

few years. The seed are planted in good, rich garden soil, and in a short while they spring up. The young shoots should be transplanted within a year, for the roots reach out in every direction, and the best results are obtained from early transplanting. The trees should be set out in spaces of eight feet in either direction. The growth is exceedingly rapid, being uniformly one inch in diameter for each year. At the end of the sixth year the trees have attained a diameter of six inches. Then it is best for the trees to thin them out, cutting down each alternate row, and then each alternate tree in the rows that remain. This leaves the trees standing sixteen feet apart.

The trees that are cut may be used for posts and ties, and then the forest yields a fair return during the thinning process. "Pole ties" from oak trees are practically valueless, because of the sap in the latter years' growth of the tree. The wood that contains the sap soon decays, and this contaminates the rest of the timber. There is practically no sap in the catalpa, and "pole ties" from this wood last an indefinite number of years.

After the thinning-out process, the growth of the tree continues at the uniform rate of one inch in diameter each year, and catalpa trees at eighteen years old often reach as high as one hundred feet, thus yielding a large return of splendid lumber.

Among the large railroad systems to recognize the importance of tree planting in order to guarantee a supply of ties for the future is the Illinois Central. At a point near Du Quoin, Ill., two hundred thousand catalpa trees were planted three years ago, when President Stuyvesant Fish became interested in the work of the Arboriculture Society. These trees are thriving now, and in a few years, when the thinning-out process begins, many of the ties in the Illinois Central Railroad will be cut from this forest created in the heart of the vast Illinois prairie. The same road is planting similar forests in Mississippi, and contemplates the establishment of others.

#### ILLUMINATION OF THE WORLD'S FAIR.

BY ROBERTUS LOVE.

It was a rare occasion when first the bud of electric illumination at the World's Fair burst into blossom; and since that first night of informal rehearsal, every time that the lights have been turned on has been a rare occasion to those privileged to be present. Now that the public may enjoy this illumination each evening, the long-anticipated delight of the spectacle is being realized.

It is best to see the illumination at first from a considerable distance. One should get his first glimpse of this magnified fairyland from the outside of the grounds, or at any rate from a point a mile or so away from the "main picture," which is the center of illuminative features. The night should be dark, with neither moon nor stars visible, but free from clouds, so that the lights be not dimmed by the misty haze.

Riding around a curve on a trolley car, or topping the brow of a hill, one suddenly becomes aware of something wonderful in the distance, a mighty bouquet of light blossoming out of the darkness. For half a mile the flowers of light sparkle in the murk—clear, clean-cut, golden. The distance not only lends enchantment to the view, but mellows the lights to a soft glow soothing to the eyes. One beholds, glowing through the darkness, long lines of little lights, broken here and there into fantastic designs. Now a huge star breaks out, made of many lights. Yonder is circle after circle of gleaming brilliancies, far up in the sky. Still higher up is outlined a skeleton framework of lights, and you know that it is the illumination of a tower, though you see nothing whatever of the tower itself.

Lower down are parallel rows of lamps, in parallel-gram form, leading hundreds of yards horizontally and sixty or seventy feet perpendicularly, the perpendiculars crossing the other lines at frequent intervals, and ending in circles and diamonds and squares and crosses. You know that this is the outline of one of the mighty exhibition palaces, but you see nothing of the building itself. A glorious archway in electric lights marks a main entrance, and overhead a curious arrangement of lamps suggests a gigantic statue or a mighty pediment of reclining figures, though there is nothing visible of the statuary staff.

If you are familiar with the shapes of the buildings, you can distinguish one from another by these lights. The classic pillars on the colonnades of the Palace of Varied Industries flash themselves into fiery outline. The massive pylons at each end of the Palace of Transportation are heralded in the living language of the lamps. The Palace of Electricity is a gleaming telltale ghost of its own glories of architecture.

Yonder, high up on Art Hill, rises in lines of lights converging to a common center, the illumination that marks Festival Hall and its wonderful dome, and just below are the great fountains and the Cascades, leading down to the Grand Basin and the lagoons, which are spanned by bridges outlined in electric glow. At each side on the hilltop lights lead the vision along

the Colonnade of States to the towering twin pavilions with their lesser domes flanking Festival Hall.

Away down in the center of the bouquet of brilliance you behold a single flower rising above the rest, and you know that the name of this slender stalk is the Louisiana Purchase Monument. It is time now that you come nearer to the picture. As you approach, the darkness gradually melts from the vicinity of the little lamps, and you perceive the ivory-tinted exteriors of the huge buildings, glowing in the light of thousands of lamps. Stepping into the edges of the main picture, you are entranced by the scene. Lagoons and plazas and broad thoroughfares for promenade are made as bright as day. Thousands of people pass along the promenades, stand upon the bridges, or float in the many gondolas.

#### DEATH OF HENRY M. STANLEY.

Word has been received from England of the death on May 10 of that great African explorer and colonizer, Henry Morton Stanley. Following the lead of Livingstone, in relieving whom he first started to explore the "dark continent" in 1871, Stanley spent the best years of his life traveling through tropical jungles and tracing out lakes and rivers in the very heart of Africa, and to him is due the credit for solving her most puzzling geographical problems.

Stanley's life history reads like a romance. Born of Welsh parentage in 1841, his father, John Rowlands, dying when he was but two years old, the lad took to the sea at the age of sixteen, and worked his passage on a sailing vessel to New Orleans. Here he obtained employment from a merchant named Stanley,



THE LATE SIR HENRY MORTON STANLEY.

who befriended him, and whose name young Rowlands assumed in recognition of many benefactions. When the civil war occurred, he enlisted in the Confederate army, and he was taken prisoner at the battle of Shiloh. He escaped, however, and returned to his Welsh home. The next year (1863) he returned to America, and joined the Federal navy. He served on the flagship "Ticonderoga," soon attaining the position of secretary to the admiral, and afterward, on account of great gallantry in swimming 500 yards under fire and fixing a line to a Confederate steamer, he was made an officer. After the war he left the navy, and engaged in work as a newspaper correspondent. In 1868 he accompanied the British expedition to Abyssinia under Sir Robert Napier, acting as correspondent of the New York Herald. The following year the same newspaper sent Stanley on a trip through various countries of the East, and in February, 1871, he left Zanzibar with two hundred men in search of Livingstone. On November 10 of that same year, he found Livingstone at Ujiji, on Lake Tanganyika, in an almost helpless condition. After nursing him back to health, and making some explorations with him around the northern end of the lake, Stanley returned to Europe the following year. In 1873 he went to West Africa, to report the campaign against the Ashantis.

The death of Livingstone in Africa on May 1, 1873, and the interment of his remains in Westminster Abbey in April of the following year, made Stanley once more eager to attack the problems of the "dark continent." He was again sent out by the New York Herald and the London Daily Telegraph, and he left Bagamoyo, near Zanzibar, with 356 men (including

three white men) on November 12, 1874. The first great work he accomplished was a boat survey of the shores of the Victoria Nyanza. Following this he discovered Lake Albert Edward, and found it to be one of the head reservoirs of the Nile. He also found the Kagera, or Alexandra Nile, to be the main source of supply of Victoria Nyanza. In 1876 he sought in vain the outlet of Lake Tanganyika, as the level of this lake was then too low for water to flow through its outlet, the Lukuga, into the Congo. Although the expedition was greatly depleted by fever and smallpox, the intrepid Stanley traveled westward to Nyangwe on the Lualaba, which Livingstone and Cameron had visited before, and then he determined to follow the river to its mouth. Fighting his way westward through tribes of ferocious cannibals, he succeeded in making the 1,500-mile trip on the river which, upon his arrival at Boma, August 9, 1877, he found to be the Congo. This was Stanley's greatest discovery, for he proved that the Lualaba and the Congo were one. The journey cost him his three white companions and 170 porters, and he was exactly 999 days from the time he left Bagamoyo until he reached Boma.

Early in 1879 Stanley again went to Africa, this time for the purpose of founding the Congo Free State, making treaties with the natives, and planting stations on the Congo from Vivi to Stanley Falls, about 1,300 miles up the river.

Stanley remained five years in Africa this time, in order to accomplish his mission. He made treaties with 450 native chiefs, and in order to reach the upper part of the river, his native porters had to carry all his supplies and steamboats in sections for 235 miles around the rapids.

The great explorer made his final crossing of Africa during the two years from 1887 to 1889. This time he conducted an expedition in aid of Emin Pasha, the Governor of the Egyptian Sudan, who had been cut off by uprisings of the natives from communication with the civilized world. Ascending the Congo as far as its tributary, the Aruwimi, Stanley followed this river to its source, and then cut his way for months through well-nigh interminable tropical forests to the Albert Nyanza, which he finally reached December 13, nine months from the time he started. So hard had been the journey, that 215 out of 389 natives that began it with Stanley, perished on the way, while the 174 that were left were mere skeletons. In April, 1898, Emin Pasha appeared at Stanley's camp on the shore of Albert Nyanza. The explorer then retraced his steps through the great forest, in order to bring back from the head of navigation of the Aruwimi, a detachment of men which he had left there. Taking with him the few he found alive, he fought his way through the 250 miles of jungles for the third time, and again joined Emin Pasha in January, 1889, and conducted him to Zanzibar. In this expedition Stanley made his second journey across the continent, and, besides discovering the extent of the great forest, the water connection between Lake Albert Edward and Albert Nyanza, and the snow-capped Ruwenzori mountain chain that separates them, he accomplished the main purpose of his expedition—the finding of Emin Pasha.

Stanley's success with the natives in Africa was largely due to his patience, kindness, and tact. On account of these qualities, he was able to inspire confidence and win friendships readily. His planting of colonies on the Congo, and opening of this great highway to trade, was one of his greatest achievements, while the previous tracing of this great river from its sources to its mouth—which is graphically described in "Through the Dark Continent"—was undoubtedly his greatest. The finding of Emin Pasha terminated his life of exploration. After returning to England, of which country he became a naturalized citizen in 1892, he was made a Knight, and he devoted his time to writing of his travels. "In Darkest Africa," "My Dark Companions," and "Through South Africa" are the titles of some of his best-known later works. Sir Henry married Miss Dorothy Tennant, the artist, in 1890.

A movement is on foot to inter the body of the great explorer beside that of Livingstone in Westminster Abbey, and it seems to us that no more fitting place could be found than one beside that first great African missionary and explorer, whose work Stanley so largely completed.

The industrial development of Brazil is likely to be greatly enhanced by the recent discovery of coal measures in that country. The monthly bulletin of the International Bureau of the American Republics for last September reports that there has been discovered in Brazil, at a place called Cedro, in the township of Imbituba, State of Parana, a great deposit of coal. The coal-bearing area extends over 3,000 hectares (7,000 acres), and the samples taken from the upper strata were classified as "fat pit coal." These coal fields run through the center of Parana due north and south, and seem to be the continuation of the veins that traverse the States of Rio Grande do Sul and Santa Catharina.