

Seven Great Wonders of Science Perfected in the Year of 1907

Great Britain Produces the Largest and Fastest Steamships--The Singer Building in New York Tallest in the World--The Dirigible Airship a Success--Edison's Concrete House--Electricity To Move Trains--Picture Telegraph.

(By Ada May Kreeker in Chicago Tribune.)

The dirigible airship recognized by England, Germany and France as a necessary adjunct in military equipment and successfully maneuvered by the soldiers of those nations.

The electrification of railroads, the Southern Pacific having hatched motors to trains carrying freight over the mountains of California.

The practical application of transatlantic communication by wireless telegraphy and the sending of press dispatches.

Thomas A. Edison's concrete house made practical, placing a substantial home within reach of the laboring man.

Transmission of checks, signatures, and photographs by telegraph, making fraud impossible and furnishing newspapers and magazines with illustrated dispatches.

The fort-eighth story Singer building in New York, 612 feet high, with 914 acres of floor space, and housing 6,000 people.

The Lusitania, the world's greatest passenger steamship burning 1,000 tons of coal a day and carrying 3,000 people across the Atlantic in about four days.

The seven wonders of science for the year 1907, are New York's forty-eight story Singer building, England's 30,000-ton steamship Lusitania, the transatlantic wireless telegraph now operating, the war airship under trial by several nations, the electric locomotive, Edison's concrete house, that can be built in a few hours, and the camera photograph.

The Singer building marks a new era in world architecture, the era of the skyscraper. The skyscraper is twice as high as the skyscrapers and higher than the Washington monument, which rises above the Potomac River 555 feet. The top of the cupola of the Singer building is 612 feet from the base, two-thirds of the height of

France's famous Eiffel tower. The building is in two parts, the fourteen story skyscraper, and on top of it a tower sixty-five feet square, with twenty-seven additional stories. The floor space of the whole has an area of nine and one-half acres, and when fully occupied will accommodate about 6,000 people, a city in itself.

BUILDING REALLY FIVE TOWERS.

From the engineers' viewpoint, the most interesting feature of the skyscraper is the way it has been built in order to resist the hurricanes that sweep over Manhattan. It was decided to consider the tower as built up of four square corner towers and a central tower consisting of the elevator well. From base to summit the five towers are literally tied together with steel beams at the various floors.

It is not how much ground you have but how you build that determines the safe construction of skyscrapers or skypleasers. If the framework is strong and tenacious enough to hold up the weight, also to resist the wind which may blow against it, the problem of the building is solved. This is why these massive towers rising over 600 feet heavenward are as safe as if they were only a hundred feet high.

Thus say the engineers and architects. The view from the 500-foot level is superbly beautiful and rich with varied interest. Lower New York, flanked by the East and Hudson Rivers, is blocked out as clearly and regularly as a map. The foreshortening of the nearer office buildings is so pronounced that even the 300 foot piles look insignificantly small from the point 300 feet above their own roof line. Beyond, the many thickly nestled suburbs of New York are traced with surprising detail in this peerless picture.

ENGLISH SHIP LEADS ALL. The Lusitania, Great Britain's four-day boat, is another unique achievement of 1907. For all your typical British reputation for conservatism, when he does break from precedents he goes a little further than anyone

else, and in the building and launching and operating of the Lusitania, he has gone considerably ahead of all the other boats that traverse the ocean brine.

The Lusitania left Daunt's Rock, England, at 10:25 one Sunday morning and arrived in New York at 1:17 Friday morning, making the voyage in four days, nineteen hours and fifty-two minutes. This was her maiden trip, so she was not driven to her full capacity. Little by little the speed is to be extended until she has demonstrated her maximum transatlantic speed. Her average speed of twenty-four knots an hour is about half a knot faster than the highest average of the Kaiser Wilhelm and the Deutschland, Germany's two magnificent ocean greyhounds.

In the last fifty years of transatlantic travel there has been a steady increase in speed. In 1856 the Persia's record was nine days, one hour, and forty-five minutes. The first eight day boat was the Scotia, which in 1866 made the voyage in eight days, two hours and forty-eight minutes. The next year the City of Brussels had the honor of being the first seven-day boat. Her time was seven days, twenty-two hours, and three minutes. It took eleven years to bring the record below seven days. This was the feat of the Alaska.

In 1882 the Alaska made the trip in 6 days, 18 hours and 37 minutes. Seven years later, in 1889, the City of Paris, the first of the twin screw liners, reduced the time to 5 days, 19 hours and 18 minutes. The four-day boat took eighteen more years to evolve, and without the Parsons steam turbine it might have been still longer.

SHIP COMPARED TO BUILDINGS.

If the Lusitania were placed along side the Capitol at Washington it would exceed the main building in length by 24 feet, and in height by 39 feet. If the keel of the ship were resting at the ground level of the Capitol several of its upper decks would project above the top of the balustrade of the main building. The top of the smokestacks would reach nearly to the springing of the dome.

If the Lusitania were taken to New York and set up in Broadway and one side placed against the face of the buildings on one side of the thoroughfare, the other side of the ship would extend 28 feet into the buildings on the opposite side; and the roof of the cabins on the topmost deck would be about even with a six-story building.

The average cabin of this 1907 ocean liner has 50 per cent more space than the cabins in any other ship. There is room for 540 first-class passengers, 460 second-class and 1,000 third-class. Since the crew number 800, the

complete population of the steamship is about 1,300 souls.

To drive the Lusitania at its remarkable speed 1,000 tons of coal is used a day. This stupendous amount is not unusually large in proportion to the size of the ship, the number of passengers carried, and the reduction by half a day of the time of passage.

WAR BALLOONS COME TO STAY.

It was natural that the French, the nation of engineers who developed the automobile and the motor boat, should have been the first to turn their attention to the air and give official recognition to the motor-driven balloon. The first of the new dirigibles, the Lebaudy II, La Patrie, Republic, and one other which is at present building. The German army has the Zeppelin, the largest airship ever built; the Gross and the Parseval, while England has finished and successfully tried the Nulli Secundus.

The Lebaudy II seems to have been a success almost from the start. The military authorities were so impressed by its fast and reliable voyaging that it was bought for the aeronautical corps of the army. It was subjected to a long series of experiments, which furnished the data on which three other dirigibles were built. The Zeppelin has done some excellent work and has made an official speed of 70 miles an hour.

The largest dirigible balloon in the world was built by Count Zeppelin and sold to the German Government. It is 40 feet in diameter, 420 feet in length. It carries two engines of 80-horsepower, each driving twin propellers. Despite its own great weight the Zeppelin is claimed to be able to carry 100 passengers, and has been used for freight and passenger traffic of the Union Pacific system between Central California and the east. Besides this, in a distance of thirteen miles the line rises nearly 7,000 feet, and the road is single track, full of the characteristic sharp grades of the western mountain summit divisions, and includes over 21 miles of tunnels and snow sheds.

GREAT EARNINGS OF RAILS.

The railroad system of the United States outranks in mileage and business all other railroads of the world in the same way as the shipping industry of Great Britain outranks that of every other maritime nation, and the special sphere of industrial activity in which it has achieved its most marked and individual success is considered by many of the experts to be our western system of railroads.

The number of miles of railroad under operation is 222,633, an increase of 5,000 miles in the year. On these roads there were carried over 815,000,000 passengers and 145,000,000 tons of freight, the corresponding earnings of passenger traf-

THE BRITISH BALLOON.

During the last month or two the aeronautical corps of the British army has made some successful tests of its first practical dirigible, the Nulli Secundus, which is slightly over 20 miles an hour.

The Nulli Secundus has been in the stocks for some six years, and it is thought might still be there were it not for the efforts and energy of the American, Col. S. R. Goddard, inventor of

manlifting kites. He was shown the partly built ship and asked to help finish it. He bought the engine for the Government, designed the engine bed, the supports and the devices for carrying the power from the engine to the shafts. The entire power-producing part of the ship was his design, and a great deal of it was made at the forge, lathe and bench with his own hands. He also designed all the aeroplanes, or wings, by which the ship is steered.

The Nulli Secundus was driven to London and made successful maneuvers before gaping crowds who had been kept ignorant of the fact that a British military airship was building. The United States has built no aerial war vessels, but an aeronautical department has been added to the war department in appreciation of the fact that aerial militarism is an accomplished fact.

ELECTRICITY TO MOVE TRAINS.

The year 1907 must always be memorable in the history of electricity, because of the electrification of the service on three of the leading railroad systems of the United States. Early in the year the New York Central and Hudson River Railroad installed electric power for a distance of 24 miles. Six months later the New Haven system put into operation an electric system for 22 miles. And the same summer saw the Erie Railroad making an important change from steam to electric traction.

The Pennsylvania system will have electric service in the tunnels under the Hudson River. But by far the most ambitious scheme in electrification anywhere in the world is that recently announced by the Southern Pacific Railroad Company for a distance of 135 miles in California.

This scheme is doubly ambitious because these 135 miles of road lie over a mountain system, and which on a large scale the freight and passenger traffic of the Union Pacific system between Central California and the east. Besides this, in a distance of thirteen miles the line rises nearly 7,000 feet, and the road is single track, full of the characteristic sharp grades of the western mountain summit divisions, and includes over 21 miles of tunnels and snow sheds.

EGYPT A GREAT SINNER--MUCH OF THE WORLD'S GOLD NEEDED FOR COMMERCE IS BURIED BY NATIVES--INDIA ALSO A SINNER IN THIS RESPECT--SUPERSTITION AND DISTRUST.

From time immemorial the hoarding of gold and other currency, and their consequent withdrawal from circulation has been regarded as an evil and as a menace to the state. The founder of Christianity in his parable concerning the talents commended those who had used the funds entrusted to them for the purposes of commerce, but denounced the man who had hidden his talent in the earth as an unprofitable servant, and as unworthy of confidence, consigning him to "outer darkness, where there shall be weeping and gnashing of teeth."

TORTURE WAS PUNISHMENT.

In the middle ages of Europe monarchs were wont to inflict all sorts of painful tortures upon their subjects whom they had reason to believe were given to the sin of hoarding, and the cruelties which they perpetrated upon their victims, far from exciting any pity, invariably met with popular approval, since they helped to restore to circulation money that had been hidden away. And even to this day, in those countries of Asia and Africa that are still subject to native rule, the suspicion of possessing secret hoards is considered by the people as ample warrant for the barbarous measures adopted by those in authority to compel the surrender of the treasure, which, even if confiscated, nevertheless is brought again into use.

EGYPT A SINNER.

Civilized governments in these modern times have no such means at their disposal, a fact which has been brought home recently with particular force to the English in their administration of Egypt. Thus, according to the recent report of the Egyptian Estates Commission, Limited (a semi-official concern), close upon \$100,000,000 goes into the pockets of the Egyptian people in payment of the cotton crop each year, and of this vast sum the greater part disappears from circulation, being hoarded by the native landowners, farmers and fellahs.

The figures were subsequently confirmed by Lord Cromer in the speech which he delivered last month at the Guildhall on the occasion of the presentation to him of the Freedom of the City of London. He added that most of the money brought into Egypt to finance the native cotton crop, all of which is exported, is in gold, and that in his estimate probably \$80,000,000 or \$100,000,000 in gold reaches each year from circulation in Egypt. Some of it is converted into jewelry. But the bulk of it remains hoarded by the natives, and Lord Cromer cited the story of an Egyptian acquaintance of his who on dying left a fortune of \$500,000, the entire sum being found in gold coin in his cellar.

SACKS OF GOLD.

Lord Cromer also mentioned the case of a village sheik, who, having purchased property to the extent of \$125,000, appeared a couple of hours after the contract had been sealed, with a train of donkeys, bearing the money in sacks of gold, the appearance of which showed that they had been buried in the gardens. I myself can recall a financial transaction with a great Egyptian dignitary involving a sum of about \$2,500, which he paid me, not by check, but in English golden sovereigns, dating from the middle of the eighteenth century, and indicating from the fresh-

ness of their appearance that they had been withdrawn from circulation not long after being minted, and had been hoarded ever since.

PERSISTENT HOARDER.

In fact, the most extraordinary hoarders could be told in this connection; and the consequence is that no matter how rich the cotton crop, nor how great the flood of gold that pours into the treasury of the Nile each year from abroad, the financial stringency there remains so great as to seriously handicap the progress of the country.

Khedive Ismail and his predecessors on the throne of Mehmet Ali, in what are sometimes described as the "unregenerate days" of Egypt, were accustomed to deal with this problem in an extremely drastic and thoroughly Oriental manner. Whenever people were believed to be engaged in the hoarding of gold, they would at once be made the subject of the most cruel persecution.

INDIA GATHERS STEADILY.

During the last forty years the imports of gold into India have exceeded the exports by over \$1,000,000,000—that is to say, 1,000 millions of dollars. These are not only most conservative figures, but necessarily extremely incomplete, and it is possible that the real sum is double or treble that amount. No trace of the money is to be found in the financial institutions of India. As pointed out by Thomas Jefferson Hurley, of the American Institute of Mining Engineers, in his pamphlet on the gold production of the world, published some ten years ago: "There is a yellow stream flowing into India year by year. There is no end to that stream; it is always flowing. The money does not reappear in the Indian banks. The soil of India absorbs the golden flood, and the sands of the desert swallow the overflow of the great rivers."

When it is remembered that this work of absorption has been going on with little interruption for ten centuries, and still continues—already in 1699 the French envoy, Bernier, in a report to his government, dated from Delhi, wrote that "the gold of the world, and the silver, too, for some time, finally flows into India as into an abyss, from which there is no return"—it is possible to form some faint idea of the colossal amount of treasure that is comprised in the hidden hoards of this country.

ALL CLASSES ALIKE.

All classes in India, and in fact throughout the Orient, are afflicted with the time-honored habit of hoarding gold, which the influence exercised during centuries by the Mohammedans, as well as by the Hindu and other Asiatic races, has in course of time extended to the Hindu and other Asiatic races. In fact, the hoarding goes on all over Asia and Africa.

Experts, such as the director of the United States mint at Washington and other authorities of equal standing, have no difficulty in forming an approximate estimate of the world's output of gold in the last two hundred years. But the most remarkable feature thereof is to be found in the fact that although since the discovery of gold mines in Australia, South Africa, California and the Yukon, there has been an enormous increase in the production of the yellow metal, yet there has been no corresponding growth in the monetary circulation thereof.

While undoubtedly Asia and the northern and central regions of Africa are responsible for the disappearance of the greater amount of gold from circulation, the people of Europe and of America are far from being free from blame. In Europe the hoarding of money and its resultant disappearance from circulation are mainly

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Poets Addicted To Drugs or Liquors

A REMARKABLE GROUP WHO MAY BE DESCRIBED AS POETS OF QUINCEY, POE, JAMES THOMPSON, DELIRIUM—COLERIDGE, DE AND FRANCIS THOMPSON—THEIR PECULIAR QUALITY.

The death of Francis Thompson, an event noticed briefly in these columns has attracted much attention in his native England, where his following, though small, seems to have been larger than here. A poet of "celestial vision" is the epithet by which Wilfrid Meynell describes him in the London Athenaeum. He was, however, beset with bodily ailments:

Like De Quincey, whose writings he took into his blood, Thompson had a nervous illness in Manchester; like De Quincey, he went to London, and knew Oxford street for a stony-hearted stepmother; his wealth, like De Quincey's once, lay in two volumes, for he carried Aeschylus in one pocket Blake in the other; and the parallel might have further extension, were it to profit.

That is, like De Quincey, he "doctored himself disastrously with laudanum." These physical and intellectual afflictions were shared by still another poet, James Thomson, who died in 1852, wrecked by drink. James Thomson, too, had taken both De Quincey and Blake into his blood. Thomson's "To Our Ladies of Death" was directly inspired by the sisterhood of Our Ladies of Sorrow in De Quincey's "Suspense of Profundity," and Thomson's lines on Blake in London are a cry from his own solitary soul:

He came to the desert of London town
Gray miles long;
He wandered upon and he wandered down,
Singing a quiet song.

He came to the desert of London town
Mirk miles broad;
He wandered up and he wandered down,
Ever alone with God.

There thousands and thousands of human kind
In this desert of brick and stone;
But some were deaf and some were blind,
And he was there alone.

The last line of the first stanza is a clear echo from the brook in the opium-eater Coleridge's "Ancient Mariner"—the brook

That to the sleeping woods all night
Sings a quiet tune.

To this group, we may add one more notable name, that of the American disciple of Coleridge, Poe. Blake who was perhaps half-insane, needed neither alcohol nor drug to open his eyes to the world of strange shapes and terrors; but all the others—Coleridge, De Quincey, Poe, James Thomson and Francis Thompson—may have swayed in part either to stimulant or

narcoptic their clairvoyant powers, their penetrate insight into the infinite mystery of the night that encompassed our common daylight life.

In this peculiar quality they stand by themselves. We might call them poets of delirium or of phantasmagoria, but that these words carry too strong a connotation of brutishness or sheer irrationality. They are poets rather of the dream that unlocks the gates of heaven and hell. To Blake the Land of Dreams is better far. Above the light of the Morning Star.

And so it must have been to the author of "The Ancient Mariner," "Christiana" and "Kubla Khan," and to De Quincey, with those prose passages from the "Confessions" and the "Suspiria," builded "upon the bosom of darkness, out of the fantastic imagery of the brain, cities and temples beyond the art of Phidias and Praxiteles, and the splendour of Babylon and Heliopolis"; to De Quincey, who at the bedside of his dead sister heard a solemn wind begin to blow, "the saddest that ever heard. It was a wind that might have swept the fields of mortality for a thousand centuries, the one great audible symbol of eternity."

And Poe belongs among them, too, with his somber imaginings of "The Raven" and of "Dreamland," a limbo of

Bottomless vales and boundless floods,
And chasms and caves and Titan woods,
With forms that no man can discover.

James Thomson is perhaps less known, but no one who has read "The City of Dreadful Night" can deny his membership in the brotherhood.

As I came through the desert thus it was,
As I came through the desert: Eyes of fire
Glared at me throbbing with a starved desire;
The hoarse and heavy and carnivorous breath
Was hot upon me from deep jaws of death;
Sharp claws, swift talons, fleshless fingers cold
Plucked at me from the bushes, tried to hold;

Francis Thompson's lines are often obscure, but that obscurity is broken, from the hid battlements of Eternity, by such flashes as this vision of the Eternal:

I dimly guess what Time, in mists confounds;
Yet ever and anon a trumpet sounds
From the hid battlements of Eternity,
Those shaken mists a space unsettle, then

Round the half-glimpsed turrets slowly wash again;
But not ere him who summoneth I first have seen, enwound,
With glowing robes purpureal, cyprian, rose-crowned;

His name I know, and what his

Modern Giants Of the Ocean

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There is one very striking fact which has doubtless impressed itself upon the minds of those who have followed the extraordinary development of Atlantic liners during the last ten or twenty years. Not only are the floating floating levitators today which are nearly three times as long and almost 200 feet longer than the biggest Atlantic liner of ten or twelve years ago, but these mammoth vessels attain a far greater speed than their smaller rivals.

Within a 1,000, the Hamburg-American Line, of Germany, a vessel 660 feet in length, whose gross tonnage is 16,500, earned for itself the distinction of being the fastest steamship in the world by maintaining a speed of 23½ knots per hour—which is equal to 27 miles an hour.

It was the last word in quick sea traveling. But, as everyone knows, the Lusitania, the mammoth Cunarder, which is almost twice as heavy and 125 feet longer than the Deutschland, has proved that it was a bad prophecy by showing herself quite capable of maintaining her contract speed of 25 knots (nearly 29 miles) an hour.

Even that, however, is not the Lusitania's limit; but it is quite sufficient for the admiralty, who have subsidized her building, as well as that of her sister ship, Mauretania, both of which will be available as armed cruisers or scouts if required by the English Government.

The speed attained by the Lusitania and the 31 miles accomplished the other day by the Mauretania, are not due to the fact that the Cunard line, but also a huge success for C. A. Parsons, the famous engineer, who has developed the steam turbine to that degree of efficiency which has enabled these floating cities to travel through the water at such a speed.

Until the advent of the turbine, the shaft of a liner's propeller was always rotated by driving a piston backwards and forwards through a steam cylinder on the exact lines of the ordinary steam engine. In the turbine we have a cylinder, but instead of the steam driving the piston rod, which in turn rotates the shaft of the propeller, it acts in a more direct manner upon a huge drum fixed to the shaft. On the outside of this drum, and affixed to the inner surface of the cylinder in which it revolves, are two sets of blades, the Lusitania, 1,500,000 projecting hollow-faced blades or vanes, the longest being 22 inches and 1½ inches wide.

The fixed blades on the cylinder are slanted slightly in an opposite direction to those which revolve with the drum. Between these two sets of blades the steam is sent with terrific force. The fixed blades, acting as a sort of guide to the steam, pass it to

To and fro
In ascension and demission
The star-flecked feet of Paradise.

But with visions as far asunder as hell and heaven, all these poets have clung to the one certainty that we are such stuff as dreams are made of.—New York Post.

"BLEST BE THE TIE."

Not one in a thousand of those who sing that good old hymn, "Blest Be the Tie That Binds," knows the history of its homely origin.

It was written by the Rev. John Fawcett, who, in the latter part of the eighteenth century, was the pastor of a poor little church in Lockshire, England. His family and responsibilities were large, his salary was less than \$4 a week.

In 1772 he felt himself obliged to accept a call to a London church. His farewell sermon had been preached, six wagons loaded with furniture and books stood by the door. His congregation, men, women and children, were in an agony of tears.

Mr. Fawcett and his wife sat down on a packing case and cried with the others. Looking up, Mrs. Fawcett said: "Oh, John, John, I cannot bear this! I know not where to go."

"Nor I, either," said he. "Nor will we go. Unload the wagons and put every thing back in its old place."

His letter of acceptance to the London church was recalled, and he wrote this hymn to commemorate the episode.—Church Electric.

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