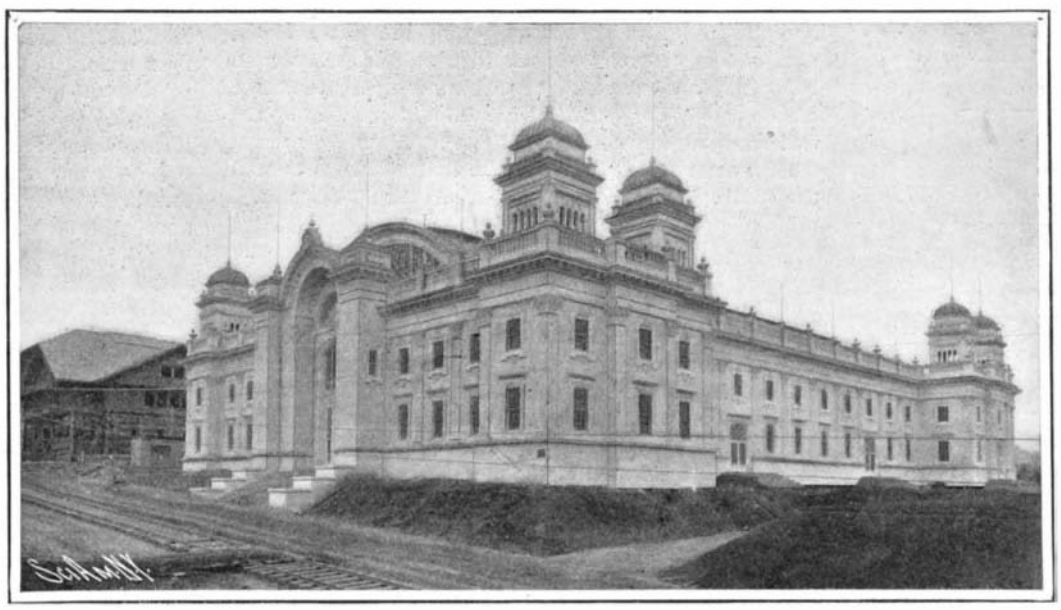
## THE LEWIS AND CLARK EXPOSITION.

BY DAY ALLEN WILLEY.

The exposition to be opened in the city of Portland, Oregon, in June next is of notable interest for several reasons. It is the first of the kind yet to be held west of the Rocky Mountains, and is of such extent that it will give eastern people an intelligent idea, not only of the resources of the Pacific Northwest, but of its magnitude, and the remarkable development which this part of the United States has already attained. It also commemorates the acquisition of the only territory ever annexed to the United States by the right of discovery. It may be said, however, that all of the Pacific Northwest, as well as the portion explored by Lewis and Clark, participates in the celebration, for not only Oregon, Washington, and Idaho—the "Oregon country"—but Montana, Wyoming, and California, are represented in the display. Excluding California, this territory covers nearly 500,000 square miles of America.

Lewis and Clark started up the Missouri River with their little band of explorers in May, 1804, reaching the mouth of what is known as the Lewis and Clark River in November, 1805. It was originally intended to have the exposition on the site of old Fort Clatsop, which may be called the western terminus of the expedition, but such an excellent site was afforded in the suburbs of Portland, on the banks of the Willamette River, that here 430 acres have been laid out for the purpose, making an ideal site, since it has natural advantages, which add greatly to the picturesqueness of the buildings and other artificial adornment. The foothills of the Cascade range furnish a rolling topography, which gives an opportunity for the construction of terraces and other ornamental features, and has allowed the principal buildings to be placed upon eminences, which give them an imposing appearance. In the vicinity of Portland are some of the noted peaks of the Cascades—Rainier, rising to a height of nearly 15,000 feet; Mount St. Helens, nearly 10,000 feet in height; while Mount Adams and Mount Hood are also in view of the site. Rainier is one of the most remarkable peaks in the world, being so extensive that it forms a miniature range of mountains in itself. Almost at the edge of the exposition grounds are portions of the primeval forest, and one of the most attractive features of the exposition is a park which has been laid out through the woodland. Another feature worthy of note, however, is the marine vista, provided by what is called Guild's Lake, which is included in the grounds—a sheet of water covering 200 acres. Yet the exposition, as stated, is in a suburb of Portland, and readily accessible to the visitor.

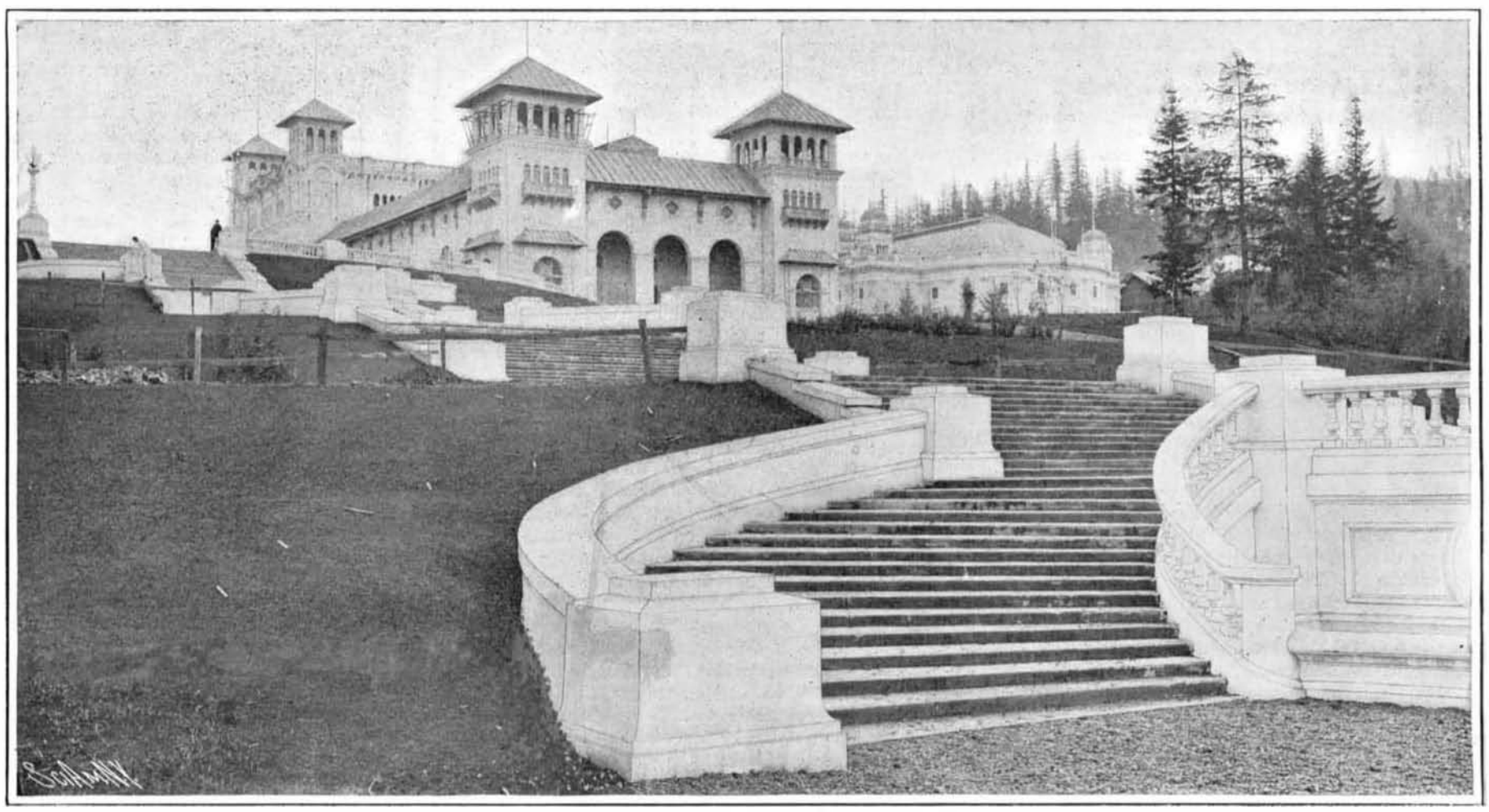
Naturally, the number and dimensions of the buildings will be compared with the structures at St. Louis; but while they are considerably smaller, the group of main edifices are of such design that they make a very creditable showing, and are of a capacity adequate for the purpose intended. The largest of the group, which is devoted to agriculture, is 460 feet in length and 210 feet in width. It is rendered conspicuous by the large dome, surmounting it, which is covered with green translucent fiber. This building contains several pavilions intended for more elaborate displays of product of field, orchard, and garden, and the interior is ornamented by pilasters and statuary placed in niches about the walls. The structure devoted to European exhibits is 462 feet in length by 100 feet in width, and as its title indicates, will contain displays made by European manufacturers and tradesmen—displays which represent all of the important countries of the Continent, as well as Great Britain. The same may be said of the Oriental exhibits, in which China and other portions of the Asiatic mainland are represented, as well as Japan and some of the larger islands of the Pacific. The progress made by the Pacific Northwest in mechanical devices will be shown in the building devoted to machinery, transportation, and electricity—a structure 500 feet long; while that housing the liberal arts and varied industries is 375 feet by 240 feet in dimensions, and one of the most attractive on the grounds. It has been wisely determined to make the fine arts building a permanent structure; and while the others mentioned are erected with wooden framework covered with staff, this will be composed of brick and concrete. The extent already attained by the mineral industry in the Northwest will be illustrated in the building devoted to mines and metallurgy. The ore deposits and variety of minerals will be demonstrated in collections secured from the principal districts. In view of the importance of this resource, an opportunity is afforded to make it one of the most significant and instructive features of the exposition.



The Palace of Oriental Exhibits.

The most interesting of the group from a technical standpoint is the forestry building. This is really a gigantic log house—the largest of the kind ever erected. It exemplifies in its composition the forest wealth of Oregon and Washington. Besides being a timber exhibit itself, it will contain all the finished products of the forest as well as the woods in their native state. In its construction two miles of fir logs, five and six feet in diameter, eight miles of poles, and tons of "shakes" and cedar shingles were used. The logs have been left in the rough with the bark on. The base logs of the building are 6 feet in diameter and 52 feet long. The logs above the base are 3 feet through and vary in length. Colonnades of fir trees 30 feet high and 6 feet in diameter support loggias or galleries over the main entrances. Picturesque balconies are at each end of the building. The portico over one entrance is supported by giant spruce trees, and the other shows a colonnade of large hemlocks. The upper part of the building is sheathed with cedar bark shingles laid 18 inches to the weather. An overhanging roof adds much to the attractiveness of the structure. In the interior of the building as well as the exterior a colonnade of fifty-two columns of fir and cedar trees 40 feet high supports the roof. Rustic stairways and inside balconies running around the entire building enable the visitor to study the virgin display of native woods and other products of the forest. In the construction of the forestry building no carpentry work was employed, the logs being framed together with treenails and wooden pins. The trees used were cut in the forest bordering on the Columbia River. They were formed into rafts and floated down the Columbia and Willamette rivers into Guild's Lake. From the lake they were raised to the site of the building in Centennial Park by means of a skidway 1,500 feet long.

Fortunately, the government will be most creditably represented, an appropriation of $475,000 being made for the purpose. The buildings housing its displays are five in all, the main structure being connected with the smaller ones by ornate peristyles. The front of



The Ornamental Approach to the Plaza of Exhibits.

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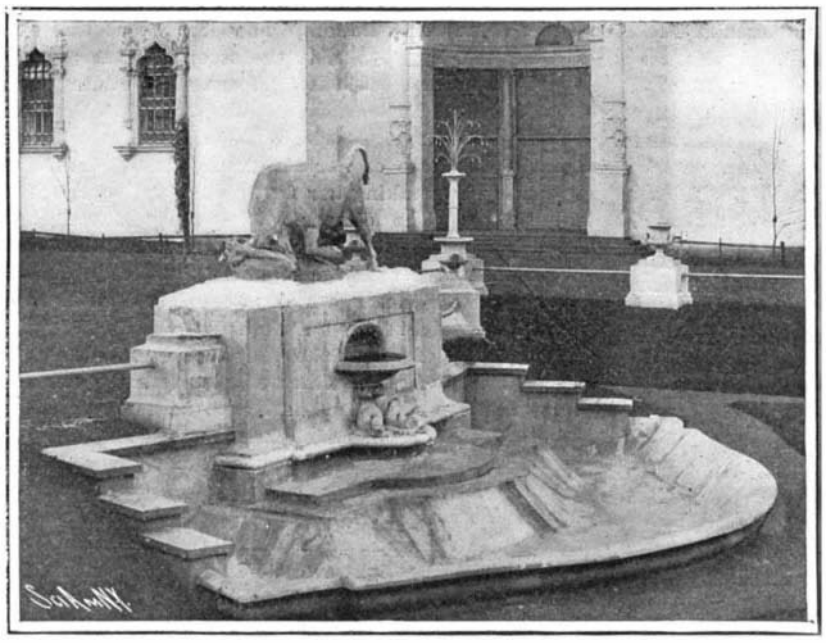


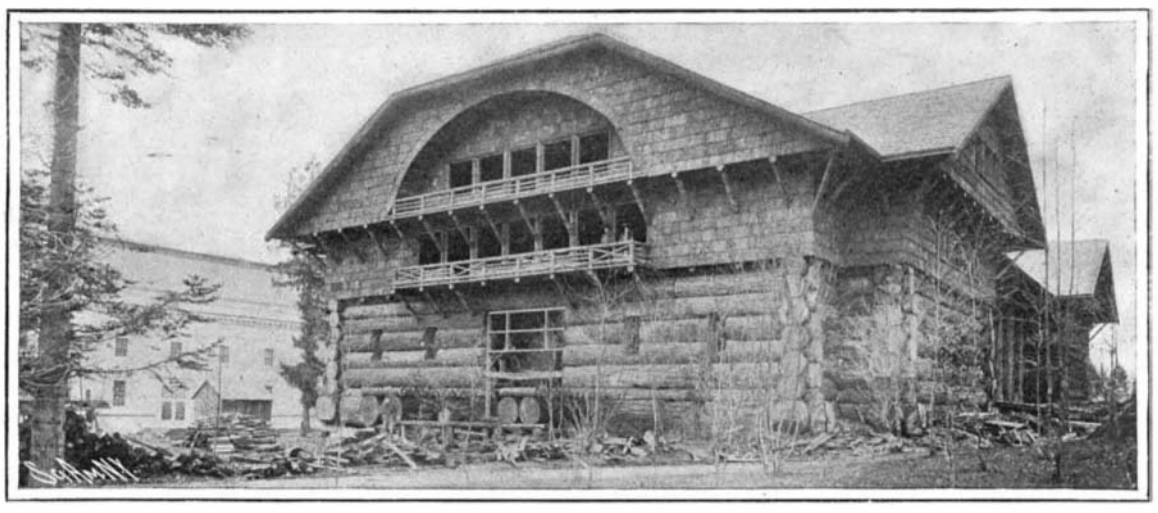
Group in Columbia Court. Bull Fighting Lynx.

Remington's "Hitting the Trail."

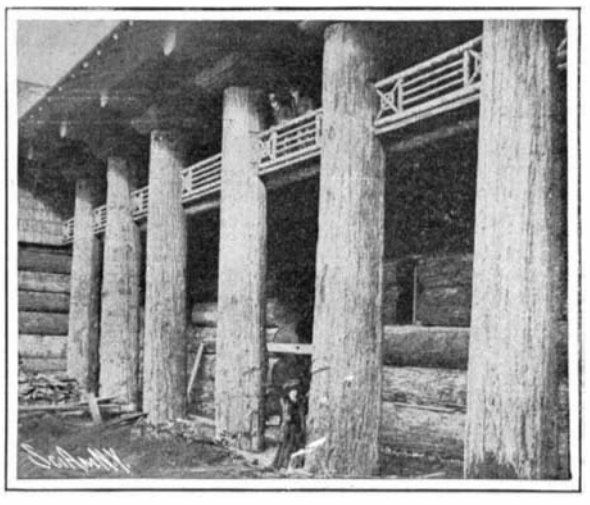
Statue of Capt. Meriwether Lewis.

"Cowboy at Rest." Centennial Park.

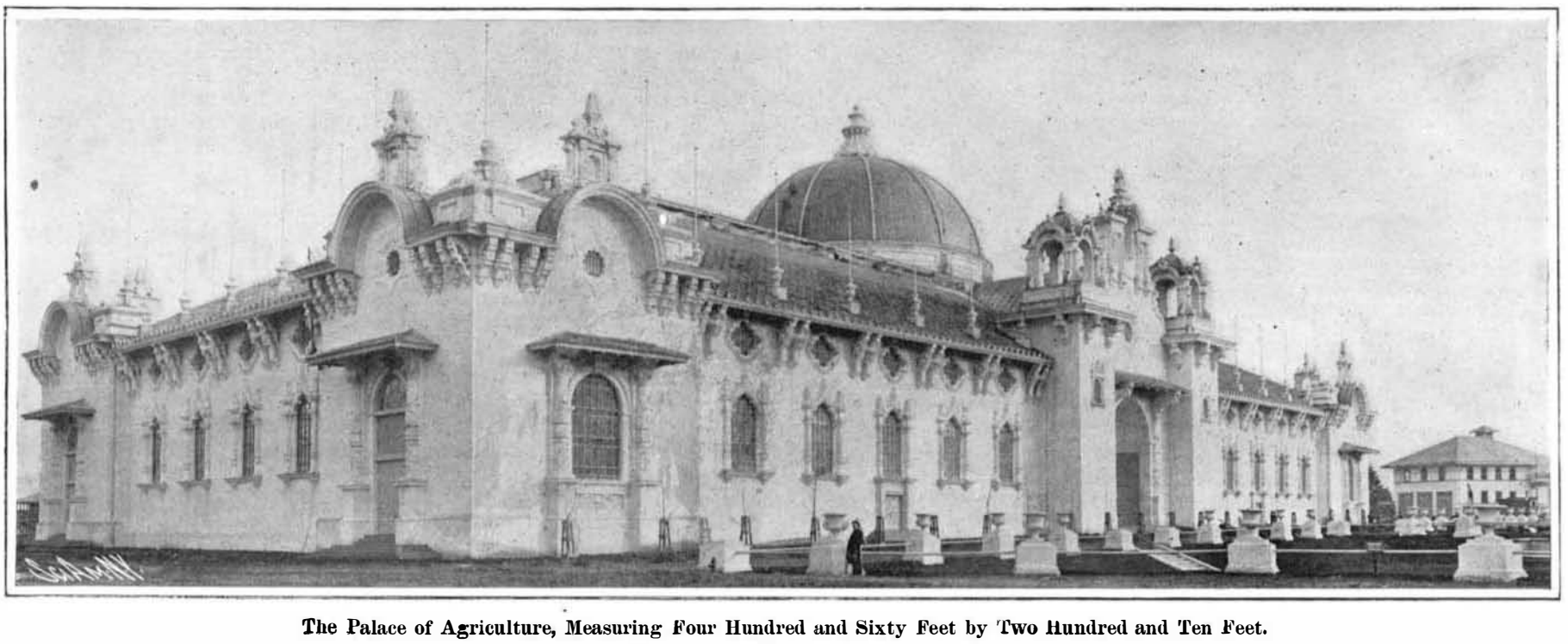
Statue of Capt. William Clark.



The Forestry Building. A House of Gigantic Logs.



Entrance to Forestry Building.



The Palace of Agriculture, Measuring Four Hundred and Sixty Feet by Two Hundred and Ten Feet.

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the main building is spanned by five arches, each 40 feet wide, supported by Corinthian columns 44 feet high. The building has two towers, each of which is 260 feet high, and is surmounted by a dome. The roof of the main building is arched, the highest point being 130 feet from the ground, while at each end is a half dome. Constructed in the Spanish Renaissance style of architecture, in harmony with the others, the building is from an architectural standpoint one of the finest on the grounds. It is situated some little distance from the lake, which it faces, and being directly opposite Columbia Court, the main plaza of the exposition, the view of the main exposition picture obtained from it is very attractive.

The territorial pavilion is located to the west of the main building, and the irrigation building to the east, the fisheries building being behind the latter. The minor buildings are in the same style as the main structure, but with less ornamentation. The government displays will include progress in irrigation, fish culture, collections from the War and Navy departments, as well as mechanical appliances, in addition to documents and relics from the State Department, also a miniature Filipino village populated by natives of the islands. In fact, the government display will be nearly as elaborate as that which it made at St. Louis.

The plan of the exposition embraces nine exhibit palaces excluding the government group, but in addition are the festival hall, the gathering place for conventions and other meetings, and the administration building, containing the main offices of the exposition. The principal amusement feature will consist of what is called the "Trail," where duplicates of many of the "shows" seen at St. Louis and Chicago will be located.

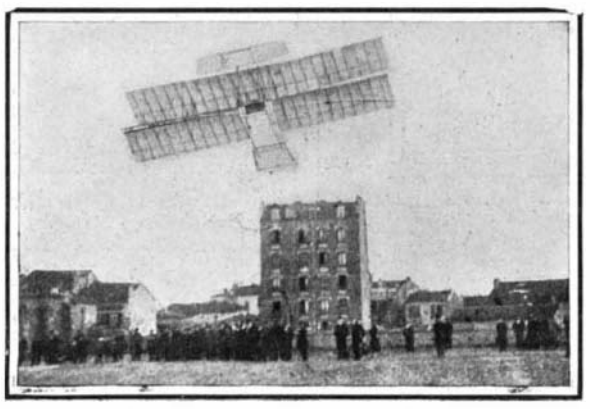
Such is the interest manifested in the Lewis and Clark Centennial, that over $4,000,000 have been expended upon the exposition by the people of the Pacific Northwest. The city of Portland alone has given nearly $450,000, although its population is less than 150,000. The country in the vicinity, however, forms another exposition of how rapidly commerce and industry have progressed in this part of the United States. It will probably be almost as interesting to visitors unacquainted with this part of the world, as the display which has been described. The scope of the undertaking can be appreciated, when it is stated that besides Oregon, Washington, Montana, Idaho, Wyoming, and California have made a liberal appropriation, and the people of British Columbia as well have manifested a deep interest. The projectors have secured the cooperation of Eastern States to such an extent that New York, New Jersey, and Massachusetts have erected structures. These, with the government share in the display, have assisted in making it to a certain extent national in its character.

### Another Mont Blanc Railway.

According to a recent issue of the Schweizerische Elektrotechnische Zeitschrift, another scheme has been presented for a Mont Blanc railway, the starting point being Flayet station of the Paris-Lyons-Marseilles Railway, which lies 580 meters above the level of the sea in the neighborhood of Saint Gervais. From Rogues (2,645 meters) the track is endangered by avalanches, against which special protective constructions have been provided. The railway will thence lead up Tête-Rousse (3,165 meters) and finally up to Aiguille du Goutor (3,825 meters) at 950 meters below the summit of Mont Blanc. Its length up to this point is 18.5 kilometers. For the remaining section up to the summit of the mountain, a small special railway is to be constructed, which however is to be replaced at the outset by comfortable footpaths and sled-roads. The rack railway up Mont Blanc is to be operated by electricity, its gage being 1 meter, thus cutting down the radius of curves to 60 meters. Any gradients exceeding 25 per cent are to be avoided. A speed of 7 to 8 kilometers per hour has been provided for, any higher speeds being precluded by the impracticability of exposing the passengers to an abrupt change in atmospheric pressure. Ten trains are to be run each day, both uphill and downhill. The cost of constructing the railway has been estimated at 10,000,000 francs ($2,000,000) working out at about 540,000 francs ($108,000) per kilometer. The fare of a return journey will be 40 francs ($8). It is thought that out of the 90,000 travelers passing through Chamonix each year, but refraining from a Mont Blanc ascension, which, apart from the fatigue it involves, requires nearly three days and costs a minimum of 300 francs ($60), about 25,000 will thus be induced to undertake a one-day journey up Mont Blanc.

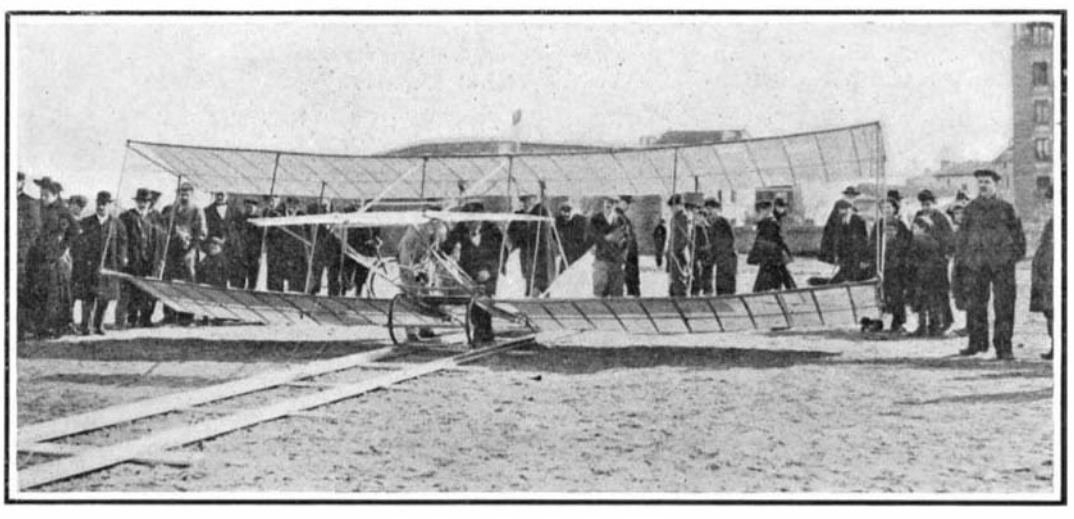
### RAISING AN AEROPLANE WITH AN AUTOMOBILE.

M. Ernest Archdeacon, a Frenchman who has been experimenting with aeroplanes, recently conducted some experiments in raising an aeroplane by means of a powerful 60-horse-power automobile. The aeroplane was mounted on runners adapted to slide upon a greased wooden track some 60 feet in length, and it was loaded with a weight equivalent to that of a man. A rope 75 feet long was run from the aeroplane to the automobile, and when the latter was started, the aeroplane rose gracefully to a height of about 100 feet, in three or four seconds, after which the rope was cut, and the aeroplane, on account of the breaking of one of the planes of its rudder, described several arcs in space and suddenly fell, breaking itself in pieces, as shown in one of our illustrations. The aeroplane was of the type employed by the Wright brothers in this country; that is, with a guiding aeroplane placed in front. It remained stable in the air for a few seconds until the rudder broke. The experiment was interesting, although the aeroplane was not controlled.



**The Archdeacon Aeroplane in the Air.**

**All That Was Left After the Flight.**



**Launch of the Aeroplane.**

### TRIALS OF THE ARCHDEACON AEROPLANE.

The French government has intrusted the planning of a new railroad from Chamonix to Aosta. This undertaking involves the boring of a tunnel through Mont Blanc, but M. Jacquier does not consider that this task would prove so difficult as the Simplon tunnel. The Mont Blanc tunnel will be 8½ miles in length. It will commence at Chamonix, 3,415 feet above sea-level, and end at Entreves (4,550 feet). The Dora Baltea would give ample water for the boring work, and afterward for locomotion. The engineer states that the rock of the mountain gives no indication of subterranean reservoirs.

### The Largest American-built Steamship.

The steamship "Dakota," now loading at this port for her maiden voyage, is the second of the gigantic vessels constructed by the Eastern Shipbuilding Company, of New London, Conn., for the Great Northern Steamship Company. She is in practically every respect a duplicate of her sister ship the "Minnesota," which is now making her first homeward voyage from the Orient. The dimensions of the "Dakota" are: Length over all, 630 feet; extreme beam, 72½ feet; and depth from upper navigating bridge to bottom of the keel, 88 feet 4 inches, which is equal to the height of an ordinary eight-story building. When fully laden, the displacement of the "Dakota" is 33,000 tons, and with her full cargo (and she has a gross tonnage of 20,718 tons) she can make 15 knots even in heavy seas. In order to carry such an enormous cargo at the speed mentioned, and in all kinds of weather, the "Dakota" is built to withstand extraordinary strains, some of her double plates being as much as 2½ inches in thickness. The stem and stern posts are of cast steel and of the greatest weight ever used in naval construction, the stern post alone weighing 55 tons. The total accommodations are for about three hundred first-cabin passengers, while below deck provision is made for carrying thirteen hundred troops or twenty-four hundred third-cabin passengers.

The ship is driven by twin-screw triple-expansion engines of about 10,000 horse-power furnished with steam at 250 pounds pressure by water-tube boilers of the Niclausse type. Each engine is located in a separate water-tight compartment, and the boilers are also divided into two similar compartments, accessible one to the other through small water-tight doors. Thus in case one engine room should be flooded, the other engine could drive the ship on her journey. A distinctly novel feature in these ships is that some of the boilers are fitted with mechanical stokers—an improvement which will, we believe, in time become general in the merchant marine.

A powerful windlass is placed at the bow for raising the anchors, each of 8½ tons, and the anchor chain, which weighs over 80 tons, is the heaviest ever built. The full equipment of life-saving appliances as prescribed by the United States government is carried on board, and for putting out flames a patent fire-extinguishing system is installed, by means of which any compartment of the ship may be immediately filled with a gas in which a fire cannot possibly burn. For handling the cargo in and out of the numerous hatches no less than thirty-two electric winches are placed on the deck.

### A Reinforced Concrete Warehouse.

A brick and reinforced concrete warehouse has been built in Toronto, Ont., for Brown Brothers at practically the same figure as for slow-burning mill construction. The building is 192 feet by 42 feet in plan, with stories 10 feet, 15 feet, 14 feet 6 inches, 13 feet 6 inches, and 13 feet 6 inches high from basement up. The floors are designed to carry 300 pounds per square foot, and the columns are on 16-foot by 12-foot centers. The columns are reinforced by steel rods at the corners, with a wrapping of expanded metal like the hoops of other systems of construction. The columns are connected by concrete girders reinforced with six rods near their bottom surface, some of these rods being bent upward at the ends. Instead of stirrups or loops, the girders have sheets of expanded metal at their ends. The floor-beams are of similar construction, but smaller.—Building News.

### Marconi and De Forrest in Court.

In the United States Circuit Court for southern New York, Judge Townsend recently handed down a decision which involved the validity of certain of the claims of Marconi's broadened and reissued patent of 1901. Only six of the fifty-six claims of that document were involved in the litigation, and the complaint was dismissed in respect of four of these. The two claims which are upheld affect the use of aerials or antennæ. The upholding of these claims affects vitally the maintenance and operation of every wireless telegraph station which is used for long-distance transmission of signals.