

**ELECTRICAL ILLUMINATION OF A MONUMENT.**

The illumination of the Soldiers' and Sailors' Monument at Indianapolis, on the occasion of the recent national encampment of the Grand Army of the Republic at that place, as shown in our illustration, was a practical triumph for the electricians, who designed for the purpose decorations of surpassing beauty, which excited general admiration. Around the balustrade at the top of the shaft a triple corona of light was cast down upon its column and up toward the statue crowning the top. Back of the first astragal windows were placed electric reflectors, throwing into bold relief the dates. Down toward the earth a girdle of lamps encircled the monument and served as an introduction to the display below, where the navy astragal was placed. In the center of the panel on the south side an immense American flag outlined in lamps of appropriate colors seemed to wave as though floating in the wind. As a background to the four lion heads rose four sprays of lights of various colors, and below the heads ran a second belt of lamps. The corners of the pedestal were outlined in lamps, as also the borders of the large panel on the south side. The most attractive display on this side was a huge anchor, typical of the navy, outlined in pure white lamps. Over the corner head at the top of the panel a delicate wreath of miniature lamps cast a soft glow on the laurel leaves below. The panels on the east and west side each supported a large American shield, also outlined in light, while on the northern panel was suspended a monster wreath of laurel, with myriads of lights glowing here and there through the foliage. At the base of the main pedestal were placed light electric wheels, two at each corner, bearing on their faces various artistic designs in lamps, which changed color and arrangement as the wheels revolved. The main doorway of the monument was outlined in light. On the upper landing were placed two pyramids of cannon balls, each ball lighted by a miniature lamp. On the steps leading down from this landing were four stacks of muskets, each with a wreath of various colored lamps thrown gracefully over the bayonets. On the second landing were two field pieces, with their outlines depicted in light. The balustrades of the terraces were also outlined in light, the lamps following the architectural details. To add to these effects, four large search lights of 20,000 candle power each concentrated their rays upon the statue.

Over 500 lamps were used in these decorations, varying in candle power from one to sixteen. The difficulty of placing the lamps was very great. All the display pieces had to be suspended by fine wires from the windows of the shaft, and a large portion of the work had to be done by men suspended in swings, often 70 feet from the ground. The switchboard which controlled the lighting of the whole monument was situated in the corridor. For our illustration and particulars we are indebted to the *Electrical World*.

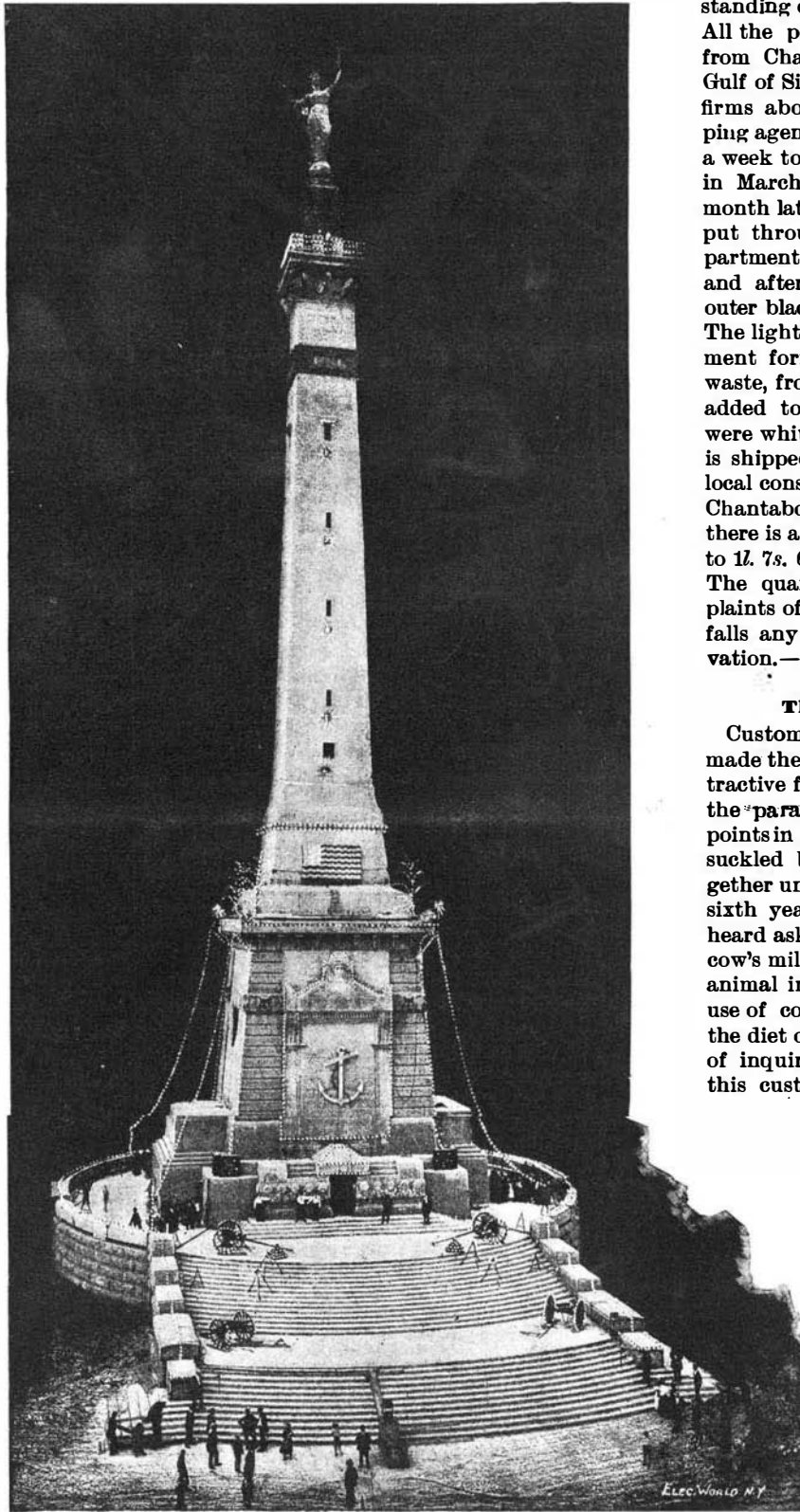
**The Mississippi Willow.**

People who are unfamiliar with the Mississippi River are tempted to wonder when they first see it why so many thousands of acres of willows grow along its borders and islands and what they are good for. The United States government, it is safe to say, would not be half as far along with the improvement of the Mississippi as it is if it had not had the humble and seemingly useless willow. It is of no account for building, it cannot be construed as firewood by any but the most active imagination, and it is of no use in the arts, beyond the making of whistles, but when it comes to building a dam the engineers find nothing that fills the bill half as well as the humble willow. It lines the shores and can be easily reached from the barges whereon it is transported, and it is so soft that it is easily cut and handled. It is woven into a great, long, continuous mat. One end of this is anchored to the shore on one side of the chute that is to be dammed, and the process of weaving is thence carried on straight across the stretch of water on a peculiarly shaped boat called a grasshopper. As fast as the mat is woven on the grasshopper it slides into the water at the lower end of the inclined weaving rack, and it is laden with rocks and carried straight to the bottom, and this is continued till the opposite shore is reached. The mat is then covered to the proper depth, 12 to 15 inches, with rock, and then another mat, made in the same way, is woven

and laid down on top of the first, and similarly weighted down, and this work is continued till the dam has risen as high as it is intended to stand; the finishing being always a heavy coating of rock that covers the willow and all. The willow, always covered with water and the mud that inevitably lodges among the rocks of the dam, is kept sealed air-tight, and of course does not decay. It binds the rocks together and prevents the dam being shoved out of place by ice or disturbed by the pressure of the current at high water. It is good for no other purpose save to hold a shore that is washing away with its roots, and for dam construction it is superlatively the thing.—*Davenport (Iowa) Democrat*.

**A Novelty in Electric Railway Franchises.**

The city of New Orleans, so *The Electrical Engineer* says, has just sold for \$700,000 cash down, to the New



MONUMENT AT INDIANAPOLIS ILLUMINATED BY ELECTRICITY.

Orleans City and Lake Railroad Company, a renewal from 1906 until 1956 of that company's extensive street railway franchises. This is certainly a novelty in the granting of franchises, so long before they begin, but the company wanted to be sure of its protection before making a proposed heavy investment in electric traction, and apparently did not consider \$700,000 too much. The company has thus given itself a lease not short of 63 years from the present time, and can go ahead with its electrical work, in the consciousness that it is safe from interruption or competition during all that period. The public and the local papers seem well pleased with the bargain driven, and speaking in the interests of electric traction, we see nothing to find fault with. The sum really amounts to \$1,246,000, with interest counted in, and that is a pretty handsome figure for the franchise, even in such a city as New Orleans. The electrical system will be installed forthwith, and the mule will disappear from the city railroad lines, as he has already from the Carrollton, as described not long ago in our columns so graphically by Mr. A. Langstaff

Johnston. Uncertainty of franchise tenure must always militate against extensions and improvements, and the practice adopted in New Orleans has much to recommend it on public grounds.

**Pepper in Siam.**

After rice and teak, pepper is the principal export from Siam. In 1892, 1,175 tons were exported—a slight falling off compared with the previous year. The pepper business is entirely in the hands of two British firms here, and as bargains are closed simultaneously at London and Bangkok by telegraph, it is a perfectly safe trade. The price, during the year, continued to fall, ranging from 22 ticals per picul (30 $\frac{1}{2}$  10s. per ton) for white pepper and 16 ticals to 10 ticals (22 $\frac{1}{2}$  3s. to 13 $\frac{1}{2}$  7s. per ton) for black. As recently as 1888 the price reached the high figure of 88 $\frac{1}{2}$  per ton. It would appear that the big profits in those years were made by the middlemen—Chinamen who buy the standing crops, and take all risks of disease and worm. All the pepper sold in the Bangkok market comes from Chantaboon, a district on the east coast of the Gulf of Siam, about 180 miles from Bangkok. The two firms above referred to do business through the shipping agent—a German, who runs a small steamer once a week to Chantaboon. The pepper crop is gathered in March, and is in the Bangkok market about a month later. When the berries are plucked, they are put through a winnowing machine with three compartments. The heaviest berries drop into the first, and after being macerated in water, by which the outer black covering is removed, become white pepper. The lighter and inferior berries of the second compartment form black pepper, and those in the third are waste, from which the best grains are extracted and added to the second kind. Of the export, two-thirds were white and one-third black pepper. All the white is shipped to London and the black to China. The local consumption is small. The freight charged from Chantaboon to Bangkok is about 13s. 9d. per ton, and there is an inland duty of 1 tical per picul, equivalent to 1 $\frac{1}{2}$  7s. 6d. per ton. The prospects for 1893 are good. The quantity seems excellent, and there are no complaints of scarcity, though growers assert, if the price falls any lower, it will be impossible to continue cultivation.—*Consular Report*.

**The Rearing of Japanese Children.**

Custom and national sentiment would seem to have made the lives of children in Japan delightfully attractive for them. Japan has even been described as the "paradise of childhood. One of the most curious points in this connection is that the children are always suckled by their mothers; artificial lactation is altogether unknown. The children are suckled until their sixth year, and in language unmistakable may be heard asking for the lactation fountain. Thus, as no cow's milk is required, the cow is only used as a pack animal in the cities. In view of the almost universal use of cow's milk in other countries, its exclusion from the diet of the Japanese raises the interesting subject of inquiry as to whether or not the race benefits by this custom, and Dr. A. S. Ashmead, of New York, discusses the question in the current number of the *Sei-i-Kwai* medical journal. In the first place it is assumed that indirectly the absence of cow's milk is most beneficial. In consequence of no other nourishment being available, the Japanese mother is compelled to suckle her offspring, in doing which she feels the compulsion of looking after her own health and diet. Japanese mothers chiefly live on rice, "fish, shells, seaweed, and other products of the sea," while wine and beer are rigidly excluded. The reward of all this meritorious care of motherhood and childhood is the absolute freedom of the children from rickets. Again, the author holds that the transmission of tuberculosis is avoided by the exclusion of cow's milk from the infant's dietary. Japan is by no means exempt from tuberculosis, but the disease mainly prevails among the upper classes, in whom the systematic custom obtains of close intermarriage.—*Medical Press*.

**Agricultural Electricity.**

An interesting example of electricity as applied to farm work is now in operation at a Scotch farm. The whole of the usual farm machinery, such as thrashing, sowing, corn thrashing, and the like, is here driven by an electric motor. The electricity is generated by water power, the turbine wheel which drives the dynamo being about 1,000 yards from the farm. The electric current is conveyed by underground wires to the house and farm, in each of which a storage battery is placed. These supply the electric current for lighting and motive purposes when the machinery is not working. The whole of the mansion is illuminated by electric light, and an electric motor is provided for pumping the water for domestic purposes.