kilometers per hour. The



CAB WITH UNDER-HUNG ACCUMULATOR IN PLACE.

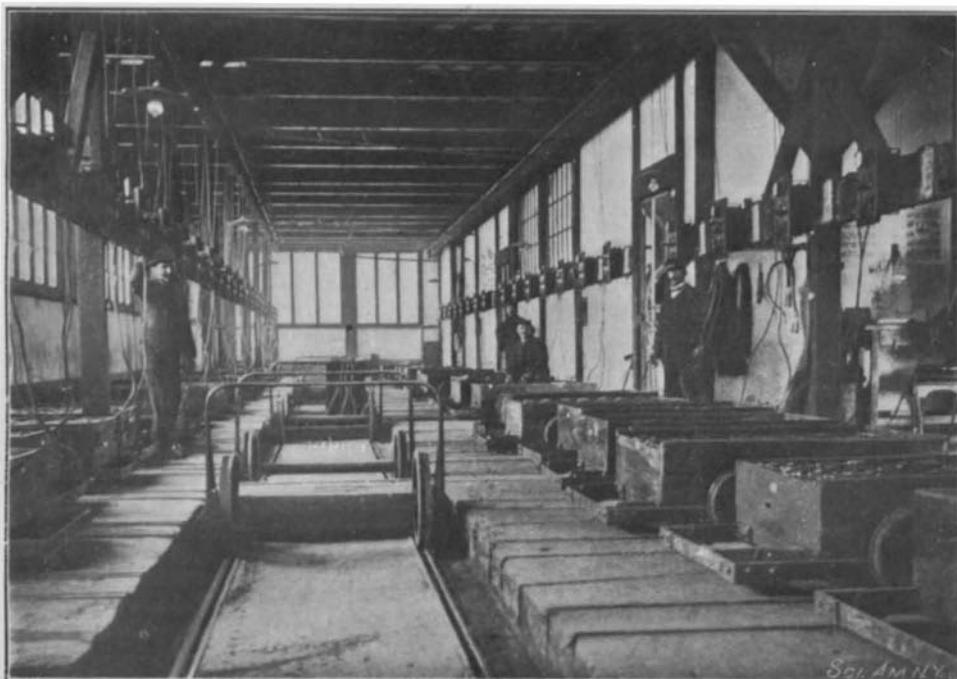
pinion seen on the left of the motor is of rawhide, having 22 teeth with steel end-plates, and engages with the large gear wheel of 81 teeth placed upon the crown of the differential. At each end, the shaft of the differential is supported by a long bearing, and carries on its outer end a chain wheel of 19 teeth, seen on the left, which drives the rear axle. The motor is supported on a bronze plate which in the rear is pivoted

around a shaft placed in line with the centers of the driving wheels. This plate is supported on its inner end by a coiled spring resting upon a horizontal bar. The different circuits of the motor pass into a series of connecting posts at the top, from which a series of wires pass in front to the controller. The controller is placed under the driver's seat, where it is entirely enclosed. It consists of a small drum with rubbing contacts, of the usual type, placed horizontally. The shaft is provided with a pinion on the left-hand side, engaging with a toothed sector, the latter being connected to a lever on the outside of the box and within easy reach of the hand. The different speeds are obtained by combining the field and armature circuits of the motor. The battery connections remain unchanged. The two electric brakes are also operated by the controller, and the cab has one cylinder brake as well as the ordinary brake shoes, these are arranged to cut off the current when the brake-pedal is applied.

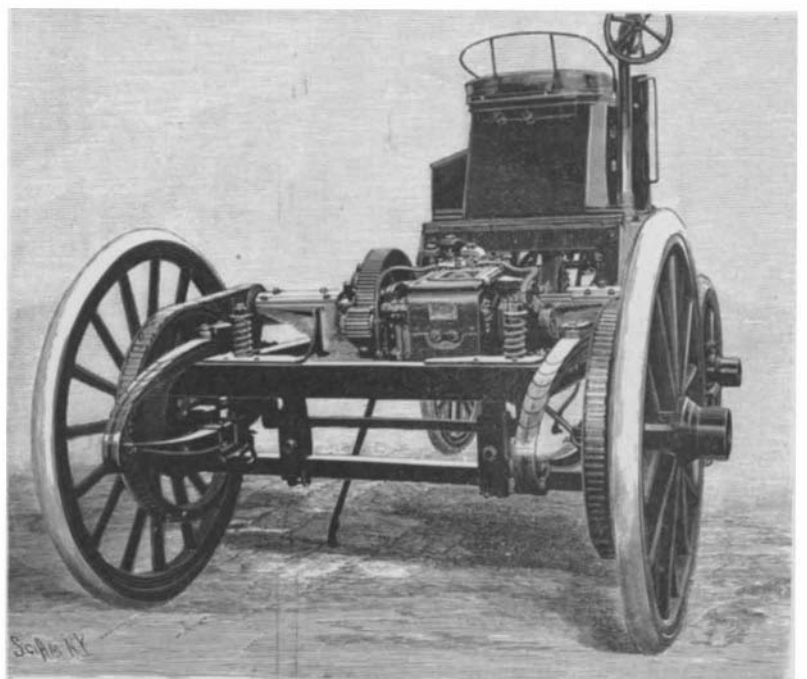
The electrical plant necessary to charge the batteries consists of a boiler room and a dynamo room. It contains two engines of 250 horse power, each driving a dynamo of the Alioth type. The dynamos have each a capacity of 1,200 amperes at 110 volts. From each dynamo four flexible cables of large section pass to the switchboard, which is in a gallery at one end of the station, and from there the conductors lead to the accumulator charging rooms.

The rooms set apart for charging the accumulators form one of the original features of the plant. They are arranged so that the batteries may be easily handled and the operation of charging carried out rapidly. Two charging rooms are provided, one on the ground floor and the other in the second story; the former is shown in the illustration. In the center runs the main track, bringing the accumulator boxes, mounted each upon its truck, to the desired points, where they are rolled out upon the elevated side platform, in front of the charging post. The latter consist of a number of panels placed along the wall above the accumulators, each panel being connected with the main circuit. The current is measured by an ammeter at the top, and the circuit passes to a rheostat below. The panel is completed by a switch and a pair of fusible cut-outs, from which the cables pass below to the accumulators. The lower floor has 54 of these charging panels and the second floor about the same number. The main current is distributed to the charging posts by a switchboard placed at each end of the room, and protected from acid fumes by a glass panel. The rooms, above and below, have cement floors, and tarred wood is used throughout. The accumulator boxes are carried to the second floor by a hydraulic elevator; for this two pumps are provided, each driven by an Alioth motor of 6 horse power.

The type of accumulators used is that controlled by the Société pour le Travail Electrique des Metaux. The elements are of the mixed type, the positive plates being composed of a number of flat and slightly corrugated strips of lead placed one upon the other and soldered at intervals to the central cores and sides of the plate; the negative plates are of reduced chloride of lead, contained in a lead grid; Ebouite cells are used, with a false bottom, and between the plates is placed a thin corrugated strip of ebonite, pierced with small holes. For each cab, 44 cells are used, weighing 750 kilogrammes; their capacity is about 175 ampere hours, and the current taken by the motor varies from 20 to



CHARGING ROOM, SHOWING ACCUMULATOR BOXES AND TRANSFER TRUCKS.



FRAME OF CAB, SHOWING MOTOR AND DRIVING GEAR.