

GREAT WORKS AND THEIR COST IN HUMAN LIVES

Spanning Wide Rivers, Erecting Skyscrapers, Boring Tunnels and Subways, Not Done Without Many Fatalities.

Tales of Heroism Relieve Recital of Appalling Disasters—Hairbreadth Escapes and Startling Adventures Form Part of the Building Up of the Great City of the Future—"Immunes" Sought All Over Earth.

New York.—Not millions of dollars alone, nor the skill of designers, nor the cunning of craftsmen enter into the making of a great city. Skyscrapers, bridges, tunnels and subways must be purchased at a heavy cost of human life. Few realize how many men die that a great public work may be created. Engineers and builders say that the sacrifice is inevitable. Six tunnel systems are being constructed under the North and East rivers. According to one estimate, there is one man killed in them, on an average, for every day of the year. A well-known engineer has estimated that every floor of a modern building of pretentious size has cost a life, either in the forests where the timber has been cut, in the coal and iron mines, and stone quarries, the steel mills, the caissons sunk deep in the earth for the foundations, or in the steel superstructures that rise like a lance to the sky.

Hairbreadth Escapes.

Yet the spirit of adventure walks hand in hand with death. While many lives were lost that the Brooklyn and Williamsburg bridges might be built, there were escapes by the workmen engaged on them that would seem grotesque and improbable if put into a novel. A man may die for every day of the year during the construction of a caisson or river tunnel, but the men who escape tell stories that would enhance the fame of Hugo, Poe, or Eugene Sue. The sacrifice of life in public works, too, is a story apart from the record of seven lives ended by violence in this city for every day in the year. It takes no count of the men, women and children killed by

terminal works, 20 in the Belmont tunnel, two in the subway borings under the East river, and three in the Hudson company's terminal at Church and Dey streets.

The erection of the Brooklyn bridge between 1870 and 1883 advanced to the accompaniment of casualty and death. John A. Roebling, the first engineer in chief, lost his life as the result of his responsibilities and an injury received while at work on the bridge. His eldest son, Col. W. A. Roebling, succeeded him, but the bridge was still in its early stages when he became an invalid from exposure, overwork and anxiety.

Border on Humorous.

Some of the escapes, miraculous as they seemed to be, were not without their suggestions of humor. One workman fell from the Manhattan anchorage to the ground, 80 feet below, struck a pile of lumber, and lived to tell of it. He struck the lumber with such force that he broke one of the planks neatly in the middle. Another workman plunged into one of the well holes in the Brooklyn tower. At the bottom, 104 feet below, was a pool of water with an empty cement barrel floating around in it. The falling man landed on the barrel and rolled off into the water. He was only slightly hurt.

An unprecedented record was made when the Williamsburg bridge was built between 1897 and 1904. Although as many as 250 men worked at once under compressed air in the caissons, not a single death from "the bends" was reported. The hard lessons of the Brooklyn bridge cais-

son were learned. At first the "sand hogs" worked in eight-hour shifts. The working periods were gradually reduced as the caissons sank deeper and deeper beneath the river bed, until, when the workmen were 107 feet below water level, the shifts had been reduced to two of 45 minutes each. The "sand hogs" were provided with dressing rooms, hot baths, steam elevators to carry them to the surface, and plenty of hot coffee. Some of the men were

attacked by caisson disease, but none of them ended fatally.

This great public work was not to be accomplished, however, without the usual tribute of human life. The working force on the bridge varied from 400 to 800 men. Twenty of them were killed, mostly by falls. As was the case with the Brooklyn bridge, some of the escapes were grotesque, some almost miraculous.

Williamsburg Bridge Fire.

Many New Yorkers will recall the splendid spectacle one night early in November, 1902, when burning oil and woodwork atop the Manhattan tower of the bridge shone over the city like a blazing meteor. Then the firemen, powerless to fight the blaze 100 feet in the air, watched the flames spread

those killed or injured, 156 were workmen, three belonged to the engineering staff, and 17 were persons not connected with the operations. In the two years the subway cost 16 lives, all but one of the victims being workmen. Again in 1902 the list was formidable. Twenty-one lives were lost and 214 persons were hurt, 199 of them being employees.

Dangers of Compressed Air.

With all precautions it is apparently impossible to prevent "the bends" claiming its victims. Two "sand hogs" died in one day last October, for instance, because, as the doctors believed, they had passed too quickly from the compressed airlocks to the surface. A conspicuous example was the death of young Channing Bellard

on January 8, last. Bellard was a big, husky fellow, a graduate of Cambridge Latin school, and an expert electrician. He started to learn tunneling, and decided to begin at the bottom by becoming a "sand hog." He passed the examinations and went to work on a Monday morning as a hydraulic fitter in the Pennsylvania tunnel under the East river. When he came to the surface that night he almost fainted with "the bends." The physician took him back into the tunnel, put him in the medical strick at the foot of the shaft, and, as is usually the case, "recompressed" him—that is, treated him under the pressure of compressed air. The next morning Bellard was unconscious. He was sent to a hospital, and died that evening. In his case it was said that he had Bright's disease which developed rapidly under air pressure.

Search World for "Immunes."

The necessity of obtaining "sand hogs" with these peculiar physical qualifications, with tunnel building in this city to an extent hitherto unprecedented for tunnel workers, and not a little difficulty in obtaining the required number. The Pennsylvania railroad, for instance, literally searched the world for men of experience to build the tunnels. On the cross-town shafts they have scores of Austrians who get their experience in the Siphon tunnel. The engineers and foremen include men who have tunneled in Egypt, South Africa and England. As many as 5,000 men have been employed at one time on the McAdoo tunnel project. On account of the constant menace to life and limb, their wages are proportionately large.

Lives Lost in Subway.

In the building of the subway there have been nearly 750 accidents, costing 90 lives, or four victims for every mile of track. Hardly had the work been started, in 1900, when falling rock in the south heading of the One Hundred and Sixty-eighth street tunnel killed five workmen and injured two others.

The explosion of dynamite in the same section of the work, near Forty-second street, on January 27, 1902, shattered the windows for blocks around and killed five persons, four of them being in the Murray Hill hotel. In October, 1903, another fall of rock near Fort George killed ten workmen.

It was not these more serious accidents, however, that swelled the list of dead in subway building to a formidable total. Rather was it the casualty to single workmen or to some careless bystander—death in the dark recesses of the East river tunnels or a Harlem bluff, the results of a misstep that sent a workman crashing into the depths of an open trench, or lives snuffed out by miscalculated blasts, or an avalanche of soggy soil. In 1900, when the subway was started, 27 workmen and eight outsiders were involved in accidents more or less serious. Constructive work was in progress at many points in 1901, and the number of casualties was swelled to 176. Of

Chief Cause of Danger.

The large number of casualties on the North river works is explained by the peculiar difficulties of the work. The East river tunnels were driven largely through rock. In the North river the tunnels must be driven through masses of soft silt, varying from oozy mud to treacherous quicksands. The compressed air must be maintained at a higher pressure to keep out the water. The danger is greatest from a "blowout" or a leak, with its sudden inrush of water. Indeed, the old heading of the tunnel which crosses the North river at Morton street was abandoned at one time because so many lives were lost by "blowouts."

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NOT ALL MATTER OF MEMORY.

Peculiarity in Numbering Rooms Helped Hotel Clerk.

When it got as far as the cigars at an informal supper the other night, at the most-talked-of New York hotels was the host, the talk turned on the perfection of modern hotel management. The manager boasted of the fact that in his house at least the clerks were paragons of memory and cleverness.

"Yet I will make a bet of a bottle," said one of the guests, "that exactly at midnight when the clerks change, I, having no room here, can walk to the desk, ask for the key of a certain room, giving the number, and get it."

"Done," said the manager.

Exactly at 12 the man making the bet entered the lobby as if he had just come from the street. This dialogue followed at the desk:

"My key, please—No. 78."

"Yes, sir; what name?"

"Mr. Johnson."

"Yes, Mr. Johnson."

The clerk turned back to the desk

SAFEGUARD THE HOME

GOOD CITIZENS ARE THE BULWARK OF THE NATION.

EDUCATION AND PROTECTION

Two Vital Things to Be Considered by Those Who Would See the Greatest Progress and Advancement.

Where is found the greatest advancement and civilization there is also found among the people the highest type of fealty and love of home. The American homes are the most substantial pillars of the nation's greatness, and in American citizenship is found the bulwark of our republican government.

Where the home life is ideal, there is found genuine patriotism which is always commensurate with the enlightenment and the domestic happiness of the people. How important it is then that every safeguard be thrown about the home, which is the hotbed where are produced for development all the strength that is necessary for the perpetuation of a government and the maintenance of a nation's greatness.

The student who will study into conditions of the countries that are continually wrecked by internal turmoil, such as Russia and the Central American republics, will discover the homes are far from ideal homes, and that there is an absence of the love of country that should be found in the hearts of its citizens. There is a duty that involves upon all, and which is due to the generations growing and to come.—The duty is to surround the home with such environments as will make it attractive and develop in the growing youth the highest qualities of manhood and womanhood. Where the people are oppressed by monarchy and feudalism there is no incentive to develop the highest state of home life. In America where all are upon an equal plane and opportunities are open to every citizen, and where the people are secure in their rights to homes, there is every reason why each one should make the greatest endeavor to found for himself and his progeny a residence place that will be sure from intrusion and be an incentive to higher mental and social development.

Education is all important and no other country in the world offers to all such glorious advantages to real civic enlightenment as does the United States. It is important that the home be located near good schools. Good schools are generally found where there are good homes and good towns. The quality of citizenship of a community can generally be gauged by the standard of its educational institutions. It is important to the home builder that the town wherein he is located or which he may reside near, be a progressive place. And the better that this town be, the better will be its educational facilities for the youth. It is essential to the greatest good of a community that it be realized by all residing within it that the more wealthy it can be made, the greater will be its advantages both as to education and otherwise. By support to home institutions the home is made better in every way. Patriotic citizens will make it their first aim to be loyal to their own home interests and then their state and nation. One who is loyal to home is generally faithful in the performance of all the duties that good citizenship implies.

Importance of Good Roads.

The town that has good roads leading to it is blessed. Surely there is no more disagreeable thing, nor anything more adverse to the business interests of a place than impassable boggy roads. There is a little excuse in the well settled community for poor roads. It may in the beginning be somewhat expensive to put the roads in order, but in the end it will prove that the saving in wear and tear on wagons and horses will well repay all the additional expense. And to the town good roads are almost vital. The average farmer would rather drive three or four miles farther to a town over good roads than do his trading when it is necessary to go hub deep in mud to the nearer place.

Contrary to Home Building.

Trade is the life of the agricultural town. Any system that diverts this trade is injurious to the community. Here lies the evil of the mail order system. By drawing the trade from the towns, the principal support goes, and with its going disappears the employment for the people, the school system, and the churches and all the advantages that the town affords to the people of the community. Not alone this but home markets are destroyed and the farmer finds the value of his land reduced. Have the importance of home trading and home support instilled into the minds of the farmers in general, and there will be a rapid falling off of the catalogue house patronage.

Who Makes the Town?

The editor of the paper at Coyle, Okla., asks in large letters, "Who makes the town?" To make a town requires the work of many people. It is surely not the man who earns his wages in the town and then spends his earnings elsewhere; not the farmer who sells his produce to the home merchant and then takes the money to the express or post office and sends it to the Chicago mail order house for the goods he needs; nor the minister who is paid for preaching by the business interests of the place, and spends his spare time in working up grocery clubs for an outside concern. No, brother, these men do not make towns.

Muet Do the Work.

A new regulation in Victoria, Australia, makes it an offense for a substance to be sold in that state as a disinfectant unless it will, when used as directed, kill the germs of disease, and the explicit direction for its use must appear on each bottle or wrapper. The total imports of disinfectants into the commonwealth of Australia amounts to about \$250,000 per year.

Misfits in Songs.

"I'm going to see a new American play to-night," she was saying. "It's by an English author. All the best American plays these days are written by English authors."

"I hope they are more apropos than the songs they write," remarked her friend. "Have you forgotten the English song that had a chorus about the 'Cotton fields way down in Old New Jersey'?"

Smallest Church.

At Penon, Mex., a suburb of Mexico City, may be seen what is perhaps the smallest church in the world. It nestles under the shadow of a small volcano. The church is about ten feet high and twelve feet wide. Whenever a couple is married at the little altar of the church there is barely room for the bride and bridegroom to turn around at the same time.

Panama's Need.

In January last Rev. J. J. Kiplis Fletcher was sent out by the Presbyterian board of home missions to the Panama canal zone to report on moral conditions there and the need for mission work. He found a total white population of about 3,000 and constantly increasing; the colored population was about 15,000 and also increasing; about one-half of them are English-speaking negroes.

NO TIME FOR STUDY.

People Who Are Either Too Busy or Too Indolent for Self-Improvement.

That person who takes no interest in affairs of his fellow men, who fails to keep himself informed as to what is transpiring around him, is far from being either progressive or well-informed. These days when papers and magazines are so plentiful and so cheap, there is little excuse for the average person not keeping closely in touch with events, and particularly keeping enlightened as to what is transpiring that may affect his own individual interests.

One of the great beauties, and an extraordinary privilege of our American form of government, is the right of every citizen to take a part in public affairs and particularly in governmental transactions. How many follow party leaders, perhaps blindly, and too late find that they made errors through not having understood the situation? How many who are negligent in the study of measures that are brought up for consideration both by state and national legislative bodies, and too late find that unwise laws were enacted that directly or indirectly affect their interests? How many people are gathered in by alluring promises made in the finely printed literature sent broadcast through the country for the purpose of exploitation of fraudulent stock companies, just through not keeping informed as to the means and methods employed by schemers to entrap the unwary? It is conservatively estimated that each year more than \$50,000,000 are taken from the earnings of the people just through the operations of fraudulent tin mining, oil, insurance and like concerns. It would be impossible for the promoters of such frauds to exist were the people careful readers of the newspapers and the magazines, the pages of which are filled with accounts of the doings of "get-rich-quick" schemes.

These days there is every opportunity for self-improvement. Rural deliveries carry papers to the most remote farms, and telephones connect the farmhouses in the average community. If the people were only to utilize the means so close at hand, and to take the time to read, and examine into such propositions as interest them, there would be less cause for complaint on the part of those who perchance get their "fingers blistered." It is evident from the success that the majority of people lack good business judgment, or that they are blinded by some inherent gambling desire. It is always a safe plan to avoid any investment that offers more than legitimate returns on an investment. Any proposition that will pay even ten per cent. a year, and where the principal is secured, can find all the capital that may be required for its operation, without calling upon the general public. It is only the uncertain kind of investments, the ones that are a "gamble," such as mining, and the like, that are most prominent in the advertising columns of the papers. The basis on which the promoters work, is the inclination of the people to seek great returns for little money. It is the same sentiment that allows numerous establishments located in different parts of the country to dispose of cheap goods at enormous profits through holding out to the people the promise of extraordinary values. The well-informed man will avoid all kinds of investment schemes that are designed to draw money from the pockets of the people, and will also refuse to buy any "pigs in bags," it matters not whether the matter of barter be stocks and bonds or the necessities of life.

TEMPERANCE NOTES

SCIENCE VS. LIQUOR.

The Former Placing the Latter in Disreputable Light.

An interesting address by Dr. E. O. Taylor, of Boston, delivered before the recent Anti-Saloon League convention, held at St. Louis, Mo., gives the keynote for American temperance reform. Dr. Taylor spoke on the subject: "Science versus Liquor," and said in part:

"According to conservative estimate, 150,000 people are destroyed every year in this country, directly or indirectly, for lack of very little and very simple knowledge touching the nature of alcohol and its principal effects upon the living human body.

"We have temperance sentiment enough in this country, such as it is. The brewer, distiller, drinker and drunkard all alike believe in temperance, none of them believe in intemperance, and that is temperance sentiment. The trouble is that it is not intelligent, up-to-date, or scientific sentiment.

"The question with scientific men is not distinctively one of beer or whisky, but the question of alcohol, wherever alcohol may be found. What is this thing we call alcohol? Is it good or bad in its nature? Does its character, not its abuse, so-called, adequately account for the badness of its fruitage? Let me refer to a notable fact. In Europe they have an international temperance congress. It started out a few years ago to discuss the abuse of beer and whisky—how to dispose of such abuse. Quite recently that congress changed its name to the International Anti-Alcohol congress, which is now discussing the inherent badness of alcohol—how to dispose of its use for beverage purposes.

"Just as long as the people—the masses—consider liquor as good in its nature and its abuse only bad, will they go on drinking it in spite of any restriction you may advise, and just so long will voters and legislators go on temporizing with the traffic legislatively. I would not have a whit less of prohibitory legislation, but a thousand fold more of fundamental educational work by which to sustain such legislation.

"Dr. Hadley, president of Yale university, recently said: 'As soon as the common people get into their possession the principal facts touching the nature of alcohol, they will drive every saloon out of the country.' To impart that necessary knowledge is consequently the first duty of the hour—not the last. But such a process implies education—scientific education, and that of a majority of voters. Such education is only possible ultimately through the medium of the public school system where scientific instruction can be adequately given, and where the majority of the future voters are to be found.

"The inexorable logic of Dr. Hadley's statement, then is that the faithful, systematic, progressive, scientific teaching concerning the nature and consequent effects of alcohol, beginning with the primary grades and continuing through the habit forming period of the intermediate to the high school, is essential to the ultimate and permanent overthrow of the drink habit and traffic in this country."

A DYNAMITE EXPLOSION



WORKMEN STRUGGLING TO BE FIRST OUT OF A FLOODED CAISSON

A GAVE-IN



FALLING 150 FEET TO THE EAST RIVER

WORKING 200 FEET ABOVE THE RIVER

HE CRAWLED SLOWLY TO THE BROOKLYN TOWER



PARASITE ATTACKS FLORIDA'S GIANT TREE, WHICH IS OVER 300 YEARS OLD.

The famous great oak in the beautiful park surrounding the Tampa Bay Hotel, and which is known as the De Soto oak, for the reason that De Soto camped under it when he landed on this coast, is doomed to death. It has been attacked by a parasite which has killed whole forests in Florida.

The parasite is a sort of moss which blows off other trees with the wind. Whatever tree it lands on there it sticks. The parasite burrows into the tree. It breeds very fast, and the moss it makes grows just as rapidly. Whenever it lands on a tree, the beginning of the end for the life of that tree is settled fact.

Strangely enough, too, it produces a plant in the branches of the tree very much like a water lily in appearance. It blooms and produces a remarkable effect when the flowers are on. In time the moss hangs down in great confusion from every branch

HEARD HIM.

Boarder (to landlady)—Did you hear me come home last night?

Landlady—Did I? I heard you coming home for several hours.—Translated for Transatlantic Tales from the Legende Blatter.

BOYER'S ESCAPE.

Some of the escapes, miraculous as they seemed to be, were not without their suggestions of humor. One workman fell from the Manhattan anchorage to the ground, 80 feet below, struck a pile of lumber, and lived to tell of it. He struck the lumber with such force that he broke one of the planks neatly in the middle. Another workman plunged into one of the well holes in the Brooklyn tower. At the bottom, 104 feet below, was a pool of water with an empty cement barrel floating around in it. The falling man landed on the barrel and rolled off into the water. He was only slightly hurt.

UNPRECEDENTED RECORD.

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