THE NEW GAS HOLDER OF THE CONSOLIDATED GAS COMPANY, OF NEW YORK.

The largest gas holder in America is now rapidly approaching completion in this city. It is situated on Avenue C, occupying the block between Fifteenth and Sixteenth Streets. During the past summer the great framework has formed a conspicuous object for passengers on the steamers passing through the East River. When the sections of the holder proper rise between the uprights of the frame, the structure will appear still more impressive.

From the engineering standpoint, it is of special interest. The problem presented was the erection of a holder of the largest attainable capacity upon a piece of ground which not only was limited in area, but which was of the most unstable character at any great depth below the surface. To have made the usual excavation and to have built within it a brick tank would have been very expensive. The upper stratum of earth was what is called made ground, composed of dumpings from all parts of the city, underneath which quicksand was liable to be found at all places.

For these reasons it was decided to dispense with the sunken brick tank, and to build an iron one resting practically on the surface of the ground. To economize depth the holder is made in three sections, telescoping into each other. Thus the holder can rise above the tank curb to three times the height of the tank.

The ground where the tank stands was leveled off by excavation to a depth of about eight feet. One thousand twelve-inch piles forty feet long were driven over an annular area lying mostly within and corresponding to the general circumference of the tank. This left a circular area without piling in the center. Two feet of concrete were now laid, and on this the bottom plates of the tank were placed. The entire foundation is two hundred feet in diameter.

The tank is made of wrought iron. The plates at the lowest course are ⅜ inch thick, and are laid double, so as to give 1¾ inch thickness of metal. The plates are arranged to break joints. Where two plates abut, a strap of iron with six rows of rivets is carried over the joint. For each of these butt joints there is one strap, either inside or outside the tank, according to the locality of the joint. As the sides rise they diminish in thickness. The tank is 192 feet in diameter and 42 feet 9 inches deep.

Around the top of the tank a box girder is carried which forms the curb. Upon this the twenty-four standards used to guide the holder rest. These are made of iron channel bars and are tied together by lattice girders, of which several courses surround them. Between the girders diagonal bars extend, crossing in the center of the panel. At their crossing they are secured, so as not to strike against each other in stormy weather. At the top special trussing is used to resist any outward thrust that may be brought to bear upon the standards. The framework rises 125 feet above the curb, or about 150 feet above the street level.

The holder, as already stated, is in three sections, each about 41 feet high. At the upper curbs each section carries twenty-four roller brackets. The rollers work in guide rails carried up the uprights. The brackets are provided with both radial and tangential rollers. The first kind is identified with English and American practice; the tangential rollers are of French type. The combination of the two in the same bracket originated in England, and we believe is used in this holder for the first time in America. In the holder we are describing, the radial rollers are the larger and more securely fastened; the tangential rollers, comparatively small, are treated as subsidiaries.

The crown of the holder is stiffened circumferentially by a box girder. This is contained within the holder and is practically concealed. The outer circle of top plates and the upper circle of side plates form two of its sides; a horizontal circle of plates within the holder forms the lower element, and the open side is filled with lattice trusswork, so as to allow the gas free access. The crown is provided with internal radial trusses, extending to a central kingpost, which carries their inward ends when the holder is empty.

The general structure is based on recent English practice. The old style of columnar frame is departed from, and the securely braced uprights, with horizontal and diagonal bracing, recall the framework of the great Birmingham holders, illustrated in a former issue of this paper.*

The capacity of the holder is three million two hundred and fifty thousand cubic feet. Separate pipes are provided, one for inlet and one for outlet. They are thirty inches in diameter.

An impressive idea of its magnitude may be formed by ascending to the tank curb. The great crown lies on one side of the observer, and the East River is in clear view. As a schooner sails by with all sail set, the observer may recollect that there would probably be ample room to dock her, masts and all, within the gasometer when inflated.

Our illustrations give an excellent idea of the immense work, and also show the apparently risky work that has to be done in securing the diagonal members of the frame. It is gratifying to note that no life has yet been lost in the erection.

* See SCIENTIFIC AMERICAN, Sept. 4, 1886.

An Anaconda Killed in the Streets of New York.

It came out of the manhole of a sewer near the corner of First Street and Second Avenue on Wednesday afternoon, October 3, just as school was letting out at grammar school No. 79, on First Street, a few doors away, and hundreds of children were pouring out. When first seen it was gliding along First Street toward First Avenue. The children saw it and shrieked.

"Look out for the crocodile!" screamed one of them as they ran. Their cries brought hundreds more of persons flocking from doors all along the block, and heads appeared at every window. The school janitors and other grown persons hustled the children back into the building and up the high stoops in the neighborhood. As the snake moved along, men, women, and children fled before it, screaming warnings to others ahead.

At first the snake took its time about covering ground, but in a minute or two the throng pressing closer behind it apparently annoyed or terrified it. It stopped and threw itself into a coil, with three or four feet of very vicious-looking body vibrating upright from the center and a mouth eight inches long gaping open to let a forked tongue spit out. The children screamed louder than ever, and everybody that could run did so.

It was at this moment that Mr. Burckhardt first saw the snake that he had coiled up in his market basket the day before. The noise in the street had called him to his window, and just as he had taken one look at it the creature sprang forward. Mr. Burckhardt's hair still rises perceptibly as he tells of it.

"I could just see it as it flashed by," he said. "Four men had run out from the wheelwright's shop with whatever they could lay hands on for a club. The snake stopped again, seeing the crowd, and made itself into a coil ready to spring. One of the men jumped forward and hit it a terrible blow on the back of the neck. It dropped to the pavement, and before it could get up again the rest of the men, and everybody else that could get anything for a club, were on top of it, hammering the life out of it. It fought desperately, but it had no chance."

The snake is undoubtedly a genuine anaconda, nearly full grown. Its body measures easily a foot in circumference at its thickest part, and its length of nine feet six inches was verified by Mr. Burckhardt, who stretched it out on his floor and measured it. It is so cut and bruised from the beating it had with clubs that it is doubtful if its skin can be preserved. It is supposed that it came from some South American vessel unloading at an East River dock, crept into the sewers and along them to the place where it reached the street. Some sailor probably brought it from South America. It may have come from there when young, hidden in fruit or other cargo, and have grown to its present size in the sewers, but that is not likely. —*N. Y. Sun.*

Electric Light in Night Firing.

The *Weser Zeitung* gives an account of an interesting series of trials recently made in Germany for testing the value of the electric light in night firing. The targets were placed at a range of 400 meters from the riflemen, while the electric light generator was situated 200 meters behind the firing party. The apparatus consisted of a steam engine, an electric dynamo mounted on a carriage, and a projector. The steam engine registered 18 horse power. The light was obtained from an incandescent lamp, which may be placed at a distance of 200 meters from the dynamo. The intensity of the cone of light produced by the arc is so great that pencil writing can be read at 4,000 meters. The result of the experiments was that nine shots out of ten struck the targets. The apparatus can only be placed *hors de combat* if a shot should strike and break one of the carbon supports, but this is an extremely improbable contingency. The illuminating wagon, as it is called, has been attached to the Prussian engineers, and will be used in the attack and defense of fortresses. Its weight is too considerable to admit of its being extensively used in the field.

Effect of Flour Mill Dust.

In order to test the effect of constant inhalation of dust in flour mills on the animal organism, M. L. Poincarre kept guinea pigs for two years in the most dusty part of a flour mill—that is to say, the department where the corn is cleansed from all extraneous matter by a special machine before being ground. Of twenty animals, ten remained alive at the end of two years. Those that died were mostly young ones. None of these showed traces of tuberculosis, but catarrhal pneumonia with profuse desquamation of epithelium; also in some cases localized interstitial pneumonia and extravasation of blood. Dust, consisting of grains of starch, etc., was found, more particularly on the nasal mucous membrane, but only to a small extent in the bronchi.—*Lancet.*

Correspondence.

Beating the Weighing Machine.

To the Editor of the Scientific American:

The SCIENTIFIC AMERICAN of October 13 contains an article, "Beating the Weighing Machine." The writer has witnessed a worse beat than the one mentioned. One of these machines is stationed at a certain railroad station in this State. The same room contains a newsstand, attended by a boy who will tie a string to a nickel, step on the platform, drop the nickel in the machine, and get his weight. Before stepping off, he calls up next, the machine giving their combined weight. The boy steps off, at which the machine gives the correct weight of No. 2. This process is repeated until the supply of subjects to be weighed is exhausted. Now, before the last party steps down, the boy, who has held on to the string all this time, carefully pulls in the string and gets his nickel back. I am of the opinion, when this machine is examined for cash, there will be little found. "S. M."

Indianapolis, Oct. 13, 1888.

Black Snake with a White Ring.

To the Editor of the Scientific American:

In your issue of October 6 last I noticed an article on "Habits of the Black Snake," taken from the *Forest and Stream*. With your kind permission, I would like to make an exception to the above article.

The writer, in referring to the black snake with a "white ring" around its neck, writes with considerable emphasis as to the "white ring" being "all imagination," and claims that "natural history does not mention the species."

The latter assertion I am not sufficiently informed upon to write with any degree of certainty. As to the "white ring," however, I have in my possession a small snake as black as the "ace of spades" with a perfect white circle around its neck.

I have killed several of the same species within the past five years.

They are quite rare, however, and out of three or four hundred snakes that I have dispatched within that period, of all descriptions, from the harmless garter to the deadly copperhead, I find, upon careful comparison of habits and form, that differ only in length, the "white ring" measuring from 16 inches to 2 feet 6 inches, while those without the rings vary from 1 to 7 feet. The scarcity of the former, however, may account for the absence of the large ones.

I have not the slightest doubt, however, there are "white rings" as large as their "solid colored" friends, and if not classified, must be closely related.

At all events, there is such a reptile as a black colored snake with a "white ring" around its neck, and black and white are the only colors found upon the snake in question. An old stone fence or rubbish heap seems to be the favorite abode of the "white ring." Sometimes it is captured on a dry, dusty highway, sunning itself, or twisted around some stunted oak or maple in search of birds, field mice, and toads.

As to being chased, I cannot speak from experience, as I never have been in the humor to run. I prefer fighting every time. I know of timid people, however, whose word could not be doubted upon ordinary occasions, who speak with great positiveness as to running away and having a big snake chase them.

In the warm spring days, when the black snake is mating, I have noticed him to be more aggressive than at any other time, and would show fight in preference to running away. W. S. POST.

Saugerties, N. Y., Oct. 8, 1888.

Brick the Best Building Material.

Insurance men, as a general rule, claim that a building which is largely constructed of iron is not necessarily fireproof. This may be true to a great extent, says the *American Builder*. Iron, when heated, bends very readily under weight, and therefore of itself cannot be called fireproof. There is much, however, to be said in favor of iron construction. It prevents fire from spreading, and unless there is a large amount of inflamable material within reach of the flames, there is little danger that fire will make very much headway.

Stone and granite are very little better than iron to withstand the ravages of fire. There is no material that can be used for construction equal to brick. Every brick bears its own weight. Bricks have already passed the fiery ordeal before they are used in buildings, and are tempered. Cast iron is not substantial enough, and wrought iron, which is an improvement, stands fire but little better. For a fireproof building we would construct one of fire brick. Then glaze them and give them a good appearance, which is rather ornamental than otherwise.

There are, however, many kinds of material made for the purpose of fireproofing a building after it is constructed, but we are only speaking here of material which is used in construction, and we have the opinions of both insurance men and heads of fire departments, who vie with each other that brick has stood the test better than any other material.

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