

*nicus*, Geof., and *N. tardigradus*, L. Like the tarsiers, the lorises have large eyes which shine in the dark; but they have merely a short rudiment of a tail. At the top of the engraving are represented two of these animals. One of them is preparing for a frolic, while his companion is still in deep slumber. I have observed this animal while it was asleep, and the engraving well shows its usual attitude.

The slender loris is 10 inches in length. Its dental formula ( $\frac{2}{1} \frac{1}{1} \frac{2}{2}$ ) slightly approximates it to the carnivora, whose diet it shares. Its greatest treat is birds, which it seizes in the dark and devours the brain of. It is looked upon with an evil eye by the aborigines of the countries that it inhabits. The Ceylonese catch the poor animal, and torture it most cruelly. "The beautiful, large, bright eyes of the loris," says Tennent, "have attracted the attention of the aborigines, and it is for the possession of these that they hunt the animal. These organs enter into the preparation of certain love potions. In order to extract them, the natives hold the poor beast over a fire until the eyes burst." The same author adds that the slender loris is so fond of birds' brains that, according to the natives, it will attack the pea fowl while the latter is asleep, quickly crush its skull with its teeth, and then feast upon the contents. Like the tarsier, the loris does not appear to be able to live in Europe, and those that an endeavor has been made to introduce in menageries have died during the trip.—*M. Maindron, in La Nature.*

#### THE CYCLOPAMA.

The origin of this form of art is fancifully traced to the use of scenery by the Italians, two or three hundred years ago. They arranged, outside of their windows, scenes painted on canvas, that simulated extensive gardens. The American inventor, Robert Fulton, is said to have exhibited a panorama in Paris in the beginning of the present century. This was probably paintings of a series of scenes on a continuous canvas wound on rollers, and caused to pass across the stage. The circular or cylindrical painting, properly called a cyclorama, whose perspective is a matter of special calculation, and which is celebrated for its illusive effects, is more recent. It probably does not date back over fifty years.

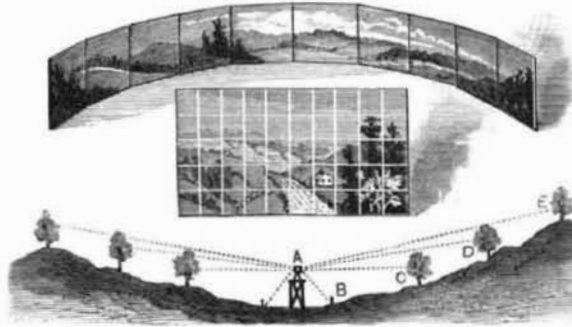
A cyclorama has, within a short period, been placed on exhibition in Brooklyn, illustrating the battle of Gettysburg. Irrespective of its artistic merits, which are very great, the technical details of its construction and the solution in it by means of photography of the problems of cylindrical perspective alluded to above possess much interest. The painting is contained in a large circular building on the City Hall Square.

The work covers a sheet of canvas four hundred feet long and fifty feet high. This is supported from the sides of the building so as to form a cylinder. A rail or beam of iron and wood combined is carried all around the upper part of the building like a cornice, resting on brackets. The upper edge of the canvas is nailed to this. The cloth is first rolled smoothly on an iron roller surfaced with wood, fifty feet long. This roller is about three feet in diameter. It is held vertically in a heavy framework that runs on tracks around the building. From the roller thus carried, the cloth is gradually paid out, eight or ten men being required, some on top and some below. As it is paid out, it is seized and held in pincers by one of the operatives, and its edge is tacked to the cornice beam.

This disposes of the upper edge. The lower edge is fastened to a circle of gas pipe, that runs completely around the building, and that is carried entirely by the cloth. At every third foot a twenty-five pound weight is hung, to stretch the canvas. The effect of the stretching is that the canvas loses the true cylindrical shape; its sides are no longer parallel, but curve slightly inward, about one foot in amount, at the center. Thus at the horizon line, the most distant part of the scene, the painting is about a foot nearer the vertical line, through the observer's position, than in the foreground. In absolute distance from his eyes the difference is still greater. Owing to obliquity of the line of sight, the foreground, that seems so near at hand, is really much further off than the horizon.

The next operation to be described is the painting.

This was carried out in this particular cyclorama so as to secure almost absolute accuracy. The landscape is really an artistic transcript of photographic views of the field. The artist went personally to the field of Gettysburg. On it he selected a point of view, and a small stage of the height of the proposed audience stage was there erected. Around the stage a line of pickets was driven in a circle whose radius was forty feet—less than one-half the diameter of the cylindrical picture. The distance was measured from the stage as a center. From the top of the scaffold three identical series of ten photographic views each were taken. In



PHOTOGRAPHING THE FIELD.

taking them, the instrument was newly pointed for every view, so that the entire horizon was covered. Each series shows the whole field of view in all directions. The arrangements were such that the line of pickets came just within the field. One series of photographs was taken for the foreground, focusing and exposure being adjusted for this special portion; two other series, identical in all respects except that by their focusing and exposure they were devoted to middle distance and background respectively, completed the set. The only difference between the three series was in the focusing and exposure. Each view was divided up into squares. The canvas was marked off by corresponding divisions and the photographs were copied square by square. This blending of the ten views and the aerial perspective was a question of artistic achievement. The out lines were determined, to a great extent, mechanically.

The painting was done from scaffolds, of which a number were used of different heights. These travel on the same track that carries the roller frame. The painting is in oil, tinsel being occasionally employed with excellent effect. Bayonets or equipments and bursting bombshells afford instances of its use. The artist personally did practically all of the work, the sketching and artistic details, besides attending to the superintendence of his aids.

The circular wall being thus covered, the foreground has next to be attended to. By platforms and earth this is built up irregularly and to a greater or less extent toward the center. Earth and sod cover the boards. Real trees, evergreens and others, with shrub-



DEATH OF LIEUT. CUSHING, 45TH U. S. ARTILLERY, AT GETTYSBURG.

bery, portions of fences, and the like are set about, and tufts of grass, wheat, and similar things, lend their aid to fill up the scene. The continuation of a road out of the canvas is colored to match the painting with brick-dust and earth mixed. In this way a genuine landscape is produced. Lay figures cut out of board also appear. One curious instance is shown in the illustration. Two men are seen carrying a litter on which a wounded man rests. The more distant soldier is painted on the canvas. The litter is real, two of its handles passing through holes in the canvas. The figure resting on it is made of boards in the most curious segments, that seem to bear no relation to the final effect. The nearer bearer is cut out of a flat board.

The illusion is simply perfect. No one could tell how much was painted or how much was real. Other scenes in the foreground are similarly treated.

The result of the arrangement is that it is impossible to tell where the painting begins, it blends so perfectly into the actual foreground.

The spectators occupy an elevated stage, access to which is by a gallery that runs under the scaffolding of the foreground, being completely concealed thereby. By winding stairs the platform is reached, and the result is that the spectator loses all orientation, and cannot tell north from south. While looking at the picture, he must live in its scene. Neither can he form any conception of the size of the building. Although it is known that it is of moderate size, no approach to the true dimensions can be reached by any process of estimation.

Over the spectators' stage a circular screen is suspended that shades it from the light that enters through the skylights. The spectators are kept, to a certain degree, in obscurity, while the daylight pours in upon the painting, especially upon its upper parts. The sky is thus lighted up, and a peculiar luminous effect, favoring the aerial perspective, results. At night a number of electric lamps, suspended around the screen and out of sight of the spectators, illuminate the painting. The arrangement is that of footlights reversed. The lights and the dynamos are of the Ball system.

It would have been easy to have executed the painting by the mathematical rules of cylindrical perspective. By the photographic method, the necessity for this was obviated. Had the ten photographs been reproduced without any blending, it is manifest that a ten-sided canvas would be the theoretically perfect surface for their reception. But as it is, the artist has carried out the work so well that the perspective, aerial and linear, is beyond criticism.

The canvas is imported from Belgium, none being manufactured in this country that would answer the purpose. It is nine yards wide, and the seams run up and down.

The artist, Paul Philippoteaux, has been identified for many years with this form of art work. He was born in Paris, in 1846, studied under Cogniet and Cabanel, and won great success as a historical painter. With his father he painted a cyclorama of the defense of the Fort of Issy, which was exhibited for fourteen years in Paris. Some nine cycloramas have since been painted by him, and the one we are describing is his fourth Gettysburg.

Many of the details of the present picture were obtained by him from eye-witnesses. The uniforms, modes of carrying blankets, and the details of harness and of minor parts of the scenery were studied carefully. In the foreground are scattered some real pieces of harness and similar objects, and they compare perfectly with what is seen on the canvas.

We also show one of the scenes from a sketch by M. Philippoteaux—the death of Lieut. Cushing. This episode occurred when Pickett had nearly reached the Union line. Cushing's battery—the 45th U. S. Artillery—was all silenced with the exception of one gun, and he was mortally wounded and on the point of death. He managed to run his gun forward, and told

General Webb (now president of the College of the City of New York) that he would give them one more shot. He fired his gun, cried out "Good by!" and fell dead. This incident appears in the foreground, and serves to establish the position of the spectators. The platform stands in the center of the Union line.

#### Propagation of Flies.

Their particular office appears to be the consumption of those dead

and minute animals whose decaying myriads would otherwise poison the air. It was a remark of Linnæus that three flies would consume a dead horse sooner than a lion could. He, doubtless, included the families of the three flies. A single fly, the *Naturalist* tells us, will sometimes produce 20,000 larvæ, each of which, in a few days, may be the parent of another 20,000, and thus the descendants of three flies would soon devour an animal much larger than a horse.

To mix sulphur for making joints under engine beds, melt the sulphur in an iron ladle in the same manner as with lead; only, cover the ladle, while melting, with a piece of iron to prevent fire.